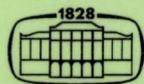


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ACTA LINGUISTICA HUNGARICA

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PREFACE

The present issue of *Acta Linguistica Hungarica* is special in two important ways. First of all, with this issue we celebrate the 50th anniversary of our journal, which was launched by the Hungarian Academy of Sciences in 1951 under the name *Acta Linguistica Academiae Scientiarum Hungaricae*. The aim of the journal was to publish scholarly papers in English, French, German, Italian and Russian "on Finno-Ugric, Slavonic, Germanic, Oriental and Romance linguistics as well as general linguistics". The first issue contains a brief introduction, whose content was symptomatic of the political climate of the early fifties in Hungary (as well as elsewhere in Eastern Europe) and is worth quoting in full: "The aim of the Hungarian Academy of Sciences in starting the *Acta Linguistica* is to contribute to the improvement of international relations in progressive science, to the further development of science, to the cause of peace, progress and the closer friendship of the peoples." The Introduction was published in four languages starting with Russian followed by German, French and English. Fortunately, the scholarly papers in the journal do not show any traces of the ideological pressure which was so typical of that time. The editor of the journal was Julius Németh, an internationally renowned Turcologist, who was at the same time the director of the Research Institute of Linguistics of the Hungarian Academy of Sciences (founded in 1949). Though he was a historical linguist, he was convinced of the importance of synchronic studies of language (a research group working on the generative grammar of Hungarian was formed at his institute in the early sixties). The Editorial Board was composed of Dezsó Pais, the leading scholar in Hungarian linguistics at that time, Zsigmond Telegdi, who was an expert both in Iranian studies and in general linguistics, and Miklós Zsirai, an outstanding Finno-Ugrist. After the death of Julius Németh in 1975, the Romanist and general linguist Joseph Herman and the Germanist Claus-Jürgen Hutterer became the editors of the journal, five years later Hutterer, who had moved to the University of Graz, was replaced by Ferenc Kiefer who has been the managing editor of the journal since 1988.

In the fifties and sixties most papers of the journal were written in German, followed by French. English gained ground from the seventies onward. At the beginning approximately half of the papers were on historical linguistics.

tics, but their number slowly diminished toward the end of the sixties. At the same time, the journal became more international. While in the early issues all contributors were Hungarian scholars (in fact, *Acta Linguistica* used to be the exclusive foreign language publication for Hungarian linguists in the fifties), from the sixties onward more and more foreign scholars contributed to the journal, which by today has become truly international. Thematically, during the first two decades, most papers were devoted to Uralic (including Hungarian) linguistics, consequently it was an indispensable source for scholars working in this field, though it was less known outside of the field. In the meantime there has been a considerable shift in the scope of the journal, as stated on the cover: “*Acta Linguistica Hungarica* publishes papers on general linguistics with particular emphasis on discussions of theoretical issues concerning Hungarian and other Finno-Ugric languages. Papers presenting empirical material must have strong theoretical implications. The scope of the journal is not restricted to the traditional areas of linguistics (phonology, syntax and semantics, both synchronic and diachronic), it also covers other areas such as socio- and psycholinguistics, neurolinguistics, discourse analysis, the philosophy of language, language typology, and formal semantics.” This is clearly a considerable shift in content.

To ensure quality it seemed to be useful to publish thematic issues. Thus, for example, two double issues were devoted to Hungarian syntax (guest edited by Katalin É. Kiss, Vol. 44/3–4 (1997) and Vol. 45/1–2 (1998)), one double issue to semantics (Vol. 46/1–2 (1999)), another one to the grammar and sociolinguistics of Gipsy (guest edited by Zita Réger and Katalin Kovalcsik, Vol. 46/3–4 (1999)). Vol. 47 (2000) contains a selection of papers presented at the 8th International Morphology Meeting held in Budapest, 12 through 14 June 1998, Vol. 48/1–3 (2001) is devoted to problems of the mental lexicon (guest edited by Zoltán Bánréti), Vol. 48/4 (2001) and Vol. 49/1 (2002) to the history of Hungarian (guest edited by Lea Haader), Vol. 49/3–4 (2002) to phonetics and phonology (guest edited by Mária Gósy).

And now we come to the second anniversary which makes this issue special. The present issue of *Acta Linguistica* contains a selection of papers presented at the 10th International Morphology Meeting held in Szentendre (Hungary), 9 through 12 May, 2002. With this issue we thus celebrate a second jubilee: the 10th International Morphology Meeting. At the very beginning of the eighties it occurred to Professor Wolfgang Dressler and myself that it would be timely to launch a series of conferences devoted to theoretical morphology. Both of us had been working on morphology earlier, Wolfgang Dressler had published a book on morphophonology in 1977 (*Grundfragen*

der Morphonologie, Vienna) and I had published a generative monograph on Swedish (*Swedish Morphology*, Stockholm, 1970) and another one on French morphology (*Generative Morphologie des Neuf Französischen*, Tübingen, 1973). Morphology was still a neglected field of research and we were convinced that a series of meetings devoted to morphology would be more than welcome. The first meeting was organized in Veszprém (Hungary) in 1982 with a small number of participants, which was followed by a second meeting in 1986, again in Veszprém, which was already a truly international meeting with almost fifty participants (papers were presented, among others, by Stephen Anderson, Robert Beard, Manfred Bierwisch, Geert Booij, Rudolf Botha, Wolfgang Dressler, John Jensen, Dieter Kastovsky, Elene Kubrjakova, Jaap van Marle, Franz Rainer, Tom Roeper, Soledad Varela, Irene Vogel, Wolfgang Wurzel, and Wiecher Zwanenburg). Unfortunately, no proceedings were published. Morphology became a hot topic. We then decided that there should be a morphology meeting every second year alternating between Austria and Hungary (in the late nineties, a Mediterranean Morphology Meeting (MMM) was added to the Austro-Hungarian ones so that now we are in the fortunate situation of having a morphology meeting every year, which testifies that morphology has become a well-established field of research). Consequently, the third meeting was organized by Wolfgang Dressler in Eisenstadt (Austria), the fourth meeting took place in Hungary again. From the fourth meeting onwards, a selection of papers presented at the Hungarian meetings was published in *Acta Linguistica* (4th meeting: Vol. 40/1-2 (1991-1992); 6th meeting: Vol. 43/1-2 (1995-1996); 8th meeting: Vol. 47/1-4 (2000)).

The present anniversary issue is devoted to the problem of prefixation, which was the main topic of the 10th meeting. The authors of papers dealing with morphological topics other than prefixes were not invited to contribute. All papers were refereed by at least two referees whom we wish to express our thanks at this place.

Farrell Ackerman ("Lexeme derivation and multi-word predicates in Hungarian") discusses several types of phrasal predicates in Hungarian, in particular causative formation, causal predicate formation, so-called reiterated activity formation expressed by reduplicated preverbs, and the interaction of these operations with category changing derivation. The theoretical background of the analysis is the word and paradigm model of morphology combined with the realizational approach of morphological exponence.

Laurie Bauer ("English prefixation—a typological shift?") observes that in Old English there were a number of prefixes which were unstressed and phonologically constrained. These prefixes lost ground, they have either been

replaced by corresponding learned prefixes, or have simply become marginalized. At the same time, the prefix-like elements which are the most productive in present-day English carry their own stress, are phonologically unconstrained, and many of them are semantically much more lexeme-like. The more compound-oriented modern stage is being achieved through a conspiracy of different changes which have the combined effect of leaving erstwhile prefixal elements looking more like lexemes.

Heike Behrens approaches the problem of prefixation from a psycholinguistic point of view ("Verbal prefixation in German child and adult language"). The data show that the child starts to produce prefixed verbs and prepositional phrases very early. Also, the child's speech gets attuned to the precise frequency distribution of these constructions in the input. These findings support theories of linguistic relativity which emphasize the importance of the conventionality in language use for language processing and acquisition.

Corrien Blom and Geert Booij ("The diachrony of complex predicates in Dutch: a case study in grammaticalization") investigate the grammaticalization of words into prefixes via the intermediate stage of separable particles. The structural change of particles becoming inseparable prefixes is triggered by semantic change: the loss of independent semantic content, accompanied by other specific semantic developments, leads to the loss of syntactic independence.

The paper by Livio Gaeta and Davide Ricca ("Italian prefixes and productivity: a quantitative approach") investigates the Italian prefixes using basically Baayen's quantitative approach to morphological productivity. An improvement over Baayen's approach is achieved by calculating productivity values at equal token numbers for different affixes based on a 75-million-size newspaper corpus. Variably-sized subcorpora are sampled to compare affixes displaying different token frequencies. In this way the Italian productive prefixes *ri-* and *in-* can be ranked by productivity within their respective derivational domains. In addition, the impact of different derivational cycles on the measure of productivity can be dealt with in a satisfactory way.

Gerd Haverling's paper is devoted to Latin prefixes ("On prefixes and actionality in Classical and Late Latin"). Early and Classical Latin had a rich and complex system of verbal prefixes which were used to perfectivize or to mark the beginning or the end of an activity or process. Also, the opposition between dynamic and non-dynamic as well as between transitive and intransitive verbs was expressed by various prefixes. In later centuries, the difference between prefixed and unprefixed verbs became blurred and a new system arose. The changes also affected the relationship between the

perfect and imperfect tenses. In Romance the functions of the old actional forms are expressed by means of the definite and indefinite articles.

Ferenc Kiefer and László Honti discuss Uralic prefixation (“Verbal ‘prefixation’ in the Uralic languages”). The paper provides an overview of preverbs and prefixes in the Uralic languages and describes the possible positions of preverbs. The discussion of the grammaticalization of preverbs is based on Hungarian since appropriate data are available for Hungarian only. It is shown that the development of aspectual and aktionsart-meaning may follow two paths: it may either follow through the stages ‘adverbial meaning > adverbial meaning and aspectual meaning > aspectual meaning > aspectual meaning and aktionsart-meaning’ or through the stages ‘adverbial meaning > adverbial meaning and aspectual meaning > aspectual meaning and aktionsart-meaning’. The first route is typical of the old layer of preverbs, the second one of more recent preverbs.

Marianne Mithun argues (“Why prefixes?”) that hypotheses about the functional advantages of having suffixes rather than prefixes, such as the cognitive simplicity of cross-category harmony between syntax and morphology or preferences for processing the lexical meaning in stems before the grammatical material in affixes, cannot constitute explanations in themselves without accounts of the mechanisms by which the advantages are translated into grammatical structure. It is also shown that the numerous exceptions to such hypotheses can be explained when the individual histories of the affixes are considered, including both their sources and the steps by which they develop.

Coralie Roger discusses the derivation of change-of-state verbs in French (“Derived change-of-state verbs in French: a case of semantic equivalence between prefixes and suffixes”). She argues—using Danielle Corbin’s morphological model—that in French there is a neat semantic distribution between prefixes and suffixes because each affix is specified by its semantic instructional identity. However, the affixes *a-*, *en-*, *é-* and *-is(er)*, *-ifi(er)* seem to constitute exceptions in this case since all of them are used to derive deadjectival change-of-state verbs. She proposes that the notion of ‘the paradigm of morphological processes’ should be abandoned and the principle that each affix corresponds to just one word formation rule should be adopted instead.

Helma van den Berg’s paper deals with spatial prefixes in Dargi (“Spatial prefixes in Dargi (East Caucasian)”). In Dargi, too, prefixes have developed from adverbs. She argues that verbs that were historically derived by means of spatial prefixes should be considered to be bipartite stems on the synchronic level. Such stems seem to be a characteristic feature of the East Caucasian language family as a whole.

Jochen Zeller's paper is entitled "Word-level and phrase-level prefixes in Zulu". The article investigates two strategies of relative clause formation in Zulu, a Bantu language spoken in South Africa. The standard way of forming a relative clause in Zulu involves a prefix which is attached to the predicate of the relative clause. In this strategy, the morpheme of relative concord expresses agreement with the subject of the relative clause. In a second strategy, the morpheme of relative concord seems to be prefixed to the first word of the relative clause; in this position, it agrees with the head noun. The main claim of the article is that the second strategy of relative clause formation in Zulu is an example of phrasal affixation.

The papers in the present volume approach the problem of prefixation from various points of view. Prefixation can be considered from the point of view of grammaticalization, it can also be examined in relation to word formation, especially compounding, or it can be approached from a typological perspective.

Ferenc Kiefer

LEXEME DERIVATION AND MULTI-WORD PREDICATES IN HUNGARIAN*

FARRELL ACKERMAN

Abstract

This paper focuses on predicate formation operations which affect the value and determination of lexical properties associated with Hungarian phrasal periphrastic predicates and, hence, on lexeme-formation (Aronoff 1994). Recent work, following the word and paradigm morphological models of Robins (1959), Matthews (1972), among others, has argued that periphrasis or multi-word expression is often best viewed as a type of morphological exponence, i.e., as the product of morphological rather than syntactic operations, contra many current theoretical proposals. In line with this morphological perspective, I argue that, as in inflection, periphrasis is a type of morphological exponence for lexeme-formation. In support of this claim I explore lexeme-formation for several sorts of phrasal predicates in Hungarian (Ackerman 1987; Komlósy 1992; Kiefer Ladányi 2000, among others), in particular causative formation, causal predicate formation, so-called reiterated activity formation expressed by reduplicated preverbs, and the interaction of these operations with category changing derivation. The general background for the analysis will be the Realization-based Lexicalist Hypothesis (Blevins 2001) and realizational approaches to morphology (Stump 2001) which are compatible with theories subscribing to representational modularity (Jackendoff 1997; 2002).

1. Introduction

Hungarian, like several other Uralic languages (see Kiefer–Honti 2003) contains phrasal predicate constructions in which a syntactically separable preverb (PV) combines with a verbal stem (Vstem). The basic properties of such constructions have been characterized as follows:

“In verbal constructions the preverb may keep its original adverbial meaning (e.g., *felmegy* ‘go up’, *kimegy* ‘go out’), or have an aspectual meaning (e.g., *megír* ‘write up’, *megcsókol* ‘kiss (once)’), or become part of a non-compositional idiomatic unit with the verb (e.g., *felvág* ‘show off’ [...]- in addition to literal ‘cut up’).” (Kenesei et al. 1998, 329)

* I thank the participants at the 10th International Conference on Morphology at Szentendre, Hungary as well as two anonymous and very helpful reviewers for comments on an earlier version of this paper.

“Aktionsart/aspect is an added property of morphologically compound verb constructions introduced by a preverb or affix.” (Kiefer–Ladányi 2000, 476)

“One can distinguish the following main types of functions concerning the relation between the preverb verb construction and the simple verb without a preverb:

1. The preverb indicates direction of activity;
2. The preverb expresses verbal aspect;
3. The preverb modifies the meaning of the verb;
4. The preverb changes the syntactic roles of the verb;
5. The preverb is a means of verb formation.” (Soltész 1959, 155)

In the discussion which follows, it is crucial to keep in mind that the functions mentioned by these authors are not disjunctive, but that all can be true simultaneously.¹

The strategy of combining PV and Vstems is perhaps the most productive modern means of predicate formation in Hungarian, although constraints on the permissible combinatorics of (classes of) preverbs with particular (classes of) predicates is a wide-open research domain. The class of so-called **causal predicates** (see Ackerman 1987) is typified by the examples in (1) (examples adapted from Apreszjan–Páll 1982, 618):²

- (1) (a) A lány majd **meg** hal (bánatában) SIMPLE BASIC PREDICATE
 the girl almost PV die (sorrow-3sg-in)
 ‘The girl almost dies (in her sorrow).’
 meg hal ‘DIE <SUBJ>’
- (b) A lány majd **bele** hal a bánatába COMPLEX CAUSAL PREDICATE
 the girl almost PV die the sorrow-3sg-ill
 ‘The girl almost dies from her sorrow.’
 bele hal ‘DIE FROM <SUBJ, OBL_{CAUSE}>’
 OBL = ILL
- (c) A lány majd a bánatába hal **bele**
 the girl sometime the sorrow-3sg-ill die PV
 ‘It’s her sorrow that the girl will die from.’

¹ There are roughly two classes of elements which function as preverbs in Hungarian. Following Ackerman (1987) they are prefixal preverbs, i.e., those elements which do not evince a synchronic syntactic relation to the verb root and argumental preverbs, i.e., those elements which evince a synchronic syntactic relation to the verb root such as object/oblique incorporation, resultative predicates etc. For a recent examination of this taxonomy in connection with Hungarian aphasics see Kiss (2001).

² All of the Hungarian examples will be presented with the PV and V separated by a space in order to emphasize their independence. This conflicts with Hungarian orthography which represents them as a single word.

(1a) and (1b) systematically differ in their lexical properties, i.e., with respect to lexical semantics, valence, semantic arguments, grammatical functions, and case government, and thereby suggest the **lexicity** or lexical status of these constructions. These essential properties are displayed in the schematic lexical representations for *meg hal* and *bele hal*. In particular, whereas the simple predicate in (1a) requires a single argument, the complex predicate in (1b) requires two arguments with its OBL argument designating the cause of the state denoted by the predicate. In (1c) the PV is separable from the verbal stem under language particular specifiable syntactic conditions, hence the phrasality or phrasal status of these constructions.

There has been increasing recognition over the past 10 years of the large challenges to linguistic theory that are presented by phrasal predicates in general as well as their Hungarian variants in particular.³ From a descriptive perspective there are some common cross-linguistic properties of phrasal predicates.⁴ (Classes of) phrasal predicates can exhibit predictable and systematic or somewhat idiomatic meaning as well as syntactic differences relative to their simple predicate bases, i.e., phrasal and simple predicates can differ with respect to lexical properties (see Soltész's properties 3 and 4 above). Phrasal predicates generally become synthetic morphological entities when they undergo category changing derivation.⁵ Finally, the pieces of phrasal predicates exhibit their own language particular syntactic distributions depending both on systemic properties of specific grammars and sometimes on the properties of specific syntactic constructions in which they appear.

³ These speculations can be roughly classified into two basic approaches, which for the most part pay little attention to one another. The proposals for Hungarian parallel those found more broadly for the languages of the world. Within Hungarian there is a line of lexical/morphological analysis of these constructions which is associated with Ackerman (1982; 1987), Konlósy (1992). In contrast, there is a syntactocentric line of inquiry typified by such proposals as that in É. Kiss (1987), Koopman-Szabolcsi (2000) (and references therein). Both interpretative approaches are anteceded by several much earlier and often more insightful works such as Simonyi (1889) and Molecz (1900), among others.

⁴ See Dahlstrom (1996) on Fox, Rice (2000) on Athapaskan languages, Simpson (1992) on Walpiri, O'Herin (1998) on Abaza, Stiebels-Wunderlich (1994) on German, among others.

⁵ See Ackerman (1987) and Ackerman-LeSourd (1997), however, for instances where separability is maintained with deverbal adjectives when such derivatives are used predicatively. For example, separability of the PV is maintained when the adjectival form of a complex predicate with the suffix *-ható* 'able' as in e.g., *meg old-ható* 'solvable' is used predicatively. In negative clausal contexts the PV appears postposed, as in its verbal predicate use, e.g., *nem oldható meg* 'not solvable'.

From a theoretical perspective, as observed in Nash's (1982) neglected and insightful cross-linguistic investigation into preverbs, phrasal predicates constitute an "analytic paradox". As noted by Watkins (1964), Indo-European PV-Vstem constructions evince the profile of "single semantic words", thus resembling typical lexical items, while displaying the separability of their pieces, thus allowing behaviors characteristic of independent syntactic entities. Constructions of this sort, consequently, raise fundamental questions concerning how to account for both their lexical and syntactic aspects in a principled fashion.⁶ Moreover, in a related, but independent fashion, they lead one to inquire into how any proposed analysis will impact on the simplest interface assumption between words (simple or complex) and their syntactic expression? Perhaps the simplest interface between wordforms (either simple or complex) and their syntactic expression can be stated as follows:

(2) A word *w* is a synthetic member of category *X* and *w* is inserted as the head of *XP*.

Following recent research within inferential-realizational theories of morphology (see Stump 2001 for discussion) I will address the paradox raised by phrasal predicates and the related morphology-syntax interface issue from the perspective of word-formation or lexeme-formation operations within the morphological and lexical components of the grammar. As in Ackerman (in press) and Ackerman–Stump (to appear) the operative conception of the lexicon is that component which has "to do with lexemes" (Aronoff 1994): this follows the tradition of Sapir (1921) and Matthews (1972), among others. Aronoff (1994, 11) provides the following characterization of a lexeme:

"[...] a lexeme is a (potential or actual) member of a major lexical category, having both form and meaning but being neither, and existing outside of any particular syntactic context."

In the present context lexemes will be construed as entities with lexical properties which represent, following standard lexicalist assumptions, lexical semantics, lexical category, valence, semantic properties of arguments, specification of the grammatical function status for semantic and non-semantic arguments, as well as case government requirements. The lexicon will be

⁶ A recent effort to address this paradox has been offered within an optimality theoretic perspective by Ackema–Neeleman (2001) who recognize similarities in spirit between their proposal and that in Ackerman–LeSourd (1997). In fact, the present proposal shares some of the central conceptual issues of the former proposal, although they receive a quite different interpretation here and this informs the proposed implementation.

interpreted as the locus for entities, i.e., lexical constructions, bearing such properties, and as housing the operations responsible for creating entities with such properties, i.e., lexeme-formation operations.⁷ More specifically, I will assume that lexeme formation operations are responsible for relating lexical properties of the lexical representation for the (class of) lexeme L to (some class of) lexeme L' . (See below for rule format). Moreover, following the Principle of Lexical Modification (*aka* Principle of Lexical Adicity in Ackerman–Webelhuth 1998),⁸ only lexical (not syntactic) operations can alter or affect information associated with lexical representations.

That is, the Principle of Lexical Modification functions as a sufficient condition for determining the lexical status of constructions, i.e., if there is evidence of lexical effects, then the responsible operation is lexical/morphological, not syntactic. Given this, evidence for lexical effects precludes the various kinds of syntactic treatments of word-formation current in the field.

In the remainder of this paper I will argue that Hungarian phrasal predicates are best interpreted as periphrastic lexical constructions analyzed in terms of lexeme-formation operations within an inferential-realizational lexicalist perspective. In particular, I will provide evidence for the claim that lexeme formation and inflection both permit periphrastic realization in Hungarian and I will explore how lexeme formation operations interact with the construct derivational paradigm. A theoretical consequence of this proposal is that general assumptions and mechanisms of realizational models straightforwardly extend to account for phrasal predicates when periphrasis is permitted to be a possible kind of exponence in lexeme-formation, as it is for inflection. Consequently, there is no empirical or theoretical need to appeal to syntactic mechanisms in accounting for periphrastic constructions, except for describing the surface distribution of syntactically separate exponents.

The paper proceeds as follows. In section 2, I provide background assumptions for an inferential-realization account. Section 3 presents the rele-

⁷ This adapts ideas from Matthews (1972; 1991), Aronoff (1994), Beard (1995), Booij (2002), among others.

⁸ This, in effect, amounts to a Generalized Direct Syntactic Encoding Principle following the lead of LFG's Direct Syntactic Encoding Principle which specifically addresses grammatical function alternations. It should additionally be noted that Lexical Adicity is obviously an assumption with consequences for the nature of a compatible theoretical proposal and as such is on par with assumptions such as binary branching or functional categories as syntactic heads where these too have consequences for compatible theoretical proposals. These differences in assumptions simply reflect different intuitions concerning the nature of grammar organization and the way these hypotheses are cached out formally.

vant data from Hungarian and their morphological analysis. Section 4 identifies basic results and general conclusions.

2. Theoretical preliminaries: Realization-based Lexicalism

In line with the view of the lexicon as the repository of lexemes in a language as expressed above, Blevins (2001) characterizing the proposals of Ackerman–Webelhuth (1998) has suggested positing the Realization-based Lexicalist Hypothesis. It is formulable as follows:

Lexicalism is a hypothesis about the correspondence between content-theoretic aspects of lexemes (associated with lexical and/or morphosyntactic property sets) and the forms that realize them.

Such a view of lexicalism is intentionally designed to reflect an intimate connection with what Stump refers to as an inferential-realizational approach to morphology.⁹ This approach is **inferential** rather than **lexical** (in the sense that it represents inflectional exponents not as lexically listed elements, but as markings licensed by rules by which complex word forms are deduced from simpler roots and stems) and it is **realizational** rather than **incremental** (in the sense that it treats a word's association with a particular set of morphosyntactic properties as a precondition for—not a consequence of—the application of the rule licensing the inflectional exponents of those properties). The specific interpretation of this approach that I will adopt follows that found in Ackerman–Stump (to appear), Ackerman (in press). According to this approach, adopting Beard's **Separationist Hypothesis**, a language's lexicon is bipartite

⁹ It should be noted that the present interpretation of lexicalism differs most sharply from traditional lexicalist views in permitting the periphrastic realization of lexical representations. In general, it differs far less from standard lexicalist positions than, say, the Minimalist Program or Distributed Morphology differ from syntactic proposals that were current when the basic lexicalist assumptions were first formulated some 20 years ago. It is intriguing to note in this connection that such a small modification of lexicalism (with admittedly consequential ramifications for lexicalist proposals) may be sufficient to address all reasonable syntactocentric complaints against standard lexicalism without the sorts of radical reconceptualizations and modifications undergone by syntactocentric approaches over the past 20 years. The present interpretation adapts ideas from Robins (1959), Matthews (1972), Aronoff (1976; 1994), Zwicky (1985; 1989, 144), Anderson (1992), Stump (2001), Sadler–Spencer (2001), Ackerman–Stump (to appear), Booij (2002).

with respect to content and form.¹⁰ Specifically, Ackerman and Stump postulate the existence of a **lexemicon**, whose individual entries are lexemes bearing lexical meanings and are associated with various lexical syntactico-semantic properties, and a **radicon**, whose individual entries are roots, i.e., forms. With respect to inflection, every lexeme *L* of a language's lexemicon has an associated **syntactic paradigm** *SP(L)* such that each cell in *SP(L)* consists of the pairing of *L* with a complete set of morphosyntactic properties $\{\sigma\}$, i.e., *SP(L,σ)*. Each cell in a syntactic paradigm is associated with root or stem form, *x*. The contentive information in the lexemicon is put into correspondence with formal information in the radicon via Rules of Paradigm Linkage which associate the information in syntactic paradigms with roots or stems. The result is represented as $\langle L, \{\sigma\} \rangle x$. Finally, Realization rules provide surface exponence for the roots and stem forms associated with $\langle L, \{\sigma\} \rangle$ pairings. This yields $\langle L, \{\sigma\} \rangle x = y$, where the value of *y* can reflect some alternation in the root or stem or can be an unaltered repetition of *x* (Identity Function Default of Stump 2001.) The basic schema can be seen in the partial paradigm for Hungarian present tense inflection in Figure 1:

LEXEMICON		RADICON		REALIZATIONS
Content paradigm:		Root paradigm:		Wordforms:
$\langle L, \sigma \rangle$	\Leftrightarrow	<i>x</i>	=	<i>y</i>
RULES OF PARADIGM LINKAGE		REALIZATION RULES		
$\langle \text{THROW}, \{1 \text{ sg indef}\} \rangle$		<i>dob</i>		<i>dobok</i>
$\langle \text{THROW}, \{2 \text{ sg indef}\} \rangle$		<i>dob</i>		<i>dobsz</i>
$\langle \text{THROW}, \{3 \text{ sg indef}\} \rangle$		<i>dob</i>		<i>dob</i>
etc.		etc.		etc.

Fig. 1

As can be seen, the realization for $\{3 \text{ sg indef}\}$ results from applying the Identity Function Default, i.e., the form associated with this feature set is identical to the root of the lexeme.

¹⁰ This is similar to the bifurcation of the lexicon developed in Ackerman Webelhuth (1998). Separationist assumptions are also adopted within Distributed Morphology (see Harley Noyer 1999); many terminological and conceptual innovations entailed by devout adherence in this community to syntactocentric assumptions such as binary branching representations and the repudiation of the lexicon often tend to obscure the fundamentally unoriginal core elements of this line of inquiry. Many of these elements harken back to realizational word and paradigm models as developed for example in Robins (1959) and Matthews (1972; 1991), and are shared in the present proposal without theory-bound syntactocentric assumptions.

I will assume that much like the inflectional morphology of a language defines sets of inflectional paradigms, the derivational morphology of a language also defines sets of derivational paradigms.¹¹ I will assume that for each derivational category λ available to a lexeme L ¹² with root x , there is a function $\phi_{der\lambda}$ such that $\phi_{der\lambda}\langle L \rangle x = \langle L' \rangle x'$, where $\langle L' \rangle x'$ is a cell in the derivational paradigm of L occupied by a root x' . So, if $\lambda = \text{causative}$ and is available to the Hungarian lexeme *THROW* with a root *dob*, then $\phi_{\text{caus}}\{\text{MOVE}\} \text{dob} = \{\text{MAKE MOVE}\} \text{dobat}$ is the cell in the derivational paradigm of the basic verb $\langle \text{THROW} \rangle \text{dob}$. Lexeme-formation operations, as a consequence, create networks of related lexemes, permitting a notion of lexical relatedness to be defined as follows:

- (3) A lexeme L' is related to a lexeme L iff L' is an λ derivative of L .

Although it may not be immediately evident, the preceding discussion of lexeme-formation has focused primarily on manipulations on contentive information associated with the lexeme, i.e., they have altered lexical content. Equally important, however, are the principles which relate such content to their formal expression. In this domain I adopt the Periphrastic Realization Hypothesis (Ackerman–Stump to appear), which is formulated as follows:¹⁴

“Rules that deduce the forms occupying a paradigm’s cells from the lexical and morphosyntactic property sets associated with those cells include rules defining periphrastic combinations as well as rules defining synthetic forms.”

A glance back at the inflectional phenomena in Figure 1 will reveal that the exponence associated with paradigm cells is uniformly synthetic. Recent work by

¹¹ These representational conventions benefit from discussions with Greg Stump and will be used heuristically throughout the remainder of the presentation.

¹² More specifically, L itself represents lexemic information consisting of the triplet [lexical meaning (μ), lexical category, lexical property set], where the lexical property set is taken to include valence, grammatical functions, case, government, etc.

¹³ Of course, one can assume here a null set of morphosyntactic properties appropriate to this lexeme, making these representations identical to the $\langle L, \{\sigma\} \rangle$ pairings for inflection above.

¹⁴ This seems compatible with Aronoff’s characterization of **grammatical word** (see Matthews 1972) as a “lexeme in a particular syntactic context, where it will be provided with morphosyntactic features and with the morphophonological realization of these morphosyntactic features as **bound forms** [emphasis mine FA] [...] Grammatical words are the members of the paradigm of a particular lexeme” (Aronoff 1994, 11). We adopt Robins’ view that morphosyntactic features can be expressed periphrastically.

Spencer (2001; to appear), among others, demonstrates that sometimes such morphosyntactic information receives periphrastic or multi-word expression. Likewise, while a preponderance of derived forms are synthetic, there is good reason to hypothesize, as with phrasal predicates, that sometimes lexeme-formation operations are associated with periphrastic expressions. Ackerman – Stump (to appear) facilitate the possibility of accounting for these well-attested expression types by positing two realization principles, where the variable ‘ δ ’ stands for either morphosyntactic or derivational properties:

(4) SYNTHETIC REALIZATION PRINCIPLE

(Morphological Expression of Ackerman Webelhuth 1998)

Where the realization w of $\langle L, \delta \rangle$ is a synthetic member of category X , w may be inserted as the head of XP .

(5) PERIPHRASTIC REALIZATION PRINCIPLE

Where the realization of $w_1 w_2$ of $\langle L, \delta \rangle$ is periphrastic and w_1 and w_2 belong to the respective categories X and Y , w_1 and w_2 may be inserted as the heads of the respective nodes $X(P)$ and $Y(P)$.

It is further assumed, given clear empirical support, that the structural relationship between $X(P)$ and $Y(P)$, i.e., the surface distribution of periphrastic lexical constructions, in the Periphrastic Realization Principle is keyed to (classes of) syntactic constructions and, consequently, to the identification of the inventory of syntactic construction types in a particular (type of) language.¹⁵

In sum, the preceding assumptions make it possible to formally address Watkins’ descriptive observation and Nash’s paradox concerning the semantic unithood of phrasal predicates despite the syntactic separability of their pieces. It also permits me to succinctly state the informing generalization of the present proposal: phrasal predicates occupy cells in derivational paradigms and are related to simple predicates as well as other words via lexeme-formation operations. The remainder of this paper provides a case study of how this simple idea applies to various complex predicates.

¹⁵ Recurrent syntactic construction types, i.e., overarching cross-linguistic generalizations, can be modeled within the **grammatical archetype architecture** of Ackerman-Webelhuth (1998).

3. Hungarian phrasal predicates as lexical constructions: a case study

As discussed in Ackerman (1987), Ackerman–Webelhuth (1998), among the dozens of variably productive subclasses of Hungarian phrasal predicates, there is a class of **causal predicates**, as exemplified by the list below:¹⁶

(6)	belevakul	get blinded by X
	beleun	get bored from X
	belekábul	get dumbfounded by X
	belefárad	get tired of X
	beledöglik	die of X
	belebetegedik	get sick of X
	belebolondul	get/go crazy from X
	belecsömörlik	get disgusted from X
	belefájdul	get pain from X
	beleizzad	sweat from X
	beleöszül	get grey from X
	beleremeg	tremble out of X
	belepusztul	perish from X
	beleszédül	get dizzy from X
	belevénül	get old from X
	belefullad	suffocate from X

Ackerman (1987) identifies certain lexical conditions on causal predicate formation.¹⁷ In particular, a verbal base denoting a psychological or physical state co-occurs only with the PV *bele* which governs the ILL case for NP argument of complex predicate which denotes cause. In addition, unlike for so-called **directed motion predicates**, e.g., *bele dob* ‘into throw’, where simple transitive predicates such as *dob* ‘throw’ can participate, they cannot participate in causal predicate formation, even if they denote a psychological or physical state, e.g., *vakít* ‘blind someone’ → **bele-vakít* ‘blind somebody because of X’. Suggesting that there is a general constraint against transitives for causal predicate formation is the additional fact that causal predicates

¹⁶ I am grateful to an anonymous reviewer for providing suggestions to prune particular predicates from a previous representative list and more importantly, in the course of doing this to demonstrate how generalizations with respect to predicate classes of the proposed sort stand in need of more discriminating lexical semantic analysis than engaged in in this article. The force of the reviewer’s observations can be interpreted as providing even further evidence for the lexicality, rather than syntactic nature, of the relevant predicate formation, as argued for in this article.

¹⁷ Constraints on preverb and verb combinations recall constraints observed for affixal morphological elements of the sort identified in Majtinskaja (1959, 75). (See also the articles in Kiefer 2000.)

cannot participate in what is otherwise an extremely productive causativization process in Hungarian, i.e., *bele un* ‘get bored because of X’ → **bele untat* ‘make somebody bored from X’. That this is not a constraint on the simple predicate *un* ‘be bored’ is evident from the fact that it can be causativized, e.g., *untat* ‘bore someone’.

Since by hypothesis phrasal predicates such as those belonging to the causal class have lexical representations, it is predicted on the present account that they, like simple predicates, should serve as bases for both category preserving and category changing derivation. This is based on the traditional assumption that words serve as bases for the derivation of other words, without requiring the intercession of theory-bound operations as in syntactocentric proposals.

Since phrasal predicates are single semantic units with multiple formal parts we need to answer two questions with respect to derivations:

- (7) (a) What will account for the distribution of derivational markers in derivatives of phrasal predicates?
 (b) What will account for the semantics of derivatives based on phrasal predicates?

Since, as mentioned previously, content is independent of form in realizational approaches, there are expected to be mismatches between the semantic interpretation and the formal make-up of words.

From the perspective of the morphotactic distribution of derivational markers, it is useful to consider Stump’s **Head Application Principle (HAP)** (2001, 118),¹⁸ which can be informally characterized as follows:

“Where root Y is headed by root Z, each word in Y’s **inflectional/derivational**¹⁹ paradigm is headed by the corresponding word in Z’s **inflectional/derivational** paradigm.”

¹⁸ In any language L, if M is a word-to-word rule and Y, Z are roots such that for some (possibly empty) sequence ⟨S⟩, $Y = M(Z, S)$, then, where PF = paradigm function, if $PF_L(\langle Z, \sigma \rangle) = \langle W, \sigma \rangle$, then $PF_L(\langle Y, \sigma \rangle) = \langle M(W, S), \sigma \rangle$. (Adapted from Stump.)

¹⁹ There is an implied, intrinsic ordering here: lexeme-formation operations precede morphosyntactic operations, since they establish the morphosyntactic paradigm properties relevant to particular lexemes. For example, causative applied to an intransitive makes the direct object agreement paradigm relevant for the derived causative form, while also being responsible for the case government properties of the derived predicate. On the other hand, given the independence of content and form, there is no additional prediction that all markers of derivation will appear closer to the root than inflectional markers. The construct “derivational paradigm” is argued for briefly by Stump in this connection. (See also Bauer 1997 and Booij 1997.)

Thus, where some root $Z = V$ and some root $Y = [[PV] [V]]_v$, a compound headed by Z , then every derivation of Y will use the form of Z used for that derivation. This can be illustrated by considering how we can explain the causative *bele dobat* ‘cause to throw into’ formed from the phrasal predicate *bele dob* ‘throw into’. If we assume that the root $Z = dob$ and the root $Y = [bele\ dob]$, then the head of the compound Y is *dob*. According to the HAP, if the phrasal predicate participates in derivation, it is predicted to exhibit the same allomorphy as the independent V-stem which serves as its head. In Hungarian, if the relevant derivational operation is causative, then modulo allomorphy determining properties of the root, where $Z = dob$, then the causative of Z is *dobat*, and where, accordingly, the phrasal compound is *bele dob* with the head *dob*, then the causative of Y is *bele dobat*. The HAP, therefore, answers question (7a) with respect to the morphotactics of derivational markers, irrespective of whether the derived form is synthetic, i.e., *dobat* ‘make throw’ or periphrastic *bele dobat* ‘make throw into’.

As noted in Ackerman (in press), a derived causative form such as *bele dobat* ‘make throw into’ recalls the phenomenon of morphosemantic mismatches or bracketing paradoxes often encountered in languages. In particular, though the causative marker is affixed to the verbal head of the phrasal predicate, the scope of its derivational effect is not limited to this head, but encompasses the head and the possibly discontinuous preverb, i.e., the causative marker has semantic scope over the PV-Vstem construction, not solely over the verbal stem. The sharp separation between form and content within realizational proposals actually predicts the possibility of such mismatches, since there is no expectation of an isomorphic relation between form and meaning as there is in many syntactocentric approaches.²⁰

Recall that previously the modification of lexemic properties of predicates was attributed to a lexeme-formation operation exemplified by causative formation: $\phi_{\text{caus}}\langle\text{MOVE}\rangle\ dob = \langle\text{MAKE MOVE}\rangle\ dobat$. A given lexeme-formation operation has semantic scope over the lexical properties associated with a lexeme L to yield a lexeme L' , irrespective of the synthetic or periphrastic exponence of lexemes. Thus, for Hungarian, when λ is causative formation, then where $Y = dob$, with a semantic interpretation of *throw'*, then *cause'(throw')*, and where $Y = bele\ dob$, a phrasal predicate, with a semantic interpretation of *throw into*, then *cause'(throw into)*. The interaction of the Head Application Principle and the semantic effects of the lexeme-formation operation together yield the discrepancies between form and meaning typically associ-

²⁰ See Pesetsky (1987) and Rice (2000) among others.

ated with morphosemantic mismatches (bracketing paradoxes).²¹ This can be represented schematically as below:

- | | |
|--|-----------------------------|
| (8) Morphological exponence [<i>bele</i> [<i>dobat</i>]] | Head Application Principle |
| Semantic unithood [BE DOB] at] | Lexeme-formation operations |

In sum, given the principled means to address form and semantics as independent dimensions of information which are set in systematic correspondence with one another, one can examine the networks of derivational relatedness which phrasal predicates participate in.

3.1. Category preserving and category changing derivation: preverb reduplication

As illustrated in (9), (10), and (11) below, Hungarian permits the reduplication of preverbs.

- (9) (a) meg áll 'stop'
 (b) meg-meg áll 'stop from time to time'
- (10) (a) át jön 'come over'
 (b) át-át jön 'come over from time to time'
- (11) (a) be rúg 'get drunk'
 (b) be-be rúg 'get drunk from time to time'

As is evident from the glosses of these paired predicates, the semantics of the reduplicated variant differs from the single preverb variant. Majtinskaja (1959, 178) refers to the function of reduplication in such formations as indicating "the irregular repetition of an action". Kiefer (1995/1996, 185) similarly suggests that it "has to do with cardinality, i.e., with an unspecified number of the reoccurrence of an event (at more or less irregular time intervals)". He argues that their function as denoting what I will refer to as **intermittent repeated action (IRA)** explains their compatibility with adverbs denoting occasional occurrence and their incompatibility with adverbs which designate systematic and sustained activity.²² Illustrative co-occurrences are presented in (12) and (13):

²¹ See Ackerman (in press) on morphosemantic mismatches in phrasal predicates.

²² The hyphen between the reduplicated PVs indicates their inseparability from each other. The term reduplication as applied to these constructions is taken from the sources cited

- (12) (Időnként/*rendszeresen) **át-át** töltötte a mustot
Occasionally/regularly PV-PV pour-past-3sg-def the must-acc
'S/he occasionally/*regularly decanted the must (grape-juice).'
- (13) (Időről-időre/*minden nap) **el-el** járt hozzá
Time to time/every day PV-PV go-past-3sg all-3sg
'From time to time/*every day s/he visited him/her.'

In addition, Kiefer (1995/1996, 178) identifies certain lexical restrictions on preverb reduplication.²³ For example, such constructions cannot be formed from prefixed stative predicates, as demonstrated in (14) and (15):

- (14) (a) össze fér 'be compatible with'
(b) *össze-össze fér
- (15) (a) meg felel 'correspond to'
(b) *meg-meg felel

Nor can they be formed from intransitive change of state verbs which on their usual interpretation express unrepeatable, irreversible changes. This prohibition is exemplified in (16) and (17):

- (16) (a) meg öregszik 'get old'
(b) *meg-meg öregszik
- (17) (a) el butul 'grow stupid'
(b) *el-el butul

in the text, where it designates the repetition of the complete form of a specific PV which serves as an exponent of the lexical semantics associated with a particular complex predicate. It is thus the reduplication template, irrespective of the reduplicated forms that instantiate it in particular instances, that serves as the exponent of iterated action for the activity denoted by the base PV V construction. As noted by a reviewer, the data here may raise questions concerning the theoretical treatment of reduplication conceived more broadly, both in Hungarian and elsewhere. In particular how should it be analyzed within realizational models and how would such treatments compare with morpheme-based proposals? This is a larger issue than can be addressed here.

²³ Though I follow Kiefer in his observations here, preliminary work suggests that in this domain as well as in several others which he has identified require considerably more research to refine the precise lexical semantic conditions on reduplication. What remains clear in the present case, however, is the need to limit the application of preverb reduplication on the basis of lexical properties of input predicates.

In sum, the reduplicated preverb construction is dependent on the meaning of PV-V construction. This accords with expectations, if one is dealing with lexical representations, as in the present approach. Consequently, if causal phrasal predicates are lexical representations, it is predicted that if a particular causal predicate satisfies the semantic conditions, then it should participate in preverb reduplication.²⁴ In this connection consider the causal predicate *bele vakul* ‘get blind from’ and its derivational relatedness to the basic predicate *vakul* ‘be/get blind’:

- (18) $\phi_{\text{causal}}(\langle \text{BLIND, V (SUBJ)} \rangle) \text{ vakul} = \langle \text{[‘GET BLIND FROM’, V, (SUBJ)(OBL}_{\text{caus}}\text{)]} \rangle \text{ bele vakul}$
OBL = ILL

It is possible to construe the lexical semantics of ‘GET BLIND FROM’ as denoting either an irreversible action or a temporary state that can be repeated. The second sense is compatible with the semantic condition on reduplication and therefore reduplication is predicted to be permissible as exemplified in (19):

- (19) Ebbe a munkába bizony bele-bele vakulnak a munkások
 this-ill the work-ill surely PV-PV get blind from-3pl the worker-pl
 ‘The workers get blinded from this work from time to time.’

Thus, the intermittent repeated action (IRA) operator applies to the meaning associated with the phrasal predicate, e.g., *bele vakul* ‘get blind from’. This can be represented as follows:

- (20) $\phi_{\text{IRA}}(\langle \text{[‘GET BLIND FROM’, V, (SUBJ) (OBL}_{\text{caus}}\text{)]} \rangle) \text{ bele vakul} = \langle \text{[‘PERIODICALLY GET BLINDED FROM’]} \rangle \text{ bele bele vakul}$

In sum, we observe derivational relatedness between lexical representations all possessing the lexeme meaning BLIND with the root *vakul*.

Thus far, I have focused on lexeme derivation from the perspective of content, but Kiefer (1995/1996, 187) notes that preverb reduplication creates a single synthetic lexical/morphological unit from the perspective of form. It consequently differs from ordinary phrasal predicate formation operations which yield lexemes with periphrastic exponence. The contrast in exponence types for these different operations is illustrated (21) and (22) with respect to preverb positioning under clausal negation. While the preverb is obligatorily postposed in clausal negation with a single preverb, as in (21b), the

²⁴ I thank András Komlósy for assistance with the relevant examples.

reduplicated preverb cannot be postposed, as attested by the ungrammaticality of (22b):

- (21) (a) Péter **át** ment a szomszédhoz
 Peter PV went the neighbor-all
 'Peter went over to the neighbor.'
- (b) Péter nem ment **át** a szomszédhoz
 Peter not went PV the neighbor-all
 'Peter didn't go over to the neighbor.'
- (22) (a) Péter **át-át** ment a szomszédhoz
 Peter PV-PV went the neighbor-all
 'Peter went (occasionally) to the neighbor.'
- (b) *Péter nem ment **át-át** a szomszédhoz
 Peter not went PV-PV the neighbor-all
- (c) *Péter nem **át-át** ment a szomszédhoz²⁵
 Peter not PV-PV went the neighbor-all

The inability to postpose reduplicated preverbs, as well as the inability of the reduplicated preverb to appear immediately to the right of the negative element, as in (22c), appears to be a construction specific behavior of IRA predicates and is quite anomalous in terms of the usual interaction of negation and preverbs within Hungarian grammar. In fact, (Kiefer 1995/1996, 188) observes that in order to convey clausal negation with reduplicated constructions speakers must engage in circumlocations, as in (23), where a finite reduplicated phrasal predicate heads a clause embedded under a negated matrix clause:

- (23) Nem igaz, hogy Péter **át-át** ment a szomszédhoz.
 Not true that Peter PV-PV went the neighbor-all
 'It's not true that Peter went (occasionally) to his neighbor.'

²⁵ A referee suggests that the following augmented variant of (22c) is acceptable:

Péter nem **át-át** ment a szomszédhoz, hanem **át-át** telefonált
 Peter not PV-PV went the neighbor-all, but PV-PV telephoned
 'Peter didn't go over to the neighbor's repeatedly, but did telephone there repeatedly.'

This suggests that unlike in simple clausal negation with reduplicated preverbs, which, according to Kiefer (see text following example (22)), requires circumlocation, predicate negation has scope over the meaning associated with the reduplicated complex predicate, thus permitting contrast between e.g., going repeatedly versus telephoning repeatedly. This is precisely what one would expect on the present analysis, where the reduplicated complex predicate form is associated with its own lexical representation.

Despite the inability of reduplicated preverbs to appear immediately to the right of the clausal negation marker *nem*, as in (22c), it appears that, from a descriptive perspective, the IRA predicate formation operation applies to a phrasal input to yield a predicate with a synthetic form, since the reduplicated PV and Vstem evidently are inseparable.²⁶ In this connection it is instructive to note that category changing operations applying to phrasal predicates ordinarily yield synthetic wordforms, as illustrated in (24):

(24) össze fér 'be compatible with'	összeférhető	A	'compatible'
	összeférhetőség	N	'compatibility'
	összeférhetetlen	A	'incompatible'
	összeférhetetlenség	N	'incompatibility'

Quite surprisingly, on Kiefer's account predicates with reduplicated preverbs, however, cannot participate in category changing derivation, as indicated by the unacceptability of (25b):

- (25) (a) át-át megy 'go though intermittently'
 (b) *át-átmenés

If this were so, it would be quite paradoxical, given the apparent synthetic status of reduplicated phrasal predicates and the absence of any obvious, or even subtle, semantic constraints against nominal derivation. However, there is reason to believe that category changing derivation is indeed possible from reduplicated phrasal predicate bases, even though the conditions on the licensing of nominalizations for such forms are not presently well-understood. An instance of nominalization based on the phrasal predicate *meg meg áll* 'keep stopping intermittently' is exemplified in (26).²⁷

²⁶ However, as with single preverbs inflected auxiliaries are interposed between reduplicated preverbs and nonfinite verbal stems. Such constructions are straightforwardly interpretable as periphrastic expressions of lexical representations consisting of three (or more) surface pieces, namely, the preverb(s), auxiliaries, and verbal stem as proposed in Ackerman (1987), Kiefer (1995/1996, 188), and Ackerman-Webelhuth (1998).

²⁷ If preverbs are not syntactic complements of verbs, but parts of lexical constructions, then they are expected to exhibit different distributions than standard syntactic complements.

"Complex NPs can be utilized as a diagnostic to differentiate phase structure complements of predicates from portions of that predicate [...] The crucial phenomenon to note is that phrasal complements, i.e., constituents which appear as phrasal complements in constituent structure, appear to the left of *való*, while elements that are portions of the verb appear to the right of *való*." (Ackerman 1987, 230. See also Szabolcsi 1994, 255; Kiefer-Ladányi 2000, 460.)

- (26) Zolinak a kirakatok előtt való folytonos meg-megállása miatt mindenhol
 Zoli-dat the display before being continual PV-PV stopping-3sg cause everywhere
 el késünk
 PV late-1pl
 'Because of Zoli's continual intermittent stopping in front of store windows, we are late everywhere.'

In sum, there is empirical evidence to support the hypothesis that lexeme derivation using the IRA operator modifies the lexical semantics of the input (phrasal) predicate and yields a form that is synthetic. As with periphrastic phrasal predicates, the formal exponent of category changing operations for reduplicated predicates is a synthetic wordform. Phrasal predicates with separable elements serve as bases for IRA predicate formation and whereas the exponence of the base input is periphrastic, the exponent of the derived predicate is synthetic. Since the input and output of reduplicated phrasal predicates is a synthetic wordform, they pattern just like canonical instances of lexeme-derivation in the languages of the world, and thus fall squarely within the usual compass of lexicalist assumptions.

3.2. Inflecting preverbs and reduplication: inflection internal to derivation

Perhaps the most dramatic evidence for the lexicality of lexeme-formation operations becomes apparent when we examine the interleaving of various derivational and inflectional operations that are permitted with certain (classes of) PV Vstem construction. For example, the two-place phrasal predicate *bele szeret* 'fall in love with', exemplified in (27a), with its lexical representation in (27b), is related to the transitive predicate *szeret* 'love', illustrated by the lexical representation in (27c):²⁸

- (27) (a) A gyerekek bele szerettek a tanítójukba
 the children PV fell in love the teacher-3pl-ill
 'The children fell in love with their teacher.'
 (b) *bele szeret* 'fall in love with sb. <SUBJ, OBL>
 OBL = ILL
 (c) *szeret* 'love <SUBJ, OBJ>'

In (27a) the OBL complement governed by the phrasal predicate is a lexical NP realized as an independent syntactic element in the clause. The differences in

²⁸ The reader should not be misled into assuming that the mere presence of the preverb *bele* makes this a causal predicate.

lexical representations are schematized in (27b) and (27c). When the oblique complement of *bele szeret* 'fall in love with' is expressed by a pronominal, however, a form from the possessive paradigm is suffixed to the preverb and its person/number values provide the person/number values for the targeted OBL pronoun. This is exemplified by (28), where the 1st person singular marker on the preverb is construed as a 1st person OBL pronominal satisfying the grammatical function requirements of the complex predicate *bele szeret*.

- (28) A gyerekek belém szerettek
 the children PV-1sg fell in love
 'The children feel in love with me.'

In contrast, a syntactically independent pronominal form cannot appear in such constructions, even though one would expect the predicate *bele szeret* 'fall in love with' to case govern an independent pronominal form, just as it case governs the independent lexical NP in (27a). This prohibition is illustrated in (29):

- (29)*A gyerekek bele szerettek belém
 the children PV fell in love me-ill

Given the realization-based lexicalist assumptions guiding the present analysis, the differences in lexical properties evident between e.g., *szeret* 'love' and *bele szeret* 'fall in love with' mandate an interpretation in terms of derivational relatedness. The complex predicate *bele szeret* 'fall in love with' governs the ILL case of its OBL complement, while the bare stem governs the ACC case for its OBJ complement. Thus the simplest analysis is one in which a form such as e.g., *belém* in (28), is interpreted as consisting of the derived predicate *bele szeret* 'fall in love with' with an inflectional marker indicating an OBL pronominal internal to this predicate. The lexical representation for this predicate in (30):

- (30) belém szeret 'fall in love (SUBJ, OBL)'
 OBL PRED = 'pro'
 OBL NUM = sg
 OBL PER = 1

Now, it follows that if this predicate meets the semantic conditions on preverb reduplication, it should participate in the network of lexical relatedness which affects non-inflected preverbs, since both inflected and non-inflected preverbs

are parts of relevant lexical representations on the proposed analysis. Sentence (31) demonstrates that this prediction is borne out.²⁹

- (31) A tanítványaim belém-belém szeretnek³⁰
 the disciple-pl-1sg PV-1sg-PV-1sg fall in love-present-3pl
 'My disciplines fall in love with me from time to time.'

The relevant lexical representation is presented below:

- (32) belém-belém szeret 'fall in love occasionally (SUBJ, OBL)'
 OBL PRED = 'pro'
 OBL NUM = sg
 OBL PER = 1

This sort of network can be exemplified with other PV Vstem constructions as well. For example, given the lexical representation in (33):

- (33) rá un 'GET SICK/BORED OF (SUBJ, OBL)'³¹
 OBL = SUB

we find the reduplicated variant of this phrasal predicate in (34):

- (34) A politikusoknak tudniuk kellene, hogy a választók rájuk-rájuk unnak
 the politicians-dat know-inf-3pl must-subjunc. that the voters PV-3pl-PV-3pl bore-3pl
 'The politicians should know that the voters get bored with them from time to time.'

Thus, we see that phrasal predicates with inflecting preverbs satisfy their OBL pronominal requirements morphologically, and these internally inflected words can serve as bases for IRA.

In sum, reduplicated inflected forms implicate the existence of a cascade of lexeme-formation operations. This can be schematically represented for *bele szeret* as in Figure 2:

²⁹ While inflected reduplicated preverbs are quite infrequent, the judgements of my consultants suggest that such constructions are grammatical.

³⁰ I thank András Komlósy and anonymous friends for assistance with these examples.

³¹ András Komlósy advises me that the phrasal predicate *bele un* 'get bored from' can only have a "propositional" oblique argument, most frequently an *-ás/-és* nominalization, e.g., (*beleun a főzésbe/a munkába/tévészésbe* vs. **a levesbe/*Mariba/*a tévébe*). It cannot take pronominal OBL arguments and therefore can't take inflected forms of *bele*. Selectional restrictions such as these provide further evidence for the essentially lexical nature of the phrasal predicate operations examined here.

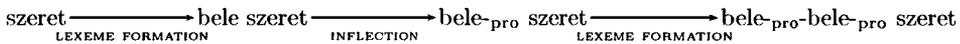


Fig. 2

3.3. Inflected preverbs and category changing nominalizations

The claim that languages contain inflection internal to derivation is a disputed one among some linguists,³² so the preceding observations concerning inflecting preverbs as internal to category preserving derivations are not unproblematic. On the other hand, the existence of inflection internal to derivation in Hungarian category changing derivation has been noted in Ackerman (1987), and Kenesei (1995/1996). Kenesei (1995/1996, 160), for example cites the relations in (35) in which the nominalized form of the phrasal predicate *bele botlik* ‘bump into’ in (35b) contains an inflected preverb with a pronominal interpretation:

- (35) (a) *bele botlott* (Péterbe)
 PV bump into-past Peter-ill
 ‘S/he bumped into (Peter).’
 (b) *belénk botlás*
 PV-1pl bump into.noun
 ‘(the) bumping into us’

A similar relation is evident in the contrast between the phrasal predicate *rábíz* ‘entrust’ and its nominalized variant with an inflected preverb in (36):

- (36) (a) *rá bízták* az ügyet (Péterre)
 PV trust-past-3pl/def the matter-acc Peter-sub
 ‘They entrusted the matter to Peter.’
 (b) *rátok bízás*
 PV-2pl trust.noun
 ‘(the) entrusting to you’

Once again, since the semantics of the phrasal predicate *rábíz* ‘entrust’ is compatible with intermittent repeated action, we expect this predicate, even when inflected, to participate in the lexeme-derivation operation. As can be seen in (37), it does so.

- (37) A lányomat ritkán látom, de a fiát **rám-rám** bízza
 The daughter-1sg-acc rarely see-1sg/def but the son-3sg-acc PV-1sg-PV-1sg trust-3sg/def
 ‘I see my daughter rarely, but she leaves her son with me occasionally.’

³² See Clahsen (1999) and references therein for discussion.

In sum, given the Realization-based Lexicalist assumptions adopted here the existence of inflecting preverbs do not argue for some notion of “post-lexical composition” for certain phrasal predicates (*pace* Kenesei 1995/1996, 161).³³ Instead, they can be construed as following directly from an inferential-realizational model of morphology in which wordforms represent surface exponence of contentive $\langle L, \{\delta\} \rangle$ pairings, and where this can receive periphrastic expression.

3.4. More inflection internal to derivation

Thus far I have focused on instances where markers from the possessive paradigm receive pronominal interpretation when they appear suffixed to preverbs and internal to derived forms of phrasal predicates. Hungarian, however, contains other instances of incorporated elements (referred to as **argumental preverbs** in Ackerman 1987, Kenesei et al. 1998), suggesting that the aforementioned incorporated pronominals are part of a larger pattern in this language. Typical instances are exemplified by (38) and (39), where the complex predicates in the (a) examples correspond to the nominalizations in the (b) examples:³⁴

- (38) (a) *moziba megy*
 movie-ill go
 ‘go to the movies’
 (b) *mozibamenés*
 ‘movie going’
- (39) (a) *szabályszerűvé válik*
 regular-trans become
 ‘become regular’
 (b) *szabályszerűvéválás*
 ‘getting regular’

Finally, within the general domain of inflection internal to derivation, Hungarian possesses a construction known as **twin words** within the traditional

³³ In fact, Kenesei himself effectively sets these constructions squarely within the lexicon by observing that whereas (35b) permits pluralization, (36b) does not. These kind of restrictions are characteristic of lexical/morphological entities rather than syntactic ones.

³⁴ The strategy of incorporation in Hungarian is **juxtaposition**, while the syntactico-semantic classes of arguments that incorporate are strikingly similar to the classes identified by Sapir (1911) as those characteristic of true morphological incorporation.

literature. These are entities consisting of two stems both of which are treated as verbs for purposes of inflection and derivation, irrespective of whether the stems are attested as independent elements in the language. It is characteristic of such twin word that there be multiple identical exponence for both derivation and inflection. The phenomenon is exemplified below, where (40a) displays multiple exponence for tense and subject agreement when the twin word functions as the predicate of a clause, and where (40b) displays multiple exponence for nominal derivation and possessive inflection for the nominal related to the predicate.

- (40) (a) Lótottam-futottam
 X-past-1sg-run-past-1sg
 'I hustled about.'
- (b) Nem követem lótását-futását³⁵
 not follow-1sg X-3sg-acc-run-3sg-acc
 'I don't follow his/her bustling about.'

As observed by numerous morphologists cited throughout this article who favor realization-based approaches, multiple exponence is one of the types of deviations from canonical one-to-one mapping between form and meaning that such models are designed to address, and which render them preferable to the morpheme-based models standardly assumed in the theoretical literature.

All of these phenomena clearly indicate that pronominal incorporation of the sort illustrated in sections 3.2 and 3.3 is simply a part of a larger phenomenon in Hungarian in which there is inflection internal to derivation. Some of these derived words are realized by synthetic expressions and some by periphrastic ones. The inferential-realization based assumptions adopted here are able to provide a straightforward morphological analysis for the whole class of constructions, distinguishing between them simply in the single respect in which they demonstrably differ, namely, their surface exponence.

³⁵ A reviewer observes that it is possible to omit the inflection on the left member of the twin word, e.g., *lótás-futását*. The topic of inflection and twin words obviously requires a substantive empirical exploration and theoretical treatment independent of its specific use here as falling into a larger class of entities in Hungarian which show inflection internal derivation.

4. Conclusion

In this paper I have provided evidence and arguments that Hungarian contains a rich set of lexeme-derivation operations for predicate formation which yield lexical constructions with periphrastic expressions. Lexical restrictions on the application of specific lexeme-derivation operations to specific (classes of) predicates, as well as lexical idiosyncrasy associated with certain predicates within even productive derivational paradigms, argue for a lexical/morphological treatment. In addition, the participation of phrasal predicates in cascades of category preserving and changing derivations, likewise, argues for a lexical/morphological treatment. Throughout I have demonstrated that an inferential-realizational model of lexicalism provides all of the relevant ingredients for the analysis of phrasal predicates in terms of morphology, if periphrasis is permitted to be a variant of morphological exponence.

References

- Ackema, Peter – Ad Neeleman 2001. Competition between morphology and syntax. In: Geraldine Legendre – Jane Grimshaw – Sten Vikner (eds) *Optimality-theoretic syntax*, 29–60. MIT Press, Cambridge MA.
- Ackerman, Farrell 1982. Verbal modifiers as argument taking predicates: complex predicates as predicate complexes. In: *Groningen Arbeiten für Germanistischen Linguistik* 25: 23–71.
- Ackerman, Farrell 1987. *Miscreant morphemes: phrasal predicates in Ugric*. Ph.D. dissertation, University of California, Berkeley.
- Ackerman, Farrell in press. Morphosemantic mismatches and realization based lexicalism. In: Elaine Francis – Laura Michaelis (eds) *Linguistic mismatch: scope and theory*. CSLI Publications, Stanford CA.
- Ackerman, Farrell – Pierre LeSourd 1997. Toward a lexical representation of phrasal predicates. In: Alex Alsina – Joan Bresnan – Peter Sells (eds) *Complex predicates*, 67–106. CSLI Publications, Stanford CA.
- Ackerman, Farrell – Gregory T. Stump to appear. Paradigms and periphrastic expression: a study in realization-based lexicalism. In: Andrew Spencer – Louisa Sadler (eds) *Projecting morphology*. CSLI Publications, Stanford CA.
- Ackerman, Farrell – Gerd Webelhuth 1998. *A theory of predicates*. CSLI Publications, Stanford CA.
- Anderson, Stephen R. 1992. *A-morphous morphology*. Cambridge University Press, Cambridge.
- Apreszjan, Jurij D. – Erna Páll 1982. *Orosz ige–magyar ige [Russian verb–Hungarian verb]*. Tankönyvkiadó, Budapest.
- Aronoff, Mark 1976. *Word formation in generative grammar*. MIT Press, Cambridge MA.
- Aronoff, Mark 1994. *Morphology by itself*. MIT Press, Cambridge MA.

- Bauer, Laurie 1997. Derivational paradigms. In: Booij – van Marle (1997, 243–56).
- Beard, Robert 1995. Lexeme–morpheme base morphology. SUNY Press, Albany NY.
- Blevins, Juliette 2001. Realization-based lexicalism. *Journal of Linguistics* 37: 355–65.
- Booij, Geert 1997. Autonomous morphology and paradigmatic relations. In: Booij – van Marle (1997, 35–53).
- Booij, Geert 2002. The morphology of Dutch. Oxford University Press, Oxford.
- Booij, Geert – Jaap van Marle (eds) 1997. *Yearbook of Morphology 1996*. Kluwer, Dordrecht.
- Clahsen, Harald 1999. Lexical entries and rules of language: a multidisciplinary study of German inflection. In: *Behavioral and Brain Sciences* 22: 991–1060.
- Dahlstrom, Amy 1996. Morphology and syntax of the Fox (Mesquakie) language. Ms. University of Chicago.
- Harley, Heidi – Ralph Noyer 1999. State-of-the-article: Distributed Morphology. In: *Glott International* 4.4: 3–9.
- É. Kiss, Katalin 1987. Configurationality in Hungarian. Kluwer, Dordrecht.
- Jackendoff, Ray 1997. The architecture of the language faculty. Cambridge MA, MIT Press.
- Jackendoff, Ray 2002. *Foundations of language*. Oxford University Press, Oxford.
- Kenesei, István 1995/1996. On bracketing paradoxes in Hungarian. In: *Acta Linguistica Hungarica* 43: 153–73.
- Kenesei, István – Robert M. Vago – Anna Fenyvesi 1998. *Hungarian*. Routledge, London.
- Kiefer, Ferenc 1995/1996. Prefix reduplication in Hungarian. In: *Acta Linguistica Hungarica* 43: 175–94.
- Kiefer, Ferenc (ed.) 2000. *Strukturális magyar nyelvtan 3. Morfológia [A structural grammar of Hungarian 3. Morphology]*. Akadémiai Kiadó, Budapest.
- Kiefer, Ferenc – László Honti 2003. Verbal ‘prefixation’ in the Uralic languages. In: *Acta Linguistica Hungarica* 50: 133–49.
- Kiefer, Ferenc – Mária Ladányi 2000. Az igekötők [Preverbs]. In: Kiefer (2000, 453–518).
- Kiss, Katalin 2001. Lexical retrieval of complex predicates in an agrammatic aphasic subject’s sentence production. In: *Acta Linguistica Hungarica* 48: 183–216.
- Komlósy, András 1992. Régensek és vonzatok [Valence and government]. In: Ferenc Kiefer (ed.) *Strukturális magyar nyelvtan 1. Mondattan [A structural grammar of Hungarian 1. Syntax]*, 299–527. Akadémiai Kiadó, Budapest.
- Koopman, Hilda – Anna Szabolcsi 2000. *Verbal complexes*. MIT Press, Cambridge MA.
- Majtinskaja, Klara E. 1959. *Vengerskij Jazyk [The Hungarian language]*. Izdatelstvo Akademii Nauk, Moscow.
- Matthews, Peter H. 1972. *Inflectional morphology. A theoretical study based on aspects of Latin verb conjugations*. Cambridge University Press, Cambridge.
- Matthews, Peter H. 1991. *Morphology*. Cambridge University Press, Cambridge.
- Molecz, Béla 1900. *A magyar szórend történeti fejlődése [The historical development of Hungarian word order]*. Budapest.
- Nash, David 1982. Walpiri preverbs and verb roots. In: Stephen Swartz (ed.) *Papers in Walpiri grammar: in memory of Lothar Jagst*, 165–216. Summer Institute of Linguistics Australian Aborigines Branch, Darwin.

- O'Herin, Brian 1998. Case and agreement in Abaza. Ph.D. dissertation, University of California at Santa Cruz.
- Pesetsky, David 1987. Morphology and logical form. In: *Linguistic Inquiry* 16: 193–246.
- Rice, Keren 2000. Morpheme order and semantic scope: word formation in the Athapaskan verb. Cambridge University Press, Cambridge.
- Robins, Robert Henry 1959. In defence of WP. In: *Transactions of the Philological Society of London* 57: 116–44.
- Sadler, Louisa – Andrew Spencer 2001. Syntax as an exponent of morphological features. In: Geert Booij – Jaap van Marle (eds) *Yearbook of Morphology 2000*, 71–96. Kluwer, Dordrecht.
- Sapir, Edward 1911. The problem of noun incorporation in American languages. In: *American Anthropologist* 13: 250–82.
- Sapir, Edward 1921. *Language*. Harcourt, Brace, and World, New York.
- Simonyi, Zsigmond 1889. *A magyar nyelv [The Hungarian language]*. Magyar Tudományos Akadémia, Budapest.
- Simpson, Jane 1992. *Walpiri morpho-syntax*. Kluwer, Dordrecht.
- Soltész, Katalin J. 1959. *Az ősi magyar igekötők [Ancient Hungarian preverbs]*. Akadémiai Kiadó, Budapest.
- Spencer, Andrew 2001. The Word-and-Paradigm approach to morphosyntax. In: *Transactions of the Philological Society* 99: 279–313.
- Spencer, Andrew to appear. Periphrastic paradigms in Bulgarian. Ms. University of Essex.
- Stiebels, Barbara – Dieter Wunderlich 1994. Morphology feeds syntax: the case of particle verbs. In: *Linguistics* 32: 913–68.
- Stump, Gregory T. 2001. *Inflectional morphology: a theory of paradigm structure*. Cambridge University Press, Cambridge.
- Szabolcsi, Anna 1994. The noun phrase. In: Ferenc Kiefer – É. Kiss Katalin (eds) *The syntactic structure of Hungarian*. *Syntax and semantics* 27, 179–274. Academic Press, New York.
- Watkins, Calvert 1964. Preliminaries to the reconstruction of Indo-European sentence structure. In: Horace D. Lunt (ed.) *Proceedings of the 9th International Congress of Linguists*, 1035–44. Mouton, Berlin & New York.
- Zwicky, Arnold M. 1985. How to describe inflection. In: M. Niepokuj et al. (eds) *Proceedings of the Eleventh Annual Meeting of the Berkeley Linguistics Society*, 372–86. Berkeley Linguistics Society, Berkeley CA.
- Zwicky, Arnold M. 1989. Quicker, quickly, *quicklier. In: Geert Booij – Jaap van Marle (eds) *Yearbook of Morphology* 2, 139–73. Kluwer, Dordrecht.

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ENGLISH PREFIXATION—A TYPOLOGICAL SHIFT?

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Abstract

In Old English, as in modern Dutch and German, there were a series of prefixes which were unstressed and phonologically constrained; some of them, because they determined the word-class of the derivatives they formed, were typologically unusual. If we trace these prefixes through into modern English, we find that they have lost ground. Partly they have been replaced by corresponding learned prefixes, partly they have simply become marginalised in the system of English. At the same time, if we look at those prefix-like items which are most productive today, we see that they carry their own stress, are phonologically unconstrained, and many of them are semantically much more lexeme-like. We can interpret these observations as a shift from a largely compounding Germanic basis through a long period of English history where prefixes were a norm, and with signs now starting to appear that a return to a more compound-oriented stage of the language is under way. In retrospect, we have no difficulty in explaining the various shifts of type that have occurred. What is interesting is the method by which the compound-orientation is being re-established, and the possible effect of typological pressures on such a shift.

The more compound-oriented modern stage is being achieved not through any simple change, but through a conspiracy of different changes which have the combined effect of leaving erstwhile prefixal elements looking more like lexemes. The changes can be seen as being influenced by the pressures which give rise to the so-called suffixing preference across languages: replacing prefixes with lexemes increases the number of items to be recognised by the listener, but allows maximal use of word-initial cues.

If we look at prefixation in West Germanic languages like Dutch and German, we find we must distinguish between native and non-native prefixes (the latter being those forms like *anti-*, *bi-*, *mono-*, *pre-*, which come from Greek and Latin), and within the native prefixes between those which are homophonous with a prepositional adverb (and where formations involving them might be considered to be compounds) and those which can be analysed only as prefixes. This last type are unstressed, prefer the vowel [ə], permit only coronal consonants (mainly sonorants) in coda position, and when used in the formation of verbs, block the prefixation of the past-participle *ge-* prefix. I will provisionally call these 'true' prefixes.

(1)	DUTCH	GERMAN
	be-	be-
		ent-
	er-	er-
	ge-	ge-
	oer-	ur-
	on-	un-
	ver-	ver-
		zer-

Dutch and German also have a set of prefixes derived from lexemes by a process of semantic bleaching: German *haupt-* and Dutch *oud-* for instance. The situation in Old English was not dissimilar to that in Dutch and German: the set of true prefixes appears to have been smaller, and not always the same set as is found in Dutch and German, but the fundamentals of the system are similar (Kastovsky 1992, 377ff).

If we trace the true prefixes of English through to present-day English, we discover that they have been greatly eroded.

The prefix *a-* as in *ablaze*, deriving adjectives from (mainly) verbs, had a peak of productivity in the nineteenth century (Marchand 1969, 140) and is still marginally productive as witness the forms *awhir*, *aclutter* and others in Barnhart et al. (1973), but these are rather self-conscious formations these days.

The verbalising prefix *be-* is these days stylistically and formally restricted, as the example below indicates, where the *be-* arises in conjunction with a denominal *-ed* and where there is a light-hearted feel to the derivatives.

- (2) "A multiplicity of chins rested upon his befairisled chest. The bepatched elbows of his shirt rested upon the bepatched knees of his corduroy trews." (Rankin 1994, 36f)

The prefix *mis-*, which was used in Old English, became contaminated with French *més-* and gained extra life from that (Marchand 1969, 176f). It was still marginally productive in the twentieth century.

Marchand (1969, 200) gives a brief discussion of the prefix *twi-*, which he says is now restricted to literary use. This literary use in the nineteenth century and the early years of the twentieth is illustrated in *The Oxford English Dictionary*, but I think it has now died out.

The prefix *un-* remains extremely productive, especially when added to adjectives.

Kastovsky (1992) also lists *æf-*, *ed-*, *ge-*, *or-*, *op-*, *sam-*, *sin-*, *wan-* as Old English prefixes and these are not even mentioned by Marchand (1969).

The prefix *en-*, which might look as though it belongs to this set, is of French origin (from Latin *in-*), and is not relevant in this context.

Basically, with the notable exception of *un-*, we have seen a whole class of prefixes vanish in English. Where they have not completely vanished, they have generally been so cut back in productivity as to form very weak patterns, and we can predict that they are likely to die out before very long. This disappearance has, of course, not happened without a corresponding increase in other kinds of left-adjoined obligatorily bound forms. If we consider a list of such elements used in a couple of recent dictionaries of English neologisms, we find that those that are being used are very different indeed.

(3) a-	electro-	multi-	quadra-
agri-	Euro-	nano-	re-
anti-	giga-	narco-	retro-
audio-	hyper-	neo-	sub-
bio-	immuno-	non-	super-
chloro-	info-	para-	techno-
contra-	kilo-	petro-	tele-
counter-	macro-	post-	tera-
cryo-	mega-	pre-	un-
de-	micro-	pro-	under-
dis-	midi-	pseudo-	uni-
eco-	mini-	psycho-	

There are a number of points to be made about this list.

- Most of these are non-native (*un-* and *under-* stand out as exceptions). French, Latin and Greek vie to provide English prefixal elements these days. Even an element like *info-* is clipped to give it a Greek-looking form.
- Although a large number of Romance prefixes became transferred to English as a result of the post-Norman-Conquest spate of French loans, and although many of these (*de-*, *dis-*, *re-*) remain productive in present-day English, they do not provide the heart of the system that might be expected.
- The new prefixed elements contain full vowels. Even prefixes like *re-* and *pre-* in productive use are pronounced with a full vowel (/ri:/, /pri:/) and their own stress (contrast *redo* with a lexicalised *refer* or *prepay* with a lexicalised *prepare*). These prefixed elements are also overwhelmingly disyllabic. Rephrasing that we may say that they have the phonological structure of lexemes rather than that of affixes. While not every phoneme of English is attested in the list given above, it is not clear that there is

any restriction in operation here, as opposed to accidental gaps caused by the fact that e.g., /ɔɪ/ is a rare phoneme of English.

- If we look at these productive prefixal elements from a semantic point of view, we can see that we have moved away from purely grammatical meanings (like transitive verbaliser, negative) and even from the fundamental prepositional meanings (though there are still many of those: *post-*, *pre-*, *pro-*) to meanings which are equivalent to (because derived from) the meanings of lexemes (consider *audio-*, *chloro-*, *kilo-* and *petro-*).

It is easy in English to co-ordinate adjectives: *red and white wines*, for instance. It is also easy to co-ordinate certain nominal premodifiers: *brick and stone walls*. This pattern of co-ordination seems to extend into items which are written as compounds: *gold- or coal-mining* (attested: WCWNZE J02 169) is fine, although Quirk et al. (1985, 971) claim that *tooth- and headaches* is not. From the data just presented, it might appear that what is permitted has in some way to do with the independence of the modifier as a word in its own right. This is only true to a certain extent. Investigations by Booij (1985), Okada (1999) and Smith (2000) indicate that in Dutch, German and English what is permissible in such constructions is largely dependent upon the phonological structure of the elements superficially co-ordinated and that of the head element. (Note that strictly speaking the superficially coordinated elements in an expression such as *pre- and post-conceptual counseling*, from FROWN [H10 087], are not immediate constituents and thus rather odd co-ordinates.) Specifically, anything which is to end up looking as though it is co-ordinated must have the phonological structure of a word (and sometimes the phonological structure of one element has to be modified to allow this to happen). The reason this is relevant in the context of this paper is that some prefixes can arise in such constructions. Quirk et al. (1985, 970) cite *ante- and post-natal*, *pro- and anti-establishment*, *sub- and super-human*. Not all prefixes can freely occur in this construction, though: **im- and exports* is ruled out by Quirk et al. (ibid.) though there are several possible reasons for the exclusion of this particular example. Even *un- or malformed fetuses* seems marginal, and Stein (2002) suggests that only polarised prefixes can occur in this type of construction. One of the striking things about the list of currently productive prefixes is that they virtually all have an appropriate phonological structure to allow them to participate in this construction (they may, of course, be prevented for semantic reasons, but that is a separate matter). Prefixes like *be-*, which are in the process of vanishing, do not have this structure. One result of this is thus that prefixal elements are looking more and more like phonological words. Sometimes some of these elements even look

as though they are more than simply phonologically word-like, in that they end up in a construction co-ordinated with a real word: *para- and alternative medics* (WCWNZE J47 159), *fore- and mainmasts* (WCWNZE K17 044).

Further, some of these prefixal elements are starting to show a greater level of independence by becoming clippings or free words: *anti, mini, pro, sub, super*. Note that while words like *anti* and *pro* are turning into free prepositional adverbs, other examples are becoming nouns, a distinction largely controlled by the semantics of the element concerned and the method of word-formation (clippings retain the part of speech of the long base form). Similar developments can be observed with a number of Graeco-Latinate elements which are becoming used as free words: *amnio, audio, hyper, micro, macro, photo, tele* (usually spelt *telly*).

What these things have in common is a move away from the obligatorily bound status of prefixes towards a situation where the elements which are added to the left-hand edge of English words are in themselves more word-like. This can be seen as a movement away from prefixation and towards something more like compounding. Note, however, that this is not simply a rejection of boundedness; it is a gradual not an abrupt shift, perhaps a conspiracy (in Kisseberth's 1970 terms).

Interestingly, the situation we appear to be heading towards is not new. Nearly all of the true prefixes in Dutch or German had their origins in free forms (Pribsch-Collinson 1962, 253ff), and in Old English some prefixes had stressed and unstressed forms, and the relationship between the two may or may not have been obvious to speakers of the language (Lass 1994, 203ff). Thus we have evidence for nearly a full cycle: a cycle from compounding through to prefixation (through loss of stress and phonetic erosion) and back to something which is starting to look again more like compounding. We can even give a post-hoc rationalisation of why these changes should have taken place. The change from compounding to prefixation takes place, as I just observed, for phonetic reasons, with elements in unstressed position maintaining neither their vowel qualities nor the full range of consonant distinctions. The change from prefixation to compounding can be justified on the basis that this second pattern has always been present: in German the prepositional adverbs such as *an, auf, aus, mit, nach* etc. have always been used as prefixes, and in English, too, elements like *in-, over-* and *with-* (this last no longer productive, but analysable in words like *withhold, withstand*) mean that the pattern has always been available—and not only available but phonologically and semantically transparent, regular and type- and token frequent, all factors which might be expected to lead to productivity of the pattern. The

fact of the re-emergence of an ancient pattern is thus perhaps explicable in language-specific terms. The way in which the ancient pattern is re-emerging is, it seems to me, of some independent interest.

The new pattern is emerging through a conspiracy: the failure of the stressless native true prefixes to remain productive, the gradual lexicalisation of prefixes from Romance, and the use of obligatorily bound stems as if they were part of the dominating word-based morphology.

Because compounding is so important in English and other Germanic languages, a pull towards a compounding type may be expected. This would lead to the prediction that similar tendencies in Romance languages would be far less strong, Romance generally having less compounding than Germanic. Clearly English has never got very far down the prefixation route (although seventeenth century English would have looked far more like that than modern English does). Having seen the shift in English, the open question is whether this has implications for other things. One possibility is that this is linked to the suffixing preference (Cutler et al. 1985). Cutler et al. point out that there are some types of category which seem to prefer suffixal marking cross-linguistically. One of these is valency marking. The prefix in a word like *bemoan* is precisely a valency marker, and is thus a counter-example to the universally unmarked pattern. We would not expect this in itself to cause a change in the word-formation patterns of an individual language, unless there were strong processing reasons for the original observation. Cutler et al. argue that this has to do with the importance of word-beginnings for word-perception. Since true prefixes mask the beginnings of words, they should, according to this view, hinder perception (though note that this observation should hold true only with productive prefixes which have to be analysed on-line). Replacing prefixes with words increases the number of items to be perceived, but should facilitate that perception.

We might speculate that due to phonetic erosion, English was placed in a position where it had prefixes, and was thus free to borrow more prefixes from Romance, Greek and Latin in a relatively unconstrained manner. It is now reverting to type, and losing its prefixes again in favour of a greater density of things that look like compounds. Whether this is actually a typological difference, along the lines of the factors discussed by Kastovsky (e.g., 2000), is something which could be discussed. It is not a parameter which Kastovsky lists, but a change from obligatorily bound affixes to combinations of potentially free items looks like a change from synthesis towards analysis, and so seeing this as a potential typological shift does not seem too much to claim. It remains to be seen, of course, what changes to English might result from

a change of type of this nature, if any. What may be more relevant in the short term is that this tendency in English may illustrate a diachronic process which strengthens the suffixing preference, and thus provides the kind of linkage between synchronic patterns and diachronic processes which is sought by Hall (1992).

Corpora

FROWN. The Freiburg Brown Corpus of American English.

See [HTTP://WWW.HIT.UIB.NO/ICAME/FROWN/INDEX.HTM](http://www.hit.uib.no/icame/frown/index.htm)

WCWNZE. The Wellington Corpus of Written New Zealand English.

See [HTTP://KHNT.HIT.UIB.NO/ICAME/MANUALS/WELLMAN/INDEX.HTM](http://khnt.hit.uib.no/icame/manuals/wellman/index.htm)

References

- Barnhart, Clarence L. – Sol Steinmetz – Robert K. Barnhart 1973. *The Barnhart dictionary of New English 1963–1972*. Longman, London.
- Booij, Geert E. 1985. Coordination reduction in complex words: a case for prosodic phonology. In: Harry van der Hulst – Norval Smith (eds) *Advances in nonlinear phonology*, 143–60. Foris, Dordrecht.
- Cutler, Anne – John A. Hawkins – Gary Gilligan 1985. The suffixing preference: a processing explanation. In: *Linguistics* 23: 723–58.
- Hall, Christopher J. 1992. *Morphology and mind*. Routledge, London.
- Kastovsky, Dieter 1992. Semantics and vocabulary. In: Richard M. Hogg (ed.) *The Cambridge history of the English language. Volume 1: The beginnings to 1066*, 290–408. Cambridge University Press, Cambridge.
- Kastovsky, Dieter 2000. English morphology: a typological reappraisal. In: Chris Schaner-Wolles – John Remison – Friederich Neubarth (eds) *Naturally!*, 215–24. Rosenberg and Sellier, Turin.
- Kisseberth, Charles W. 1970. On the functional unity of phonological rules. In: *Linguistic Inquiry* 1: 291–306.
- Lass, Roger 1994. *Old English*. Cambridge University Press, Cambridge.
- Marchand, Hans 1969. *The categories and types of present-day English word-formation* (Second edition). Beck, Munich.
- Okada, Sadayuki 1999. On the conjoinability of affixal morphemes in English. In: *Word* 50: 339–63.
- Pribsch, R. – W.E. Collinson 1962. *The German language* (Fifth edition). Faber and Faber, London.
- Quirk, Randolph – Sidney Greenbaum – Geoffrey Leech – Jan Svartvik 1985. *A comprehensive grammar of the English language*. Longman, London.

- Rankin, Robert 1994. Raiders of the lost car park. Corgi, London.
- Smith, George 2000. Word remnants and co-ordination. In: Rolf Thieroff - Matthias Tamrat - Nanna Furhop - Oliver Teuber (eds) *Deutsche Grammatik in Theorie und Praxis*, 57-68. Niemeyer, Tübingen.
- Stein, Gabriele 2002. The word and its inseparability. In: Sybil Scholtz - Monika Klages - Evelyn Hantson - Ute Römer (eds) *Language: context and cognition*, 289-99. Langenscheidt-Longman, München.

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VERBAL PREFIXATION IN GERMAN CHILD AND ADULT LANGUAGE

HEIKE BEHRENS

Abstract

Previous research has demonstrated that children pick up even small differences in the lexicalization patterns of closely related languages quickly and successfully. This study examines verbal prefixation in German child and adult language, using a particularly detailed case study. The data show that the child starts to produce prefixed verbs and prepositional phrases within a few months. More crucially, the child's speech gets attuned to the precise frequency distribution of these constructions in the input. These findings support theories of linguistic relativity which emphasize the importance of the conventionality in language use for language processing and acquisition. A look at the input language reveals that the adults use hundreds of lexical items per hour which provide information about the use of verbal prefixation. Also, input frequencies did not change over time. This suggests that the structural properties of a given language are very stable, and help the child to become a proficient speaker.

Verbal prefixes play an important role in Germanic languages, and consequently in their acquisition. In terms of semantics, German represents a so-called satellite-verb language (Talmy 1985) with a division of labour between verb and prefix: the verb roots tend to encode manner information (e.g., manner-of-motion like *scurry* or *jump*), whereas the verbal prefixes encode directional, locational or aspectual information (*jump up*, *fall down*).

From a syntactic perspective, German has two types of verbal prefixes: separable and inseparable ones. I will refer to the first as "particle verbs" and to the latter as "prefix verbs". Prefix verbs resemble English ones like *er-innern* ('re-mind') or *ent-spannen* ('un-wind'). Particle verbs, however, differ from English in that the particle precedes the verb in the unseparated forms like infinitives or past participles (*weg-schwimmen* 'swim away' or *weg-ge-schwommen* 'swum away'). But finite forms in main clauses are separated, following the general rules of German verb placement (1). In subordinate clauses, however, particle verbs are not separated and appear sentence finally (2).

- (1) Er schwamm vor den grossen Haien weg
 he swam from the big sharks away
 'He swam away from the big sharks.'
- (2) Er hatte so grosse Angst, dass er vor den Haien wegschwamm
 he had such big fear, that he from the sharks away.swam
 'He was so afraid that he swam away from the sharks.'

In contrast to most inseparable prefixes, particles are independent lexical units. They can occur in isolation, and in many cases they are identical to prepositions (for a more detailed survey of the properties of German and Dutch particle verbs see Blom-Booij 2003).

This paper focusses on the acquisition of particle verbs, a much larger and more productive group than the prefix verbs. Their syntactic separability makes German particle verbs a complex phenomenon to acquire: First, children have to learn that these particle verb combinations are lexical units across different syntactic conditions. Second, they have to identify the conditions under which they are separated. There are several studies which focussed on the syntactic competence of children, i.e., when and how they become able to use particle verbs in accordance with adult-like syntactic representations. These studies emphasize that the basic syntactic properties of language are acquired early (e.g., Bennis et al. 1995). But the emphasis of this paper is not on the syntactic properties of particle verb constructions as such, but on the processes by which children get attuned to the distribution or use of particle verb constructions as opposed to other syntactic alternatives like prepositional phrases. This approach fits in with recent developments in language acquisition theory and typological research which emphasize the role of language use for shaping children's grammar and adults' preferences for encoding events (see below).

1. Individual and intra-typological variation in the acquisition of particle verbs

Previous research in several Germanic languages has shown that particle verbs do not provide an acquisition problem. They are not delayed because children would first focus on simplex verbs and acquire the more complex particle verbs only later (e.g., Behrens 1998). It is likely that the acquisition of particle verbs is facilitated by the previous and frequent use of verbal particles in isolation. Typically, children learning Germanic languages use particles like *up* in a verb-like fashion (to mean 'I want up'), before they acquire true lexical

verbs (Clark 1993). Likewise, particle verbs are often acquired earlier than semantically corresponding simplex verbs. For instance, children are more likely to use particle verbs like *auf-machen* ('to make open', i.e., 'to open') and *zu-machen* ('to make close', i.e., 'to close') than the equivalent *öffnen* ('to open') or *schliessen* ('to close') (Behrens 1998). This preference for particle verbs indicates that morphological and syntactic complexity do not form obstacles for language acquisition. Instead, from a functional perspective, both the particle and the verb root carry meaning, and their compositionality may simplify the identification of their semantics. Moreover, from a morphological perspective, particle verbs may facilitate acquisition because children can build up a rich repertoire of particle verbs with just a few verb roots. This reduces the task of learning paradigms of verb inflection. In sum, it is possible that the child prefers the particle verb variant because it represents a semantically transparent combination of well-mastered verbal particles and highly frequent and semantically light verbs (like *make* or *do*).

But despite children's ease in acquiring particle verbs, previous crosslinguistic research demonstrated that there are distributional differences even between very closely related languages: Ragnarsdóttir–Strömqvist (1997) compared child and adult data from North-Germanic languages and found more prepositional phrases than particle verbs in Icelandic, but more particle verbs than prepositional phrases in Swedish. Regarding West-Germanic child language Behrens (1998) found that German children use more particle verbs than Dutch or English children, but that Dutch and English children use more prepositional phrases than German children. The difference between German and Dutch is quite surprising because they have identical structural properties. That is, Dutch particle verbs are as simple or difficult as German ones. Thus, the difference in the proportion of particles in child language supposedly lies outside the purely syntactic domain. From a usage-based perspective (Tomasello 2000b), the child could simply use these particle verbs because adults show this preference, too. To date, there are hardly any reliable linguistic data on the distribution of these structures in the input. In this paper I will try to fill this void for German child and adult language, and to answer questions regarding the nature of the input children get over time.

2. Research questions

Are children sensitive to the distributional preferences found in the adult language or do they over- or underuse certain structures, and if so, when?

Are developmental changes influenced by changes in the input language such that adults adopt their speaking style to the growing linguistic capacities of the child? To investigate these issues, I will first compare the use of particle verbs between German child and adult language across language development.

The next question to ask is what causes children's early proficiency with particle verbs. If children initially prefer them because of their semantic and morphological transparency, they should be relatively more frequent in the child than in the input data. In addition, early particle verbs should be restricted to relatively fewer verb roots than later on. Finally, I will look at the speech production rate in adult and child language in order to address the issue of how the conventions of language use might influence the acquisition process.

3. The database

The analyses are based on data from a particularly detailed case study of a monolingual German boy called Leo. The data cover Leo's language development from the onset of the two-word stage at age 1;11 (age in years;months) up to age 4;11, when complex sentences were well established. Our so-called "High-Density-Developmental-Corpus" contains diary data as well as five one-hour recordings per week between the ages of two and three, and a follow-up study of five hours a week once a month for another two years. That is, these acquisition data were sampled at a 5 to 10 times higher rate than usual for acquisition corpora. All recordings were made in the child's home setting. Between 2;0 and 3;6 one particular research assistant did one recording a week, the rest of the recordings were made by the parents. All recordings were transcribed according to the guidelines of the CHILDES-system (MacWhinney 2000).

4. Coding categories

There is a total of 383 one-hour recordings. The corpus size of the child data is almost half a million words (~496,000). The corpus of the adult input contains 1,354,000 words. All child data and a size-matched corpus of the adult data (~528,000 words) were coded for part of speech, inflection, and lemma information. Regarding the parental speech, samples were taken from different intervals across the investigation period because it is conceivable that

parents adapt their speaking style to the growing linguistic capacities of the child. For the domain studied here, only the part of speech and the lemma information are relevant:

- (3) PART-OF-SPEECH CODING
- (a) **simplex main verb** (without particle)
Excluded are modal verbs, auxiliaries, and copula tokens.
 - (b) **unseparated particle verbs**
(e.g., *aufmachen* 'open.make')
 - (c) **separated particle verbs**
(e.g., *er macht es auf* 'he makes it open' = 'opens it')
 - (d) verbal **particles** without lexical main verb, when used in a verb-like fashion
(e.g., *hoch!* 'up!' ; *muss ab* 'must off')¹
 - (e) **prepositions** heading an NP or PRO

In addition, the codes provide lemma information and relate all inflected forms to their citation form. In the case of verbal prefixation, special characters mark whether it is an inseparable prefix verb or a separable particle verb. The codes also indicate whether particle verbs occurred in separated or unseparated format. A set of control commands was run to check the consistency of coding.

5. Analyses

5.1. Structural diversity and development

In this section I will look at the distribution of satellite and verb tokens in the child and the adult data. The first analysis compares the proportion of simplex, particle, and prefix verbs in the dense database to the data from German, Dutch and English child language presented in Behrens (1998). The second analysis takes a closer look at the child's development, as well as at

¹ Particles outside of particle verb constructions pose certain coding problems because they also occur in other constructions: when they occur with copulas, they function as sentence adverbials and were coded as adverb, not particle (e.g., *ist weg* 'is away'). When they occur with modal verbs, however, they were coded as particle because they tend to represent an elliptical main verb (e.g., *wir müssen weg* 'we must away' means something like 'we must go away'). From this it follows that combinations of "copula + adverb" or "modal verb + particle" were not coded as particle verbs. Only combinations of lexical verbs and particles were coded as particle verbs.

the distributional patterns in the input language over time. The aim is to see when the child's system stabilizes, and to provide information about the stability or variability of the input across development. Finally, the proportion of particle verbs in the adult and child data is compared to test whether particle verbs offer a more salient perspective for the child.

As pointed out above, the proportions in the use of particle verbs varied between German, Dutch, and English children (Behrens 1998). The first question to ask is whether Leo behaves like the other German children, or whether he shows a different patterning, due to either different individual preferences (as is the case for the Dutch boy Niek), or due to the more reliable sample size. The second question to address is whether we see a similar distribution in the adult data, i.e., Leo's ambient language. Table 1 reproduces the data from Behrens (1998, 692) and adds the corresponding information for Leo and his input. The number of verb tokens includes all verbs which function as the main verb of an utterance (i.e., lexical verbs, copulas, and modal verbs).

Table 1
Percentage of particle and prefix verb tokens

Language	Child	Age studied (years;months)	n = verb tokens	% simplex verbs	% particle verbs	% prefix verbs
English	Naomi	1;2-3;8	8545	89	11	<1
	Adam	2;3-4;0	22958	89	11	<1
Dutch	Laura	1;9-2;1 and 2;9-2;10	977	94	6	<1
	Thomas	2;3-2;11	5404	88	11	<1
	Hein	2;4-3;1	4851	89	10	<1
	Niek	2;7-3;11	6082	81	18	1
German	Julia	1;11-2;5	205	70	30	0
	Daniel	2;9-3;6	618	77	22	<1
	Mathias	2;9-3;6	752	78	21	1
	Simone	1;9-4;0	13323	81	18	1
	Leo	1;11-4;11	69864	77	20	3
	Leo's input	sample	85110	78	18	4

It turns out that Leo and his adult conversation partners use a very similar proportion of particle verbs, and that they resemble all other German children (except Julia) quite closely, but show a different distribution from the Dutch and English children (except Niek). Both Leo and his caregivers use more inseparable prefix verbs than the other children in the sample. Inseparable prefix verbs tend to be semantically more abstract and tend to belong to a

higher repertoire. Hence their higher proportion is probably due to the fact that the Leo-corpus includes data up to a later age and is therefore more likely to capture semantically and conceptually more advanced vocabulary. Also, the chance of sampling infrequent items increases with sample size.

It is noteworthy that within each language the distribution of these structures is the same regardless of the sample size (e.g., the Leo and input corpora are about 100 times larger than the Daniel and Mathias corpora). That is, the distributional properties seem to be fairly stable features of (spoken) language. The only exceptions are the data of Dutch Niek, who seems to be an outlier for Dutch in several respects (Wijnen–Bol 1994; Behrens 1998), as well as the data for Dutch Laura and German Julia. Their corpora, however, are not only small in size, but also cover mainly the very early stages of development. It is likely that the distribution differs in the early stages of language development, but that this difference levels out in the later stages.

5.2. Overall comparison adult – child

The following comparisons of Leo and his caregivers include the five categories listed in (1) above. However, the computation differs from that in Table 1 and Behrens (1998), where the count of simplex verbs included copulas and modal verbs when they were the main verb of a clause. But since copulas and modals do not form particle verbs, they are excluded here. This step reduces the number of simplex verbs compared to Table 1, but helps to provide a clearer picture of the proportion of verbal prefixation, because this analysis as well as the following ones includes only those simplex verb roots which in principle could combine with particles.

Table 2
Overall frequency of verbs and satellites (token frequency)

	LEXICAL VERBS			PARTICLES	PREPOSITIONS
	Simplex Verbs	Unseparated Particle Verbs	Separated Particle Verbs		
Leo	40.956	9.331	4.362	6.431	18.146
Input	48.531	8.165	7.505	2.212	16.551

Given that the adult sample is slightly larger than the child's, it turns out that the overall figures for simplex and particle verbs are quite compatible. The main difference regarding verb use is that the adults produce separated and unseparated particle verbs in even distribution, whereas Leo prefers the

unseparated variant. Also, Leo produces many more isolated particles than the parents, and slightly more prepositional phrases.²

5.3. The distribution of verbs and satellites in development

In the next analyses, I take a developmental perspective and look at the distribution of verbs and satellites in Leo's speech and the input. Figure 1 shows the proportion of the five relevant categories in Leo's data across the three-year investigation period.

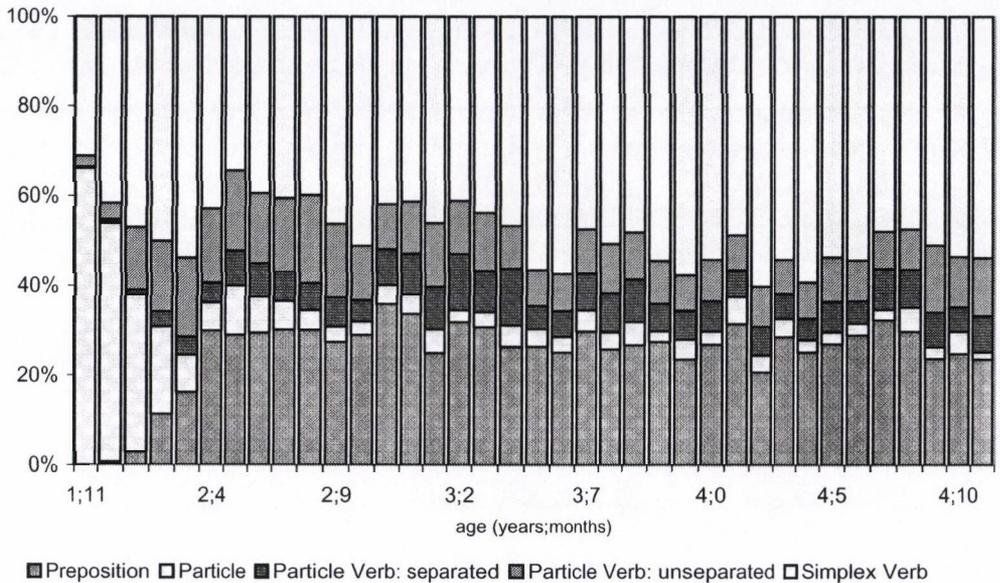


Fig. 1

Distributions of satellites and verbs: Leo

² Compared to the other German children studied in Behrens (1998, 699), it is striking that Leo uses many more prepositions. Their ratio of PPs to main verbs was 1:13 whereas for Leo it is 1:4. In that, Leo's frequency of PPs resembles that of the Dutch and English children who used more prepositional phrases than particle verbs. However, Leo uses particle verbs at the same rate as the other German children. Thus, he does not use PPs *in lieu* of particle verbs, but in addition to them. Leo's frequent use of PPs may be due to his favourite topics train rides and constructing toy train landscapes or lego buildings. That is, he was constantly talking about trains going *from* here *to* there, or about putting things *on/up/under* something else.

In the first two months, Leo's system basically consists of isolated verbal particles and simplex verbs. Satellites predominantly occur as isolated particles up to age 2;1. But already at age 2;2 particle verbs are used at their later level of frequency. First, they mainly occur in unseparated form. Separated particle verbs reach their later level of representation a few months later at age 2;6, and become as frequent as unseparated particle verbs by age 2;11. Also, prepositional phrases reach their later level of frequency at age 2;4. After age 2;6, the proportion of representation varies slightly, but there is no developmental trend towards the disappearance or increase of particular structures.

When we look at the adults (Figure 2) we see that the distribution of the respective structures stays stable over time. Only at 1;11 they use more isolated particles than later on. This shows that although Leo's caregivers are quite attuned to the child in these recording sessions (and beyond!), they do not simplify their grammar by using fewer verbs. Another difference is that the occurrence of separated and unseparated particle verbs is balanced in the adults whereas Leo takes almost a year for his unseparated verbs to catch up.

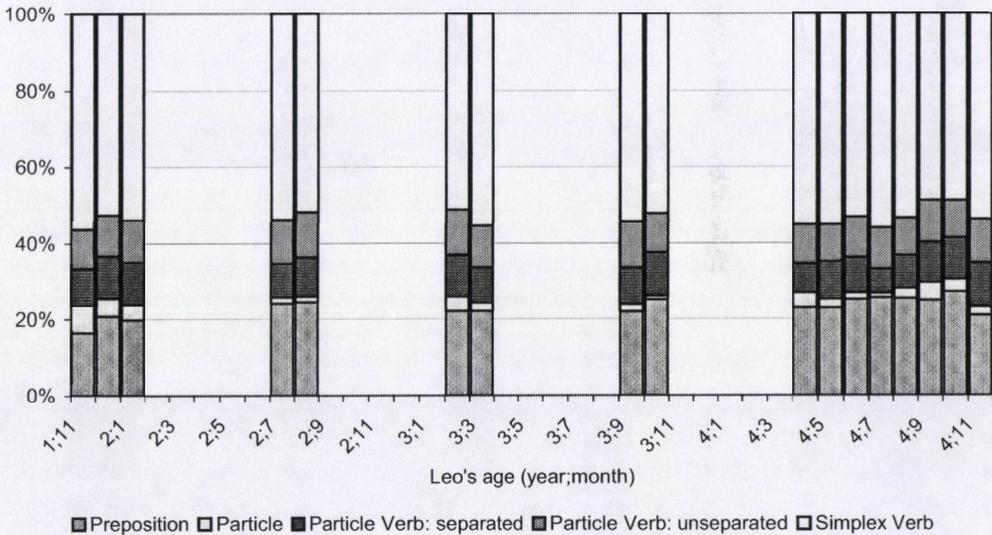


Fig. 2
Distributions of satellites and verbs in the input

The figures presented so far show that Leo does not have problems with particle verbs. But how does his use of particle verbs compare to that of the adults? Figure 3 depicts the percentage of particle verbs (based on the sum of simplex and particle verb tokens) across development.

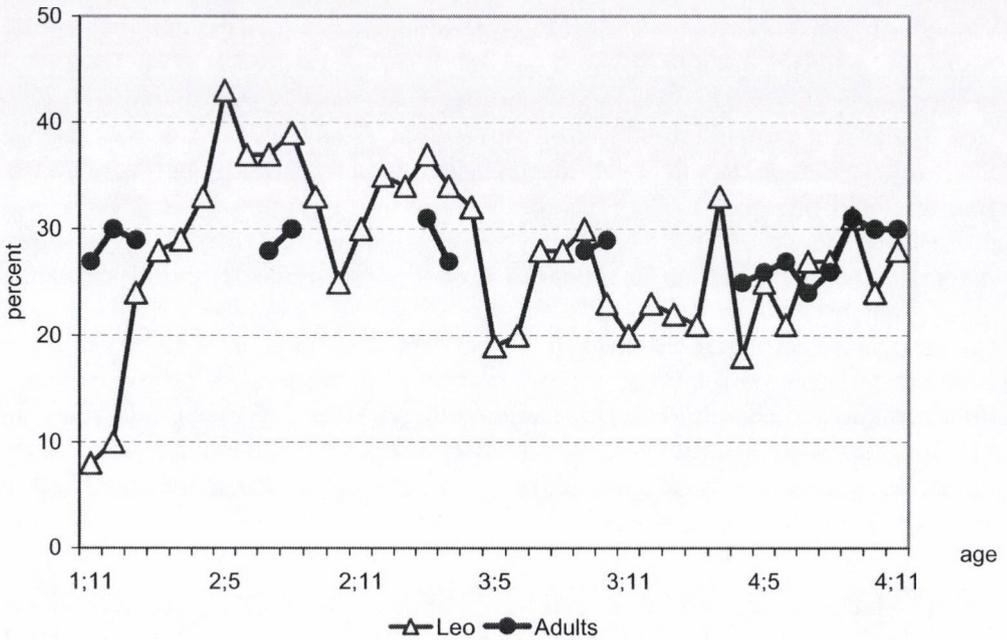


Fig. 3
Percentage of particle verb tokens

In the adults, the rate of particle verbs varies only slightly between 24% and 31%. In Leo's data, however, the proportion of particle verbs is more variable. First, it takes him some three months to reach the adult level. Subsequently, he overuses particle verb for about a year, and then underuses it. It is only in the last eight months of the observation period that his use of particle verbs approximates that of the adults.

A possible explanation for this initial over-use is that Leo acquires particle verb constructions so easily because he starts out by using a few verbs which he masters very well. If this hypothesis is correct, early particle verbs should be restricted to relatively fewer verb-roots than later on. Likewise, the relative proportion of simplex, but lexically-specific verbs should increase over time. This hypothesis can be tested by looking at the lexical diversity over time.

5.4. Lexical diversity

Prefix and particle verbs play an important role in the child's verb lexicon. In the three year observation period we sampled 2890 different main verb lemmas

(types). 744 verb types are simplex verbs, 335 unseparable prefix verbs, and 1823 are particle verbs. 554 of the particle verbs occur in both separated and unseparated syntactic contexts. In sum, prefix and particle verbs account for 75% of the child's verb lexicon.

But how productive is the child's early particle verb lexicon? Recall that Figure 3 showed that Leo soon starts to use particle verbs more frequently than his caregivers. Is this due to lexical specificity? It could be that the overuse of particle verbs in the early period is due to the frequent use of just a few verb roots which the child produces with different particles. Such developmental trajectories are proposed by hypotheses which state that children first acquire a syntactic construction with a few prototypical (or pathbreaking) verbs, and take some time to expand their syntactic knowledge to other verbs (e.g., Ninio 1999; Tomasello 2000a). Figure 4 contrasts the frequency of verb roots in particle verbs and in simplex verbs. That is, particle verbs with the same root but different particles were counted as one verb root. In order to check whether there is development towards more lexical diversity, the first and the last six month of the observation period were compared.

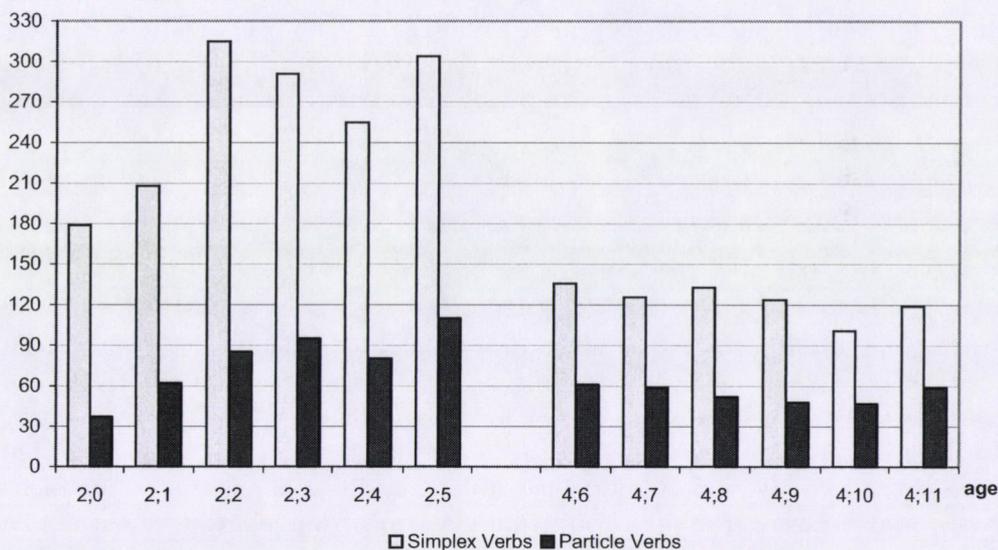


Fig. 4

Token frequency of particle and simplex verb roots

Note that Figure 4 depicts absolute type frequencies where the first six months represent data from about 20 one-hour recordings, whereas the last six months

represent data from only five one-hour recordings. Not surprisingly, the absolute numbers of verb roots increase in the first six months, i.e., the child's verb lexicon increases quickly and stabilizes at 250 to 320 simplex verbs and 80–110 particle verb roots (per 20 recordings). That is, Leo's lexicon is already quite flexible at age 2. Across development, the relative frequency of particle verb roots increases: at age 2;0, there is one particle verb root per 4.8 simplex verb roots, but there is one particle verb root per 2.8 simplex verb roots at age 2;6. The ratio is between 1:2 and 1:2.6 in the last six months of the observation period (age 4;6–4;11). That is, Leo indeed uses relatively fewer particle verb roots in his very early development. But between 2;3 and 2;5, when his overuse of particle verbs starts, the lexical diversity of particle roots has also caught up.

However, type frequency could be misleading in the early stages. E.g., 37 different particle verb roots are attested at age 2;0. It is conceivable that only a few of them account for most of the 127 tokens, whereas the majority occurs only once or twice and might be rote-learned. If that was the case, the proportion of the most frequent particle verbs should go down as the child's vocabulary grows. Table 3 depicts the percentage of the five most frequent particle verb roots, and compares Leo's early development between age 2;0 and 2;6, when he shows a steep increase in the overall proportion of particle verbs (see Figure 3 above), with the last six months of the observation period, when his use of particle verbs corresponds more closely to that of his parents.

Table 3

Percentage of the five most frequent particle verb roots of all particle verb tokens

Age	2;0	2;1	2;2	2;3	2;4	2;5	2;6		4;6	4;7	4;8	4;9	4;10	4;11
%	34	42	37	45	50	42	32		31	29	36	55	43	37

Although there is an increase in the proportion of the five most frequent verb roots in the first five months, this increase does not account for the overuse of particle verbs in the early stage, nor for the adult-like use in the later stage. In both phases, they account for about one third to one half of Leo's particle verb tokens. While this proportion is relatively high, the five most frequent roots are not always the same roots, but may vary from month to month. The only exception to this is the light verb *machen* 'to make' which is among the five most frequent verbs all the time, and often is also the most frequent root in absolute terms. However, this does not confirm the hypothesis that there is a small set of general verbs which dominates the category verb. Rather, the data show the child's temporary focus on certain topics and verbs.

6. Speed of development and implications for acquisition theory

The overall impression from the previous sections is that the child gets attuned to the statistical properties of the input language within a few months. This indeed suggests fast and successful acquisition. But how fast is fast? Does this imply that the child is able to abstract German syntax based on a few exemplars? With a database of this size, we can have a closer look at the production rates for both child and adults, in order to get a better estimate of the input the child receives and the amount of work it takes him to reach the adult level. Figures 5 and 6 show the token frequencies for Leo and the adults for the first 45 days of data collection, when Leo was between age 1;11.15 and 2;0.30.

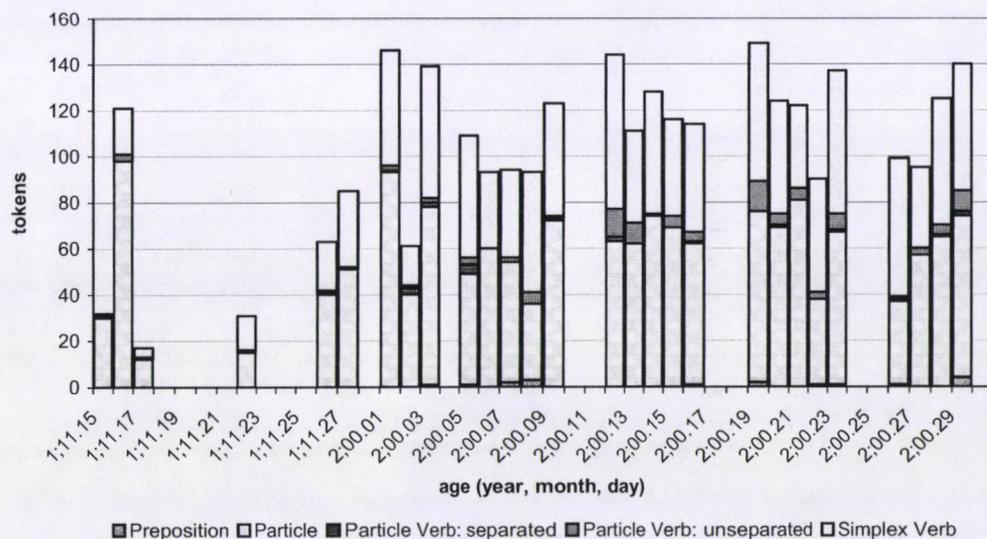


Fig. 5

Token frequency of satellites and verbs in Leo's early development

The token frequencies for the individual recordings differ for several reasons. First, some recordings did not last for a whole hour. This is the case for some of the test recordings at 1;11, but also for some recordings at 2;0, when the child was simply tired. Second, there is of course no fixed norm about how much talk there is within an hour. The adult data (Figure 6) does not show shifts in proportion, but merely the varying token frequencies from one hour to the next. When we compare the adult structures to the child data from the same recordings, there is a high mismatch. Even in the earliest stage of

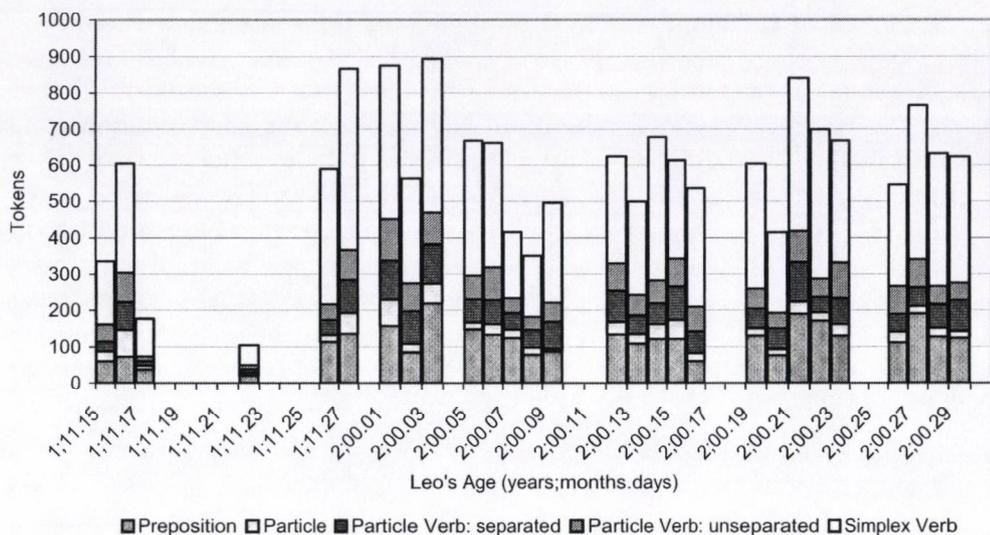


Fig. 6

Token frequency of satellites and verbs in Leo's early input

combinatorial speech Leo produces between 60 and 150 satellites and verbs per session (Figure 5). But his system mainly consists of verbal particles and simplex verbs, with a few unseparated particle verbs coming in. The linguistic progress, when looked at from a day-to-day perspective, is rather small. The adults, however, use some isolated particles (Figure 6), but most of their satellites occur in syntactically unambiguous constructions (particle verbs or prepositional phrases).

These data suggest that while Leo has already identified the component parts in the domain of satellites and verbs, he is not yet able to use them in larger constructions. This restriction is mainly due to the general short utterance length at this stage. At age 1;11, Leo was just at the onset of the two-word stage, at the end of age 2;0, three to four-word utterances were in his production range. But while he is producing such short utterances, the adult input he hears acts as a steady role model or 'corrective'. The token frequency the child gets to hear in each hour is quite remarkable: the adults produce between 500 and 900 lexical elements per hour which provide evidence for the grammatical organization and structural preferences of the target language German.

Figure 5 also allows to draw conclusions about the nature of development regarding the question of whether early, non-adult like constructions just disappear when the child learns the adult way of encoding events, or whether these premature constructions remain to be used in parallel to the more advanced ones. Crucially, the course of development shows that while the proportion between verbal particles and simplex verbs shifts (cf. Figure 3 above), the absolute frequency of verbal particles does not go down. Rather, new acquisitions like simplex and particle verbs come in on top of structures mastered earlier. Thus, the token frequencies show the enormous amount of practice with which early structures are used before new ones come in. And they show that developmental change may not be a matter of re-organization of the system by replacing less advanced structures by more advanced structures, but of adding the more advanced structures on top of the less advanced structures, which still form the backbone of the child's language production. If this interpretation proves to be correct for other structural domains, it follows that the most important aspect of language development is not the emergence of a new structure, but establishing these structures in language production. In the final section I will outline this perspective.

7. Language acquisition as an automatization process

Psycholinguistic research on language production and comprehension emphasises the speed and high degree of automatization in language processing (e.g., Levelt 1989). But of course, such skills have to be acquired, i.e., language production has to be routinized. To support this claim, I computed the production rate of the five constructions under investigation. Table 4 presents the average frequencies per hour in the adult data and in Leo's data at the beginning and the end of the observation period.

The adult data show the speed of language production: on average, there are 576 satellite or verb tokens per hour, or one every 6 seconds. Naturally, the two-year old Leo lags behind in production rate: simplex verbs and particles occur on a regular basis, but particle verbs and prepositional phrases are still quite rare. Some three years later (age 4;10 to 4;11) he has mastered all of these structural properties and produces syntactically quite advanced constructions. However, his production rate still is about three to four times lower than that of the adults. These figures suggest that what is different in adult language at this stage of the child's development is the higher degree of fluency or automatization.

Table 4

Production rates of satellites and verbs: tokens per hour

	Adults (144 recordings)	Leo, age 2;0 (22 recordings)	Leo, age 4;10 and 4;11 (10 recordings)
Simplex Verbs	337	25	99
Unseparated Particle Verbs	57	2	23
Separated Particle Verbs	52	0.5	13
Particles	15	40	6
Prepositional Phrases	115	0.7	44

8. Summary and discussion

The data presented here give a first insight into the actual frequency and the conventionality of particular linguistic structures. It is likely that when speakers talk that fast, there is not much time to weigh one's words like a poet would. Thus, this case study provides support for a view which sees language acquisition as a process of becoming a fluent and proficient speaker, rather than as one of acquiring syntactic competence only. Syntactic competence, i.e., the ability to produce a certain structure productively, is one aspect of the acquisition process, but does not provide the full picture of language development. In particular, the competence view does not account for how and when we choose between the different structural formats provided in each given language. Recall that Dutch and German have almost the same structural properties, but seem to have different preferences as to when to use them (Behrens 1998). Recent acquisition research has emphasized a performance and production oriented perspective for semantic (e.g., Choi-Bowerman 1991; Brown 1998) and syntactic development (e.g., Slobin 1991; 1997b;c).

Slobin's notion of "thinking for speaking" emphasizes the role of conventionality in language use and language learning, since individual languages seem to shape our perception of states and events, as well as our preferences in how to encode them linguistically. The first prerequisite for this ability is to identify the structural properties of the target language. Ragnarsdóttir-Strömquist (1997) assign such differences to language-specific "packaging and filtering effects". Wijnen et al. (2001) provide a similar account regarding root infinitives in early child language and argue that children do not simply acquire the most frequent structures, but use other information like

verb placement as well. The data analyzed in this paper confirm such a view by providing information about the input that is available over time. The computations of the speech rate in the input revealed that the child is “swamped” in information about the basic syntactic organization of German. And Leo’s course of development shows that his production quickly becomes finely attuned to the distributional properties of the adult language. That is, he adapts his language use to the distributional properties of the language he hears. That children are sensitive to input patterns is also shown in recent experiments which test syntactic priming: children are likely to produce sentence structures they have heard before (Savage et al. 2002).

The second prerequisite for “thinking for speaking” is to find out about the conventional way of encoding events. The input data show that the grammatical properties of the input language remain stable over time. The caregivers did not simplify the language addressed to the small child by avoiding grammatically complex phenomena such as (separated) particle verbs or prepositional phrases. This suggests that particle verbs, which form an obstacle for many second language learners of German, are an unmarked phenomenon for native speakers of German. Slobin (1996) demonstrated that narratives of English- and Spanish-speaking adults differed in the way they depicted events in accordance with the lexicalization patterns of their native language. Such conventions even seem to carry over into second language learning in early adulthood. Laufer–Eliasson (1993) asked speakers from different linguistic backgrounds to judge English sentences which had either a simplex verb or a semantically equivalent particle verb. It turned out that speakers with a satellite-type native language preferred the particle verb variant, whereas speakers with a verb-type native language preferred the simplex verb variant. The data presented here show that the basis for these preferences is laid in very early childhood.

The case study on Leo’s language development provides only a first and rather global impression of when he becomes sensitive to the conventions of language use, and of how these conventions might shape his perception of events. But it is by no means clear how this process works exactly. The high input frequency of the structures under investigation give us some idea of the forcefulness of linguistic conventions. Nevertheless, frequency distribution cannot be deterministic. Languages change over time (cf. the synchronic differences between the Germanic languages), and this implies that speakers are able to acquire new linguistic structures and to override their earlier preferences. Second, the differences between closely related languages are rather subtle. On a global level, German, Dutch and English share the distinction

between prepositional phrases and particle verbs. But in English with its different word order patterns, this distinction is sometimes very hard to draw. German and Dutch are more similar, but not completely identical. They differ, for example, in how particles can be morphologically different from prepositions. German particles often have directional information (compare the preposition *auf* 'on' with the corresponding particles *her-auf* or colloquial *rauf* 'onto'). Dutch particles do not have this property. Instead, word order can encode the difference between directional and locative reading. Future research will have to show which aspects of the input language are responsible for the crosslinguistic differences found in language acquisition, and how the pressure of linguistic conventions relates to the drift of language change.

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References

- Behrens, Heike 1998. How difficult are complex verbs: evidence from German, English and Dutch. In: *Linguistics* 36: 679–712.
- Bennis, Hans – Marcel den Dikken – Peter Jordens – Susan Powers – Jürgen Weissenborn 1995. Picking up particles. In: Dawn MacLaughlin – Susan McEwen (eds.) *Proceedings of the 19th Annual Boston University Conference on Language Development*, 70–81. Cascadilla Press, Somerville MA.
- Blom, Corrien – Geert Booij 2003. The diachrony of complex predicates in Dutch: a case study in grammaticalization. In: *Acta Linguistica Hungarica* 50: 57–87.
- Brown, Penelope 1998. Children's first verbs in Tzeltal: evidence from the early verb category. In: *Linguistics* 36: 713–53.
- Choi, Soonja – Melissa Bowerman 1991. Learning to express motion events in English and Korean: the influence of language-specific lexicalization patterns. In: *Cognition* 41: 83–121.
- Clark, Eve V. 1993. *The lexicon in acquisition*. Cambridge University Press, Cambridge.
- Laufer, Batia – Stig Eliasson 1993. What causes avoidance in L2 learning? L1-L2 difference, L1-L2 similarity or L2 complexity? In: *Studies in Second Language Acquisition* 15: 35–48.

- Levelt, Willem J.M. 1989. *Speaking: From intention to articulation*. MIT Press, Cambridge MA.
- MacWhinney, Brian 2000. *The CHILDES-Project: tools for analyzing talk (Third edition)*. Erlbaum, Mahwah NJ.
- Ninio, Anat 1999. Pathbreaking verbs in syntactic development and the question of prototypical transitivity. In: *Journal of Child Language* 26: 619–53.
- Ragnarsdóttir, Hrafnhildur – Sven Strömquist 1997. The linguistic encoding of spatial relations in Scandinavian child language development. In: Eve Clark (ed.) *Proceedings of the 28th Child Language Research Forum*, 271–83. CSLI Publications, Stanford CA.
- Savage, Ceri – Elena V. M. Lieven – Anna Theakston – Michael Tomasello 2002. Testing the abstractness of children's linguistic representation: lexical and structural priming of syntactic constructions in young children. *MPI for Evolutionary Anthropology, Leipzig*.
- Slobin, Dan I. 1991. Learning to think for speaking: native language, cognition and rhetorical style. In: *Pragmatics* 1: 7–25.
- Slobin, Dan I. 1996. Typology and rhetoric: verbs of motion in English and Spanish. In: Masayoshi Shibatani – Sandra A. Thompson (eds.) *Grammatical constructions: their form and meaning*, 195–219. Oxford University Press, Oxford.
- Slobin, Dan I. (ed.) 1997a. *The crosslinguistic study of language acquisition. Volume 5: Expanding the contexts*. Erlbaum, Mahwah NJ.
- Slobin, Dan I. 1997b. The origins of grammaticizable notions: beyond the individual mind. In: Slobin (1997a, 265–323).
- Slobin, Dan I. 1997c. The universal, the typological, and the particular in language acquisition. In: Slobin (1997a, 1–39).
- Talmy, Leonard 1985. Lexicalization patterns: semantic structures in lexical forms. In: Timothy E. Shopen (ed.) *Language typology and syntactic description. Vol. 3: Grammatical categories and the lexicon*, 57–149. Cambridge University Press, Cambridge.
- Tomasello, Michael 2000a. Do young children have adult syntactic competence? In: *Cognition* 74: 209–53.
- Tomasello, Michael 2000b. First steps toward a usage-based theory of language acquisition. In: *Cognitive Linguistics* 11: 61–82.
- Wijnen, Frank – Gerard Bol 1994. *The escape from the optional infinitive stage*. Manuscript. Rijksuniversiteit Groningen.
- Wijnen, Frank – Masja Kempen – Steven Gillis 2001. Root infinitives in early Dutch child language: an effect of input? In: *Journal of Child Language* 28: 629–60.

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THE DIACHRONY OF COMPLEX PREDICATES IN DUTCH: A CASE STUDY IN GRAMMATICALIZATION*

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Abstract

This paper investigates the grammaticalization of words into prefixes, via the intermediate stage of separable particles. Particle-verb combinations are analysed as constructional idioms, whereas prefixed verbs are analysed as words.

We hypothesize that semantic change triggers the structural change of particles becoming inseparable prefixes. In this way, syntax reflects semantics: the loss of independent semantic content, accompanied by other specific semantic developments, triggers the loss of syntactic independence. Data from Middle and Modern Dutch are discussed to illustrate the validity of the hypothesis and to show that semantic changes indeed precede syntactic changes in the development of particles into prefixes.

1. Introduction

Many languages have preverb-verb combinations that function as complex predicates, but are not prefixed verbs. We find such complex predicates in Dutch, in other Germanic languages like German (Stiebels–Wunderlich 1994; Lüdeling 1999), in many Indo-European languages (Watkins 1964), in Finno-Ugric languages such as Hungarian and Estonian (Ackerman–LeSourd 1997), and in Caucasian languages such as Udi (Harris 2003). They form a subset of the class of phrasal predicates discussed in Ackerman–Webelhuth (1998).

Modern Dutch complex verbs are traditionally classified as separable (Separable Complex Verb, SCV) or inseparable (Inseparable Complex Verb, ICV). The following sentences illustrate the use of SCVs, both with SOV word order (embedded clauses) and with SVO word order (main clauses) (cf. Booi 2002a;b):¹

* We would like to thank the anonymous reviewers for their valuable comments on an earlier version of this paper.

¹ In the examples, the particles/prefixes and the verbs are underlined.

- (1) (a) ... dat Hans zijn moeder opbelde / Hans belde zijn moeder op
 that Hans his mother up-phoned / Hans phoned his mother up
 '(that) Hans phoned his mother'
- (b) ... dat de fietser neerstortte / De fietser stortte neer
 that the cyclist down-fell / The cyclist fell down
 '(that) the cyclist fell down'

In the first example, the word *op* 'up' that combines with the verb is also used as an adposition. In that case, the non-verbal element is also referred to as a particle, and the SCV is then referred to as a particle verb. Particle verbs form a productive class of SCVs. In the second example, the word *neer* 'down' is also used as an adverb. The fact that SCVs are felt as word-like units is reflected by Dutch orthography, which requires SCVs to be written as one word, without internal spacing, if the two constituents are adjacent.

The basic reason why SCVs have to be considered as word combinations, and not as prefixed words, is that they are separable: in main clauses, the tensed verbal form appears in second position, whereas the other part is stranded. If we assumed SCVs to be words, we would violate the principle of Lexical Integrity that says that syntactic rules cannot refer to elements of morphological structure (Bresnan–Mchombo 1995; Lapointe 1980).

A second phenomenon in which we see the separability of SCVs is Verb Raising. If the verb of an embedded clause is raised to the matrix clause, the SCV can be split, but it can also be treated as a unit.

- (2) (a) ... dat Hans[zijn moeder opbellen]_s wilde
 that Hans his mother up-phone wanted
- (b) ... dat Hans zijn moeder wilde opbellen
 that Hans his mother wanted up-phone
- (c) ... dat Hans zijn moeder op wilde bellen
 that Hans his mother up wanted phone

All meaning 'that Hans wanted to phone his mother'.

In sentence (2b) the whole SCV *opbellen* is raised to the matrix clause, whereas in sentence (2c) the particle *op* is left behind in the embedded clause. This means that either the verb *bellen* only, or the whole SCV *opbellen* can be raised to the matrix clause, and shows that there is certainly a level at which the SCV does form a unit for the syntax. The conclusion from sentences like (2b) that SCVs can behave as syntactic units is supported by the behaviour of SCVs in the progressive construction '*aan het* + infinitive'; compare:

- (3) (a) Hans is zijn moeder aan het opbellen
 Hans is his mother at the up-phone

(b) ?Hans is zijn moeder op aan het bellen
 Hans is his mother up at the phone

(c) *Hans is aan het zijn moeder bellen
 Hans is at the his mother phone

(d) Hans is zijn moeder aan het bellen
 Hans is his mother at the phone

All meaning 'Hans is phoning his mother'.

Whereas *opbellen* can appear after *aan het* without being split, this is not the case for the VP *zijn moeder bellen*, which cannot appear after *aan het*.

The separability of SCVs also manifests itself in the location of the infinitival particle *te* that occurs between the two constituents of SCVs, as in *op te bellen*, and in the form of the perfect/passive participle, with the prefix *ge-* in between the particle and the verbal stem: *opgebeld*. In derivational morphology, SCVs behave similarly; for instance, the *ge-*nominalisation of *opbellen* is *opgebeld*.

A number of these particles also function as real prefixes, i.e., as bound morphemes that cannot be separated from the verb. These prefixed verbs carry main stress on the verbal stem, not on the prefix, whereas the SCVs carry main stress on the non-verbal constituent. Examples are given in (4).

(4)	SCV	PREFIXED VERB
	dóorboor 'to go on drilling'	doorlóop 'to intersect'
	ómblaas 'to blow down'	omslúit 'to enclose'
	ónderduw 'to push under'	ondermíjn 'to undermine'
	óverzet 'to take across'	overkóm 'to happen to'

The meaning of an SCV is often not fully predictable. This semantic unpredictability of SCVs is nicely illustrated by the different SCVs for the verb *vallen* 'to fall' which exhibits a bewildering variety of meanings, in most cases without a meaning constituent that corresponds to the meaning of the verb *vallen*:

(5) aanval 'to attack', afval 'to lose weight', bijval 'to applaud', inval 'to invade, to set in', meeval 'to turn out better than expected', omval 'to fall down', opval 'to draw attention', tegeval 'to disappoint', toeval 'to come into the possession of'

A second important observation is that SCVs freely feed deverbal word formation. Normally, derivation is only fed by words, not by phrases, and this is taken by those linguists who advocate a morphological analysis of SCVs as evidence for the word-status of SCVs (Booij 2002a,b):

- (6) DEVERBAL SUFFIXATION:
 aanbied ‘to offer’ – aanbieder ‘offerer’, aanbieding ‘offer’
 DEVERBAL PREFIXATION:
 invoer ‘to introduce’ – herinvoer ‘to reintroduce’
 COMPOUNDING WITH VERBAL LEFT CONSTITUENT:
 doorkies ‘to dial through’ – doorkiesnummer ‘direct number’

However, it is not the case that syntactic constructs can never feed word formation: both compounding and affixation may be fed by units that are larger than one word.

Another important observation concerning particle verbs is that the addition of a particle may change the syntactic valency of the verb. In many cases, the SCV is transitive, whereas the verb itself is intransitive. Again, the Projection Principle implies that changes in syntactic valency must be due to lexical operations. The following examples from Booij (2002b) illustrate the valency change effect:

- | | |
|--|--|
| (7) bel (optionally transitive) ‘to phone’ | iemand opbel ‘to phone somebody’ |
| juich (intransitive) ‘to cheer’ | iemand toejuich ‘to cheer somebody’ |
| loop (intransitive) ‘to walk’ | de straten afloop ‘to tramp the streets’ |

As we will see in the next section, an adequate account of the properties of SCVs presented above requires the introduction of the notion ‘constructional idiom’.

2. SCVs as constructional idioms

The notion ‘constructional idiom’ as defended in Jackendoff (1997) and in the tradition of construction grammar can be used to do justice to both the syntax-like and the morphology-like properties of SCVs (Booij 2002a). The basic claim is that SCVs all conform to the following syntactic structure scheme:

- (8) [X []_{V'}]_{V'} where X = P, Adv, A or N

By assigning a V' -node to SCVs, we represent their phrasal nature, and hence their syntactic separability. The node V' indicates a first level of projection above the V -node. It cannot be equated with the VP-node in the classical sense, because we must be able to distinguish between SCVs and VPs that contain NPs: in standard Dutch, VPs of embedded clauses cannot be raised to

their matrix clauses, unlike SCVs. Note, furthermore, that the left constituent is a single lexical category, and does not form a phrase. This correctly implies that particles cannot be modified.

A potential additional argument for the non-projecting status of particles is that they are not easily topicalized. If it is only phrases that are topicalized, the reluctance of particles to be topicalized follows from their not heading an XP. However, as argued by Hoeksema (1991a;b), there are examples of particle topicalization of the SCVs *opgaan* 'to rise' and *uitvoeren* 'to export', for instance:

- (9) (a) Óp gaat de zon alleen in het oosten
 up goes the sun only in the east
 'The sun only rises in the east.'
- (b) Úit voert Angola veel koffie
 out drives Angola a lot of coffee
 'Angola exports a lot of coffee.'

It appears that the crucial condition for topicalization is not that of phrasal status, but rather that of contrastive meaning: the particle *op* in *opgaan* 'to rise' can be contrasted with the SCV *ondergaan* 'to set'. Similarly, *uitvoeren* 'to export' can be contrasted to *invoeren* 'to import'. In the case of *opbellen* 'to phone' there is no semantically contrasting particle for *op* available, and hence topicalization of this *op* is impossible. The non-phrasal status of particles that we assume here remains relevant, though, because it explains why topicalization is only possible under very specific circumstances.

In scheme (8), the verbal position is open, and can in principle be filled by any verb. The non-verbal constituent, however, is specified. That is, there are as many different constructional idioms of this kind as there are words that can fill the left position. For instance, Dutch has the following constructional idioms:

- (10) [[af]_P [x]_V]_{V'}
 [[door]_P [x]_V]_{V'}
 [[op]_P [x]_V]_{V'}

that give rise to particle verbs that begin with *af*, *door*, and *op* respectively, with a fixed terminal node for the particle constituent. Each particle may impose semantic constraints on the kind of verbs it combines with. This proposal has two advantages. First, the notion 'particle' has no role outside the constructions under discussion here, and therefore the words *af*, *door* and *op* need not be listed as particles in the lexicon. Secondly, if a specific particle

verb combination is not productive, we will not have the corresponding constructional idiom in the lexicon, but only a list of the individual particle verbs of that type. Note that there are also cases where the verb only occurs in the SCV-construction, cases like *nabootsen* ‘to imitate’ and *omkukelen* ‘to fall down’. These are lexical idioms, with all terminal nodes fixed.

For each constructional idiom of this kind, its meaning will also be specified. For instance, the meaning of the constructional idiom *door-V* will be specified as ‘to go on V-ing’, and the constructional idiom *af-V* will be specified as ‘to finish V-ing’.

3. Grammaticalization

Many of the words designated here as particles also occur as preposition, postposition, or adverb. From a historical point of view, they are presumably all adverbs that developed on the one hand into adpositions, and on the other hand into particles. The relevant generalisation appears to be (Booij 2002b) that only those words function as particles that can function as predicates in combination with the verb *zijn* ‘to be’. For instance, the preposition *met* ‘with’ cannot be used as a predicate, whereas the adverb/postposition *mee* with the same meaning ‘with’ can be used as such, witness the following sentences:

- (11) (a) Jan is ook *met / mee
 John is also with
 ‘John has joined.’
- (b) Ik ga met mijn vader mee
 I go with my father with
 ‘I will accompany my father.’

Here is a list of adpositions/adverbs that can be used as predicates, and also function as particles:

- (12) PREPOSITIONS:
 aan ‘at’, achter ‘behind’, bij ‘at’, binnen ‘inside’, boven ‘above’, buiten ‘outside’, na ‘after’, om ‘around’, onder ‘under’, tegen ‘against’, voor ‘for’
- PREPOSITIONS/POSTPOSITIONS:
 door ‘through’, in ‘in’, langs ‘alongside’, op ‘up’, rond ‘round’, over ‘over’, uit ‘out’, voorbij ‘past’
- POSTPOSITIONS:
 af ‘down’, heen ‘towards’, mee ‘with’, toe ‘to’, ‘shut’

The following list provides examples of the use of each of these particles:

(13) BASE VERB	SCV
zet 'to put'	aanzet 'to stimulate'
blijf 'to stay'	achterblijf 'to stay behind'
werk 'to work'	bijwerk 'to patch up'
loop 'to walk'	binnenloop 'to enter'
kom 'to come'	bovenkom 'to surface'
sluit 'to close'	buitensluit 'to exclude'
denk 'to think'	nadenk 'to think'
breng 'to bring'	ombreng 'to kill'
duik 'to dive'	onderduik 'to hide'
kom 'to come'	tegenkom 'to meet'
kom 'to come'	voorkom 'to occur'
ga 'to go'	doorga 'to continue'
breng 'to bring'	inbreng 'to provide'
kom 'to come'	langskom 'to visit'
kom 'to come'	opkom 'to fight for'
kom 'to come'	rondkom 'to get by'
kom 'to come'	overkom 'to come over'
zet 'to put'	uitzet 'to expel'
ga 'to go'	voorbijga 'to ignore'
maak 'to make'	afmaak 'to finish'
ga 'to go'	heenga 'to die'
doe 'to do'	meedoe 'to participate'
geef 'to give'	toegeef 'to give in'

This restriction on the words that can be used as particles can be seen as a reflection of the origin of the particle verb construction: it is a grammaticalization of a syntactic configuration with secondary predication. For instance, the sentence *Jan maakte zijn huiswerk af* 'John finished his homework' can still receive a syntactic interpretation, with the predicate *af* functioning as a secondary predicate. That is, this sentence can receive the same structural analysis as the sentence *Jan verfde zijn fiets wit* 'John painted his bike white'. In many cases, however, the meaning of particles such as *af* has bleached, and the particles have acquired a mainly aspectual value. For such cases, we have to assume that the predicate-verb combination has grammaticalized into a particle verb construction. In other words, the particle verb construction is the result of reanalysis of syntactic configurations with secondary predication, in syntactic contexts where the words are adjacent, that is, in embedded clauses. For instance, in the clause *...dat Jan zijn huiswerk af maakte*, the word *af* forms a predicate phrase together with *zijn huiswerk*, but it can be reinterpreted as part of a particle verb *afmaak* that has *zijn huiswerk* as its direct object. Thus, these observations illustrate two properties of grammat-

icalization (Hopper–Traugott 1993, 17): “(a) earlier forms may coexist with later ones [...]; (b) earlier meanings may constrain later meanings and/or structural characteristics”. Particles may subsequently grammaticalize further and become (inseparable) prefixes.

It may be useful to stress here that we see grammaticalization as being an effect of mechanisms of language change such as reanalysis, not as a type of change in its own right. In other words, we use the term ‘grammaticalization’ as a convenient descriptive term for the phenomenon that lexical items become grammatical items, and grammatical items become even more grammatical. That also means that unidirectionality is taken to be a defining property of grammaticalization, not a refutable empirical hypothesis about grammaticalization (cf. Campbell 2001). The empirically refutable hypothesis that we defend in this paper is that particular semantic changes, such as bleaching, the becoming more abstract of the meaning of words, can be seen as the trigger (but not as a sufficient or necessary condition) for this grammaticalization development (this hypothesis will be worked out in 4.1).

The second class of SCVs that we mentioned above are those with words that are also used as adverbs but not as adpositions, such as:

(14) *neer* ‘down’, *samen* ‘together’, *terug* ‘back’, *thuis* ‘home’, *weg* ‘away’

In these cases, it is the combination of verb and adverb that is reanalysed as a unit. For instance, in the sentence *Hij legde het boek weg* ‘He put the book away’ it is the combination *weg leggen* that has the syntactic valency of a transitive verb, for which *het boek* functions as direct object: the sentence **Hij legde het boek* ‘He put the book’, without the adverb, is ungrammatical.

The phenomenon of grammaticalization can be circumscribed as: “[...] the process whereby lexical items and constructions come in certain linguistic contexts to serve grammatical functions, and, once grammaticalized, continue to develop new grammatical functions” (Hopper–Traugott 1993, xv). This is indeed what we observe for particle verbs: they are syntactic constructs that function as complex verbs with a number of aspectual properties, and thus developed into constructional idioms.

From the point of view of grammaticalization particles might be seen as intermediate stages in the development of words into bound morphemes, in particular, prefixes. Some particles are also used as inseparable prefixes, as is illustrated in (4), repeated here as (15).

- | | |
|------------------------------|--------------------------|
| (15) SCV | ICV |
| dóorboor 'to go on drilling' | doorlóop 'to intersect' |
| ómblaas 'to blow down' | omslúit 'to enclose' |
| ónderduw 'to push under' | ondermíjn 'to undermine' |
| óverzet 'to take across' | overkóm 'to happen to' |

Our hypothesis is that the change from particles into prefixes involves the loss of independent semantic content and that prefixes impose a holistic interpretation on the complex verb, i.e., the direct object of a prefixed verb is always completely affected by the event expressed by this complex verb. Particles, on the other hand, may or may not have concrete meanings and do not necessarily impose a holistic interpretation on the complex verb. In sum, the following historical development might be hypothesized for Dutch:

- (16) word > particle > prefix

Some morphemes belong to more than one of these categories, for example:

- (17) (a) WORD AND PARTICLE: af, neer 'down', op 'up'
 (b) WORD, PARTICLE, AND PREFIX: achter 'behind', door 'through', mis 'wrong', om 'around', vol 'full'

The prefixes *be-* and *ver-* derive historically from the words *bi* (Modern Dutch *bij* 'at') and *faur/fair/fra* (Modern Dutch *voor* 'for') respectively, whereas *bij* and *voor* function as prepositions and as particles.

The hypothesis that the SCV system may function as an intermediate stage in the grammaticalization of syntactic constructs into morphological constructs is supported by the observation that a number of verbs which were still SCVs in Middle Dutch, have developed into ICVs in Modern Dutch. This applies to, for instance, the following verbs:

- (18) achtervolg 'to run after', omring 'to surround', omsingel 'to surround', overbrug 'to bridge', overval 'to attack suddenly' (source: van Loey 1976)

As the glosses of these examples show, the preverbal elements, originally locational prepositions or adverbs, are semantically bleached and impose a holistic interpretation on the complex verb (the 'affectedness reading') in their uses as inseparable prefixes. That is, we hypothesize that the loss of word status of the particles is triggered by these semantic developments. The following examples serve to illustrate the use of the more concrete, spatial interpretation of these verbs in Middle Dutch, which correlates with separability of *overbruggen* and *omringen*:

- (19) (a) Voort gheven wy hem oorloff eene nieuwe havene te graven ende die over
 further give we him permission a new harbour to dig and that over
 te brugghen
 to bridge
 'Furthermore, we give him permission to dig a new harbour, and to put a bridge
 across it.' (Van Loey 1976, 124)
- (b) Mettien hebben sise ommegeeringhet
 immediately have they-her around-ge-rounded
 'Immediately, they surrounded her.' (Van Loey 1976, 90)

Another example supporting this hypothesis is given in (20):

- (20) ende heeft den almoghende Godt aengebeden
 and has the almighty God at-ge-prayed
 'and prayed to the almighty God' (Hist. Malegijs, l. 1556)

In (20) *áenbidden* 'to pray to' is separated by the present perfect marker *ge-*. This Middle Dutch SCV must be distinguished from the Middle Dutch ICV *anbéden* 'to adore' (MNW 1998). In accordance with our hypothesis, the meaning of the separable particle *aan* in *áenbidden* is more concrete (directional) than that of the inseparable prefix *aan* in *anbéden*. In Modern Dutch, only the ICV *aanbádden* is left, with the meaning of the Middle Dutch ICV *anbéden* 'to adore'.

As noted by van der Horst and van der Horst (1999, 348), there is also a number of verbs that were used as separable in 18th and 19th century Dutch, and that are now inseparable, thus instantiating the same development as took place in Middle Dutch, verbs such as *voorkomen* 'to prevent' and *doorstaan* 'to endure'. In sum, we hypothesize that the preverb position of SCVs can form an intermediate step in the development of words into prefixes.

Let us point out here that we do not claim that semantic bleaching always causes the particles to become prefixes. This is clearly not the case: as the examples in (13) show, there are plenty of SCVs with particles that have lost their spatial interpretation, but do not show any tendency to become prefixed verbs. In this respect there is a similarity with the use of auxiliaries in periphrastic tenses, which do not develop into bound morphemes although the meaning of these verbs has certainly bleached. What we do claim is that when words or particles become prefixes, semantic change is the trigger.

In the next section, we will investigate and substantiate this hypothesis in more detail, by looking at two particles/prefixes in Middle and Modern Dutch.

4. Two test cases: the development of the prefixes *door* and *over*

4.1. Introduction

To test our hypothesis, we looked at Middle and Modern Dutch data of complex verbs with *door* 'through', 'on', and *over* 'over'. The reason for choosing these two particles/prefixes is that they productively form both SCVs and ICVs, which is only the case for a small subset of the Dutch preverbs.² Examples of these two preverbs, both in SCVs and in ICVs, are given in (21).

(21) SCV	ICV
dóorboor 'to go on drilling'	doorlóop 'to intersect'
dóorsnijd 'to cut in two'	doorzóek 'to search'
óverzét 'to take across'	overkóm 'to happen to'
óvergooi 'to throw over'	overstróom 'to flood'

Some general remarks regarding the data have to be made. First, the term 'Middle Dutch' does not refer to an established language; it is a collective term for all dialects spoken in the Low Countries between roughly 1200 and 1600. Because of the fact that there was no standard language yet, many differences between these dialects exist. Besides this geographical variety in the data, there is diachronic variety, since the Middle Dutch period comprises almost four centuries.

We only looked at prose texts, since in poetry word order might be influenced by rhyme demands (Los 2002). It is important to note that the genres left from the Middle Dutch era vary over periods. That is, the oldest texts appearing in the Dutch language are legal documents, written in an official style (1200–1350), whereas religious and scientific texts developed somewhat later (1300–1400). Only from 1400 on, narrative prose texts were written in reasonable numbers. As shown in Blom (2002), large textual differences exist between official, religious, and narrative texts; the most reliable data, regarding word order, seem to be found in narrative texts. Therefore, we excluded data from official and religious texts. In addition to the relatively late narrative texts, we selected a few scientific texts from earlier periods.

We took 13 texts from the *CD-rom Middelnederlands*, a collection of Middle Dutch texts, and selected from these texts all complex verbs with

² By 'preverb' we refer to both particles and prefixes, that is to say to the uses of *door* and *over* in complex verbs, regardless of their (in)separability.

door and *over*.³ Next, we classified these verbs as SCV or ICV on the basis of the types of evidence mentioned in section 1 and briefly repeated here.

Evidence for SCV status is the separation of the particle and the verb, which can be caused by Verb Second movement, by the position of the infinitival marker *te*, by the participial marker *ge-* (in Middle Dutch also written as *ghe-*), or by one or more other verbs, such as auxiliaries and modals. Middle Dutch corpus data in which these factors were attested are given in (22)–(25).⁴

(22) Oriande die in groeter vreesen was ginc vast door (VI-179a1)
 Oriande who in big fear was went steadily on
 ‘Oriande who was afraid went on steadily’

(23) om dan over te reysen na Eggermont (VI-59a)
 for then across to travel to Eggermont
 ‘to travel then further to Eggermont’

(24) Ende si werden van achteren doer gereden (I-159rb)
 and they were from behind in-two ge-driven
 ‘and they were driven apart from behind’

(25) ende hi alle dinc guetelic ouer laet lijden (II-35b)
 and he all things in-a-good-way over let pass
 ‘and he let all things pass by in a good way’

An additional separator in Middle Dutch is the negative particle *ne/en*. An example with this separator is given in (26).

(26) dat ghi dat hersenbeckin niet dore ne bort (VIII-33)
 that you the skull not through ne drill
 ‘that you do not drill the skull in two’

In Modern Dutch, this negative particle does not exist anymore.

Evidence for ICV status is the absence of separation, which can be observed in clauses in which both the preverb and the verb occur in Verb Second position (27) and in clauses in which the infinitival marker *te* precedes both the preverb and the verb (27).⁵

³ The titles, sources, and lengths of these texts are given in the references.

⁴ In the corpus examples the Roman number refers to the text number. This number is followed by the paragraph number in the relevant text.

⁵ It should be noted that the presence or absence of a space between the preverb and the base verb does not give any evidence for respectively SCV- or ICV-hood of the relevant verb in Middle Dutch, since there were no orthographic conventions regarding this issue in the Middle Dutch period.

- (27) ende hi doer stack hem daer hi hinc aen die mure (I-150vb)
 and he through pierced him when he hung on the wall
 'and he stabbed him completely through when he hung on the wall'
- (28) ende meende hem te door rijden (VI-36a)
 and intended him to through drive
 'and intended to run him over completely'

If an auxiliary or modal is present, but does not cause separation of the particle and the verb, as shown in (29)–(30), this does not give conclusive evidence for the ICV status of the complex verb in question, since auxiliaries and modals appear before and after the whole preverb-verb complex in both SCV and ICV constructions.

- (29) dat hy daer mede vrijlijcken door passeren soude (VI-124)
 that he there with freely through pass would
 'so that he would freely pass through with it'
- (30) of si soude dye stadt moeten overgeven (VI-56b)
 or he should the town must away-give
 'otherwise they should have to give the town away'

It thus follows that the word orders auxiliary-preverb-V and preverb-V-auxiliary do not give either SCV or ICV evidence. If, on the other hand, auxiliaries and modals separate the preverb from the verb (preverb-auxiliary-V), as in (25) above, this is unambiguous SCV evidence.

In Middle Dutch, the position of the participial marker *ge-* (or *ghe-*) cannot straightforwardly be taken as evidence for ICV-status either. With respect to *ge-* it must be noted that in Modern Dutch verbs with an unstressed prefix have perfect/passive participles without *ge-*, as shown in (31). In the corresponding SCV, on the other hand, given in (32), *ge-* is present. The absence of *ge-*, in clauses such as (31), then, can be taken as ICV evidence.

- (31) hij heeft het hele land doorkruist
 he has the whole country through-crossed
 'he has intersected the whole country'
- (32) hij heeft de taart doorgesneden
 he has the cake through-ge-cut
 'he has cut the cake through/in two'

In Middle Dutch, however, the participial prefix *ge-* is often omitted, both in simplex and in complex verbs. Therefore, the absence of *ge-* between a preverb and a verb as such cannot be taken as unambiguous ICV evidence.

If, on the other hand, all other participial forms in the relevant text show consistent participial marking, we do take the absence of *ge-* in a complex verb to be ICV evidence.

Another type of construction from which no unambiguous SCV- or ICV-hood can be deduced concerns finite verb forms in subordinate clauses. In Dutch subordinate clauses the finite verb is in clause-final position and in this position the preverb always precedes the base verb: nothing can intervene between these two parts, neither in SCVs, nor in ICVs. The same holds for infinitival forms without *te*, which always appear clause-final and show the order preverb-verb, without separator. In these verbal forms, only stress can disambiguate between SCVs and ICVs, since main stress is on the particle in SCVs and on the verb in ICVs (see also section 1). Since we only have written sources from Middle Dutch, Middle Dutch finite verb forms in subordinate clauses and infinitives without *te* cannot be disambiguated. Examples of these two constructions are given in (33)–(34).

(33) ende sach dat nesteus op hem quam die hem sinen helme doersloech (I-152rb)
 and saw that Nestus up him came who him his helmet through-stroke
 ‘and saw that Nestus came up to him who pierced through his helmet’

(34) Ic hebbe enen enighen soen dien ic v luden beuelen ende ouerleueren wil (II-02a)
 I have an only son who I you men recommend and over-carry want
 ‘I have only one son whom I want to recommend and to give to you’

Our general hypothesis is that there is a relation between the syntactic status and the semantic content of a preverb: if the preverb is a prefix, it will show the typical semantic property of imposing an affectedness reading on the complex verb. This hypothesis can be worked out both synchronically and diachronically.

Synchronically, we expect that an ICV imposes a holistic interpretation on the complex verb, whereas an SCV does not necessarily do so. SCV preverbs, then, show other semantic effects than this affectedness effect. We will check this synchronic hypothesis for both Modern and Middle Dutch. Diachronically, i.e., in comparing Middle and Modern Dutch data, we expect the loss of independent syntactic status of a preverb to go hand in hand with a loss of independent semantic content (i.e., semantic bleaching). Thus, Middle Dutch SCVs may develop into Modern Dutch ICVs and if they do, the Modern Dutch ICV will show the affectedness reading, whereas the Middle Dutch SCV does not necessarily do so. We do not expect Middle Dutch ICVs to develop into Modern Dutch SCVs, since this would involve the isolation of a formal and semantic unit (the preverb) out of the ICV (as a particle has more

independent syntactic status and semantic content than a prefix). Because of the fact that the ICV as a unitary whole has the holistic interpretation and expresses the affectedness of the direct object, it is very unlikely that a part of it will, in a later stage, split off as a consequence of having gained more independent meaning of its own. Thus, Middle Dutch SCVs may develop into Modern Dutch ICVs, but Middle Dutch ICVs are not expected to develop into Modern Dutch SCVs.

4.2. Results

4.2.1. General results

In our corpus, which contains 476,000 word tokens, we found 47 different complex verbs with *door* and 43 different complex verbs with *over* (lemmas, types). Some of these types occur more than one time, so that our complete corpus contains 226 tokens, of which 112 are complex verbs with *door* and 114 with *over*. 32 complex verbs with *door* occur only once, and the same holds for 19 complex verbs with *over*.

Only about 60% of these complex verbs can unambiguously be classified as either SCV or ICV. Most of the remaining complex verbs are finite verbs in the sentence final position of subordinate clauses, such as the ones in (33)–(34) above, from which it cannot be deduced whether the relevant verb is separable or not. These items, then, do not give us either SCV or ICV evidence.

Some types of complex verbs that are attested by several tokens give contradictory syntactic evidence. This is to say, some of their tokens are syntactically separated and others are unambiguously not separated (for example, the preverb and the verb occur together in V2 position). Instead of there being no SCV or ICV evidence at all, the types in this category show both SCV and ICV evidence. These complex verbs will be discussed in section 4.2.4.

Looking at the different types of complex verbs, the distribution over SCVs, ICVs, verbs that show both SCV and ICV evidence (labelled ‘SCV+ICV’), and verbs that do not show any explicit SCV or ICV evidence at all (labelled ‘SCV/ICV’), accompanied by the horizontal percentages, is given in Table 1.

As Table 1 shows, both SCVs and ICVs with *door* and *over* occur in Middle Dutch, although the number of the verbs we could unambiguously classify as either SCV or ICV is relatively small.

Table 1
Distribution over SCVs, ICVs, SCV+ICVs, and SCV/ICVs

	SCV	ICV	SCV+ICV	SCV/ICV	TOTALS
<i>DOOR</i>	10 (21%)	22 (47%)	2 (4%)	13 (28%)	47 (100%)
<i>OVER</i>	12 (28%)	10 (23%)	6 (14%)	15 (35%)	43 (100%)
Totals	22 (24%)	32 (36%)	8 (9%)	28 (31%)	90 (100%)

4.2.2. Synchronic results

4.2.2.1. Modern Dutch preverbs

Inspection of Modern Dutch SCVs and ICVs with productive uses of *door* and *over* reveals important semantic differences between the separable preverbs on the one hand and the inseparable ones on the other. These differences are summarized in (35)–(36).

(35) *Door* – SCVs

1. continuation: *dóorfietsen* on-cycle ‘to go on cycling’
2. with force or speed: *dóorlopen* on-walk ‘to walk firmly/quickly’
3. split, separation: *dóorsnijden* through-cut ‘to cut in two’
4. movement (path) through: *het land dóorreizen* through-travel ‘to travel through the country’

Door – ICVs

1. to V completely through: *doorbóren* through-drill ‘to stab, to perforate’
2. to soak completely: *doordrénken* through-drench ‘to drench’

(36) *Over* – SCVs

1. movement (path) to the other side: *óverzetten* over-put ‘to take across’
2. to be left, to remain: *óverblijven* over-remain ‘to be left over’
3. again: *óverdoen* over-do ‘to do again’
4. imitation: *óverschrijven* over-write ‘to copy’

Over – ICVs

1. completely covering sth. by moving over it (literally or figuratively): *overspoélen* over-wash ‘to wash over’, *overdénken* over-think ‘to reflect on’
2. too much: *overschátten* over-value ‘to overestimate’

The lists in (35)–(36) show that, although the meanings of the particles and the prefixes are sometimes closely related, there is an important difference between the two: whereas the particles show different meanings with relatively independent semantic content (often lexical and spatial, but sometimes more aspectual meanings), the prefixes show a uniform semantic effect: they impose a holistic interpretation on the complex verb. This appears from the

translations of the ICV meanings, involving the complete affectedness of the direct object. A direct object (Theme), then, must be present in utterances with ICVs, which explains the fact that ICVs are always transitive (or unaccusative). The total affectedness of the direct object results in telicity: ICVs always express telic situations. SCVs, on the contrary, can be transitive and telic too, but they are not necessarily so (see, for instance, the SCV categories *door* 1 ‘continuation’, *door* 2 ‘with force or speed’, and *over* 2 ‘to be left, to remain’).

The first meaning of separable *door* (‘continuation’) is the clearest example of a preverb forming non-holistic, intransitive, and atelic SCVs. This particle has a merely aspectual meaning that is assumed to constitute a metaphorical extension of the path meaning of separable *door*. If one applies the path meaning to the notion of time instead of space, this results in the relevant durative meaning.

The Modern Dutch data in (35)–(36) thus confirm the synchronic hypothesis regarding the relation between the semantic contribution of the preverb and its syntactic separability: inseparable prefixes impose a holistic interpretation on the complex verb: the direct object is totally affected. These prefixes have less independent meanings than the separable particles of SCVs. In SCVs, on the other hand, the particle does not (necessarily) impose a holistic interpretation on the complex verb.

4.2.2.2. Middle Dutch preverbs

A synchronic look at the semantic content of the Middle Dutch separable preverbs *door* and *over* reveals a similar result as we saw for Modern Dutch: most SCV-particles have independent semantic content, whereas ICV preverbs do not. ICV preverbs, then, form more of a semantic unit with their verbs and these ICVs express, as unitary wholes, the total affectedness of the direct object. This is the case for 9 of the 10 SCVs with *door* and for 10 of the 12 SCVs with *over*.

In its concrete function Middle Dutch *door* denotes a path, as illustrated in (37), a split or separation, as in (38), or can be paraphrased as ‘to go on V-ing’ or ‘to V firmly/quickly’, as in (39). All these meanings are also available in Modern Dutch, as we saw above.

- (37) also mense eet so comtse beneden dore (XII-99a)
 as one-it eats so comes-it below through
 ‘the way that one eats it, it comes through below’

- (38) Ghi selt nemen .1. sceers ende sniden die hunt dore (VIII-68)
 you should take a knife and cut the skin through
 ‘You should take a knife and cut the skin through.’
- (39) Oriande die in groeter vreesen was ginc vast door (VI-179a1)
 Oriande who in big fear was went steadily on
 ‘Oriande who was afraid went on steadily.’

In one SCV with *door* the particle imposes a holistic interpretation on the complex verb and thus resembles ICV prefixes. The relevant construction is given in (40).

- (40) Had een minsche al sijn leven doergelevet wael ende gotliken (XIII-180)
 had a man all his life through-ge-lived good and religious
 ‘if a man had lived all his life in a good and religious way’

The meaning of *doorleven* in (40), ‘to live all his life, to live his life completely/to the end’, is holistic and the particle of this complex verb does not have a clearly independent semantic content. According to its meaning it can be said to belong to the first category of the ICV meanings with *door* in (35). In fact, the Modern Dutch counterpart of this verb (with the same meaning) is inseparable: *doorleven*. So it seems as if in the Middle Dutch verb *dóorleven* the meaning of the preverb *door* has already bleached, but this has not yet led to a change in formal structure. In Modern Dutch, however, this change has taken place: the SCV has become an ICV.

This shows that the semantic changes (leading to bleached semantics and the affectedness reading) indeed precede the formal change, in accordance with our hypothesis. The semantic and formal changes that are involved in the process of becoming a prefix show that there is a higher degree of cohesion between the preverb and the verb in ICVs than there is in SCVs, which reflects the fact that preverb and verb have become a closer unit semantically.

Next, we look at Middle Dutch SCVs with *over*. Separable *over* denotes a (literal or figurative) movement in a certain direction, or something that is left. These meanings, which are also attested in Modern Dutch, are illustrated in (41)–(42).

- (41) dat haer here aldus was ouerghecomen (I-152rb)
 that their lord thus was over-ghe-come
 ‘that their lord thus had come over’
- (42) dat si solden verghaderen die stucke die daer ouer waren ghebleuen (IV-187)
 that they should gather the pieces that there over were ghe-remained
 ‘that they should gather the pieces that had been left over there’

These SCV meanings are present in 10 of the 12 SCVs with *over*. The other meanings of *over* that are attested in Modern Dutch, such as ‘again’ and ‘imitation’, are not found in the SCVs in our corpus.⁶

We found two SCVs with *over* with holistic meanings. The relevant constructions are given in (43)–(44).

- (43) Doen Oriande den staet over had gesien, heeft si geseyt (...) (VI-203)
 when Oriande the situation over had ge-seen, has she said (...)
 ‘When Oriande had surveyed the situation, she said (...)’

- (44) mer tis een flaute die hem over ghecomen is (VI-56a)
 but it-is a swoon that him over ghe-come has
 ‘but it is a swoon that has happened to him’

These constructions are similar to the one in (40), in the sense that the Middle and the Modern Dutch verbs have the same (holistic) meaning, but differ in separability: whereas the Middle Dutch verbs *óverzien* ‘to survey’ and *óverkomen* ‘to happen to’ are separable, the Modern Dutch verbs *overziën* and *overkómen* are not.^{7,8} This can again be explained by assuming that the semantic changes trigger, and thus precede, the syntactic development (see also section 4.2.3).

As opposed to the Middle Dutch SCVs, the Middle Dutch ICVs with *door* and *over* mostly have holistic meanings, in which the event is stretched out completely over the Theme. These holistic meanings are also present in the Modern Dutch ICVs with *door* and *over*. Since the holistic process expressed by an ICV totally affects the Theme, ICVs are transitive (or unaccusative) and telic. Some Middle Dutch examples of holistic ICVs with *door* and *over* are given in (45)–(46).

- (45) Ende si doerboorden hare scepe (I-148vb)
 and they through-drilled their ships
 ‘and they stabbed their ships’

⁶ Of course, this does not necessarily mean that these meanings were not available in Middle Dutch at all.

⁷ The verb *overkomen* ‘to happen to’ also has a non-holistic counterpart, both in Middle and Modern Dutch. In this non-holistic, directional sense, *overkomen* means ‘to come over’. This verb is separable in both language stages and will be discussed in section 4.2.3.

⁸ If occurring outside the Middle Dutch examples, Middle Dutch verbs are adjusted to the Modern Dutch orthography (e.g. *overcomen* > *overkomen*).

- (46) Dus ouerdocht ic dit bi menighen dinghen (V-49)
 so over-thought I this by many things
 ‘So I reflected on this in several ways.’

These kinds of holistic readings are available in all ICVs in our corpus (22 with *door* and 10 with *over*).

In sum, the meanings found in Middle and Modern Dutch SCVs and ICVs support the synchronic part of our hypothesis, namely that ICV-preverbs impose holistic interpretations on the complex verbs and do not have much semantic independence of their own. ICVs express events by which the direct object is totally affected and this explains why ICVs, but not SCVs, are always transitive (or unaccusative) and telic. The hypothesized synchronic relationship between SCV and ICV preverbs in Middle Dutch, then, is clearly confirmed.

All in all, we can conclude that Middle Dutch and Modern Dutch complex verbs synchronically show the expected relationship between their formal properties and their semantics.

4.2.3. Diachronic results

The second aspect of the hypothesis concerns the diachrony: is it indeed the case that Middle Dutch separable particles may develop into Modern Dutch inseparable prefixes that are semantically bleached (i.e., have no independent semantic content anymore) and show the effect of imposing a holistic interpretation on the complex verb, in which the direct object is totally affected by the semantic unit prefix-verb? And is it indeed the case that Middle Dutch ICV prefixes, expressing this semantic effect together with their verbal base, do *not* develop into separable particles? We will investigate this by comparing our Middle Dutch corpus data with their Modern Dutch counterparts.

Our Middle Dutch corpus contains 10 SCVs with *door*, listed in Table 2. If the content of these verbs is expressed by the same form in Modern Dutch, the right column shows the label ‘id.’ (‘identical form and meaning’). If, alternatively, another verbal form is used in Modern Dutch to express the relevant semantic content, this other form is given in the right column.

We see that most SCVs with *door* in our Middle Dutch corpus are still functioning as SCVs in Modern Dutch, expressing the same meanings. The meanings of these verbs have not (yet) changed (the particles (still) have independent meanings, there is no holistic effect), so there is no reason for a change in the syntax of the complex verbs; they remain separable.

Table 2
Middle Dutch SCVs with *door*

MIDDLE DUTCH	MODERN DUTCH
dóorboren 'to drill in two'	id. ('identical form and meaning')
dóorgaan 1 'to continue'	id.
dóorgaan 2 'to go through'	id.
dóorkomen 'to come through'	id.
dóorleven 'to live completely through'	doorleven (ICV)
dóorrijden 'to separate by riding'	uitéenrijden 'to drive apart'
dóorsiën 'to filter through'	dóorfilteren
dóorsnijden 'to cut in two'	id.
dóorsteken 'to pierce through'	id.
dóorwaken 'to wake through'	id.

The Middle Dutch SCV *dóorleven* has developed into a Modern Dutch ICV. In the previous section we saw that this complex verb already has a holistic meaning in Middle Dutch. In this case, then, there is a trigger for a change in the structure of the complex verb. In Modern Dutch, the structure is adapted to the semantic changes. In this complex verb, we see a clear case of the grammaticalization of a particle into a prefix, whereby a syntactically and semantically relatively independent lexical item loses its semantic content and its syntactic independence. The semantic changes in this development precede the syntactic change of becoming inseparable.

Table 2 shows two Middle Dutch SCVs that have been replaced with a different SCV (with the same meaning) in Modern Dutch (*dóorsiën* – *dóorfilteren* 'to filter through', *dóorrijden* – *uitéenrijden* 'to separate by driving'). These are cases of lexical change. Concerning the first SCV, the word *siën* does not exist in Modern Dutch anymore, and another form has taken over its function. The second SCV refers to the situation of a crowd that is split up by driving through it. The particle *door*, then, indicating a split, means 'apart'. In Modern Dutch this particle is replaced with another particle, also meaning 'apart': *uiteen*. Clearly, the preverbs of both of these SCVs still have SCV meanings (there are no holistic interpretations) and still are separable, so the properties of the verbs that we are interested in here have not changed.

To summarize, most of the Middle Dutch SCVs with *door* have Modern Dutch SCV counterparts with the same meaning. There is one Middle Dutch SCV with a holistic meaning, and this complex verb has developed into an ICV in Modern Dutch, thereby adapting its structure to the already changed semantic properties.

Next, we turn to the SCVs with *over* to see whether we can spot a similar grammaticalization development. Our corpus contains 12 SCVs with *over*. These SCVs are listed in Table 3, accompanied by their Modern Dutch counterparts.

Table 3
Middle Dutch SCVs with *over*

MIDDLE DUTCH	MODERN DUTCH
<i>óverblijven</i> 'to be left over'	id.
<i>óverbrengen</i> 'to take to, to carry over'	id.
<i>óvergaan</i> 'to come over someone'	door je héen gaan 'to go through someone'
<i>óvergeven</i> 1 'to give to, to give away'	id., only meaning 'to give to'
<i>óvergeven</i> 2 'to charge, to instruct'	<i>ópdragen</i>
<i>óverkomen</i> 1 'to come to'	id.
<i>óverkomen</i> 2 'to happen to'	<i>overkómen</i> (ICV)
<i>óverkomen</i> 3 'to pass by'	<i>voorbijgaan</i>
<i>óverleveren</i> 'to carry over, to transmit'	<i>óverdragen</i>
<i>óverreizen naar</i> 'to travel further to'	<i>dóorreizen naar</i>
<i>óverschieten</i> 'to shoot to the other side'	id.
<i>óverzien</i> 'to see completely over, to survey'	<i>overzíen</i> (ICV)

Five of the Middle Dutch SCVs with *over* have the same form (and the same meaning) in Modern Dutch. Their particles still have independent semantic content and do not (yet) impose a holistic interpretation on the complex verb. An important condition for grammaticalization, namely the necessary semantic change, does not seem to be fulfilled.

Table 3 shows that two Middle Dutch SCVs with *over* have developed into ICVs in Modern Dutch: *óverkomen* 'to happen to' and *óverzien* 'to overlook, survey'. As mentioned in section 4.2.2, the particles in these Middle Dutch SCVs impose holistic meanings on the complex verbs and in this respect, *óverkomen* and *óverzien* are similar to *dóorleven* 'to live completely through, to live to the end', described above. These Middle Dutch separable complex verbs are in the process of developing into inseparable ones; although the meanings of these verbs have already changed into typical ICV meanings, their preverbs are still separable.

The five remaining SCVs have undergone a formal change in the particle and/or the base verb: particle and/or verb are replaced with another form (*óvergaan*, *óvergeven* 2, *óverkomen* 3, *óverleveren*, *óverreizen naar*). In all of these complex verbs the Middle and the Modern Dutch particles have typical SCV meanings, expressing a literal or figurative movement (path) (see section 4.2.2). None of these SCVs shows the holistic ICV interpretation that

involves the total affectedness of the direct object, so, again, the characteristics of the complex verbs that are important for us here have not changed.

Turning now to the Middle Dutch ICVs, whose preverbs have already grammaticalized into prefixes at this early stage of Dutch, we expect that these complex verbs still function as ICVs in Modern Dutch, probably with the same form (or an etymologically related form) and the same function. What we do **not** expect to find is Middle Dutch ICVs that have developed into Modern Dutch SCVs. This expectation is based on our assumption that changes in the semantics of the preverb function as the trigger of changes in its formal status. Therefore, a development from ICV into SCV would imply that holistic prefixes without independent semantic content could develop such semantic content of their own and could isolate this content from the semantic content of the verb, with which they used to form a unitary whole, expressing the semantic content of total affectedness. After this process of semantic isolation, then, would follow a process of formal isolation, resulting in the separability of the, formerly inseparable, preverb. A semantic development as described above, however, is claimed to be impossible.

Our corpus contains 22 ICVs with *door*. These are, with their Modern Dutch counterparts, listed in Table 4 (see page 84).

In conformity with our expectations, there are no Middle Dutch ICVs that have developed into Modern Dutch SCVs.

We see that most of the Middle Dutch ICVs still function as ICVs in Modern Dutch. Some Modern Dutch ICVs have exactly the same form as their Middle Dutch counterparts (e.g. *doorbóren*, *doorzien*), but in other cases the original form is replaced with a formally similar, often etymologically related ICV with the same meaning. These Modern Dutch ICVs have another prefix (*doorrijden*) or another verbal base (*doornágelen*, *doortógen zijn van*) than their Middle Dutch counterparts; in most cases the Middle Dutch verbal base has become obsolete. In all complex verbs that show these changes, however, both the Middle and the Modern Dutch ICV unambiguously show the holistic semantics typical of ICVs.

In two cases the prefix *door* has disappeared (*doorscóord zijn*, *doorwónd zijn*). Both of these ICVs only occur in past participle forms in our corpus, expressing perfective states ('to be cracked', 'to be wounded'). Finally, there are two ICVs that have another prefix in Modern Dutch (*doorziën* – *verzen-gen* 'to scorch', *doorstéken* – *verwonden* 'to wound'). Regarding *doorziën*, the verbal bases of the Middle and the Modern Dutch ICVs may be etymologically related, but the prefix has changed. It should be noted that the prefix *ver-* forms transitive complex verbs with telic and holistic meanings, so with

Table 4
Middle Dutch ICVs with *door*

MIDDLE DUTCH	MODERN DUTCH
doorbóren 'to stab, to pierce'	id.
doordrínken 'to soak completely with'	id. (doordrénken)
doorgáten 'to pierce'	doorbóren
doorgráven 'to pierce by digging'	id.
doorhóuwen 'to pierce by striking'	doorsláan
doorlópen 'to intersect'	id., doorkrúisen
doornágelen 'to pierce with nails'	doorspijkeren (spijker: 'nail')
doorrénnen 'to intersect'	doorkrúisen
doorrýden 'to run over/through completely'	overrýden
doorrýgen, doorrýen 'to pierce'	doorbóren
doorrýten 'to pierce'	doorbóren
doorskóord zijn 'to be cracked'	gescheurd zijn
doorzýen 'to see completely through, to survey'	id.
doorsláan 1 'to intersect'	doorlópen, doorkrúisen
doorsláan 2 'to pierce'	doorbóren
doorsnýden 'to cut through completely, to pierce by cutting'	id.
doorstéken 'to stab completely through, to wound'	id., door en door steken*, verwonden
doortógen zijn van 'to be completely soaked with'	doortrókken zijn van
doorwándelen 'to go completely through, to undergo'	id.
doorwónd zijn 'to be wounded'	gewond zijn
doorwórstelen 'to struggle completely through'	id.
doorziën 'to scorch'	verzengen, verschroeien

*The Modern Dutch expression *door en door* means 'completely'.

respect to these properties it is highly similar to inseparable *door* (the same holds for the prefix *be-*, which sometimes replaces inseparable *over*, see the data in Table 5 below). For *doorstéken*, two meanings and two Modern Dutch forms are given in Table 4. The second meaning ('to wound') can be seen as a specialisation of the more general first one ('to stab completely through') and only occurs in very specific contexts.⁹

Inspection of the ICVs with *over* shows a similar result. The 10 ICVs with *over* from our corpus and their Modern Dutch counterparts are listed in Table 5.

⁹ This ICV is mainly found in tales of chivalry and expresses the act of wounding someone (by stabbing him) in a combat, while both the actor and the victim are sitting on horses. In these contexts, the best translation of this complex verb seems to be 'to wound' (in Modern Dutch *verwonden*).

Table 5
Middle Dutch ICVs with *over*

MIDDLE DUTCH	MODERN DUTCH
overdrágen 'to agree, to decide'	besluiten
overdénken 'to think over completely, to reflect on'	id.
overhángen 'to hang (with), to decorate with'	behangen
overláden 'to overload'	id.
overláuochen 'to overload'	overláuuden
overlásten 'to attack'	overvállen
overlópén 1 'to surprise, to attack'	overvállen
overlópén met 2 'to suffuse with'	overgiéten met
overspréken 'to discuss, to talk about fully'	bespreken
overvállen 'to surprise, to attack'	id.

Again, there are no ICVs that have developed into Modern Dutch SCVs, in conformity with our hypothesis.

We see some Middle Dutch ICVs remaining the same in Modern Dutch (same form, same function, e.g. *overvállen*, *overdénken*), whereas other ICVs are replaced with an etymologically related ICV with the same meaning (*overláuochen*, *overlópén* 1 and 2), or with an ICV that is not immediately recognizable as etymologically related to the Middle Dutch form (*overdrágen*).

Furthermore, there are two ICVs in which the prefix *over* is replaced with the prefix *be-* (*overhángen*, *overspréken*). This prefix is, just like *ver-*, transitivizing and holistic and thus semantically similar to inseparable *over* (and *door*). Since inseparable *over* and *door* could, in written language, be confused with their separable counterparts, it might be preferable to use the *be-* or *ver-* variant of a verb. As a consequence, complex verbs with *over* and *door* could have become obsolete. To assess the validity of this account, however, the semantic properties of *be-* and *ver-* should be studied more carefully in order to check whether these prefixes indeed resemble inseparable *door* and *over* in all relevant aspects.

In all cases, both the Middle and the Modern Dutch ICVs show the holistic interpretation and the total affectedness of the direct object, as expected.

To summarize, Middle Dutch ICVs are still ICVs in Modern Dutch or have developed into ICVs with similar forms and the same meaning. In any case, there are no Middle Dutch ICVs that have developed into SCVs. Our diachronic hypothesis, then, is convincingly confirmed by the data.

4.2.4. Middle Dutch complex verbs with both SCV and ICV behaviour

Our corpus contains seven complex verbs that show both SCV behaviour and ICV behaviour. Three of these, namely *doorzoeken* ‘to search completely’, *doorscrepen* ‘to scrape off completely’, and *overbrengen* ‘to use up, to squander (time/goods)’, are holistic in meaning and have preverbs without independent semantic content. (47) shows examples of the verb *doorzoeken*, both as SCV (the a-example) and as ICV (the b-example).¹⁰

- (47) (a) Doe sochten si veel rijken ende landen doer (II-4b)
 then searched they many states and countries through
 ‘Then they searched many states and countries.’
- (b) waer op wi den hemel ende sterren doersocht hebben (II-5b)
 where up we the sky and stars through-searched have
 ‘after which we searched the sky and the stars’

These verbs seem to pose a puzzle for the (synchronic) semantic-syntactic parallel, since they seem to have an SCV and an ICV variant with one and the same meaning. This formal variation, however, can be readily understood from a diachronic perspective. The holistic meanings of both verbs indicate that the semantic change from preverb with independent semantic content into one without it has already taken place. Apparently, this semantic change has not yet led to a fully systematic change in formal structure, changing the separable verb into an inseparable one. Instead, there is (temporary) variation: both the separable and the inseparable form are used. As language variation is assumed to be the first step in language change, this variation can be accounted for by assuming these data to reflect the syntactic change in progress.

In Modern Dutch, however, the variation is eliminated: the Modern Dutch verb *doorzóeken* ‘to search completely’ functions as an ICV, so the formal change is completed in Modern Dutch. The fact that this Modern Dutch verb is an ICV supports the claim that the verb was indeed changing in this direction in Middle Dutch.

The four other complex verbs that show both SCV and ICV behaviour in Middle Dutch do not have holistic meanings, but instead, clearly show SCV meanings. This concerns the verbs *overkomen* ‘to come over’, *overliden* ‘to pass by’, *overlezen* ‘to read through, to read aloud’, and *overzetten* ‘to

¹⁰ Although the past participial marker *ge-* is not consistently used in Middle Dutch (see 4.1), it is so in the text from which example (47b) comes. Therefore, the absence of *ge-* in *doersocht* can be taken as ICV evidence.

transpose, to edit, to translate'. None of these complex verbs shows the ICV semantics of total affectedness. Some examples of these verbs, both separated (a) and non-separated (b), are given in (48)–(49).

- (48) (a) dat haer here aldus was ouerghecomen (I-152rb)
 that their lord thus was over-ghe-come
 'that their lord thus had come over'
- (b) mijn wijf is mi ouercomen van minen lande (II-58b)
 my wife is me over-come from my land
 'my wife has come over to me from my land'
- (49) (a) eist dat hise oec onderwilen niet ouer en leest (IVa-182)
 is-it that hi-them also meanwhile not over en reads
 'if it is the case that he does not even read them through/read them aloud meanwhile'
- (b) wat van godliken scriften te ouerlesen (III-102e)
 something from religious writings te over-read
 'to read through/read aloud something from religious writings'

Synchronically, for these verbs one and the same meaning corresponds to two different forms. Because of their SCV semantics, these verbs are also difficult to account for from a diachronic viewpoint, since we claim that semantic changes trigger, and hence precede, formal changes. In these verbs, no semantic change seems to have taken place, so it is unclear why there should be a formal change in progress at all.

Two of the four verbs, *overkomen* and *overliden*, have formal ICV variants in both Middle and Modern Dutch and have several meanings, at least in Middle Dutch. However, no strictly minimal pairs exist in Middle Dutch, in the sense that one form (separable versus inseparable) corresponds to one meaning (SCV meaning versus ICV meaning). Apparently, though, meanings were changing and the resulting polysemy, together with the existing SCVs and ICVs with their typical SCV and ICV meanings, could have brought about this variation with respect to the forms of verbs such as *overkomen* and *overliden*.

As for *overkomen* 'to come over', there indeed seems to be a lot of formal and semantic variation in Middle Dutch. Our corpus contains two lemmas of *overkomen*: one with non-holistic semantics, meaning 'to come over', in which the preverb has independent semantic content, and one with holistic semantics, meaning 'to happen to'. However, there does not seem to be a clear formal difference correlating with these two meanings. The non-holistic meaning occurs in both separable and inseparable forms, whereas the holistic

meaning, which occurs only once, is found in a separable form.¹¹ In Modern Dutch, this variation is, again, eliminated: whereas separable *óverkomen* consistently means ‘to come over’, inseparable *overkómen* consistently means ‘to happen to’.

Overliden ‘to pass by’ does not exist in Modern Dutch anymore. The base verb *liden* ‘to go’ has disappeared and is replaced by the Modern Dutch verb *gaan*, so that the meaning ‘to pass by’ nowadays is conveyed by the form *óvergaan*. There is, however, still an inseparable and holistic variant of the older form *overliden*, namely *overlídjen*, meaning ‘to die’, which also exists in Middle Dutch. We thus see that there has been bleaching of the original meaning, which has brought about a holistic interpretation, and that, in parallel to these semantic changes, the change of becoming an ICV has taken place. This verb, then, fits perfectly in our grammaticalization cline and confirms our diachronic hypothesis, although we find some temporary “mismatches” in the Middle Dutch forms, probably due to variation and changes being in progress.

Evidence for the role that polysemy may have played and for the tendency of speakers to pair one form with one meaning is provided by the fact that the polysemy of these verbs has disappeared in Modern Dutch. Whereas these four Middle Dutch verbs all have more than one meaning, their Modern Dutch counterparts pair the different meanings with different forms. We already saw this in *overkomen*, and we can also observe it in, for example, *overlezen*: the two meanings ‘to read through’ and ‘to read aloud’ (see the examples in (49) above) are expressed by two different forms in Modern Dutch (by *overlezen* and *hardop lezen* respectively).

5. Conclusions

In this paper we proposed an analysis of SCVs as constructional idioms. According to this analysis, the SCV system may function as an intermediate stage in the grammaticalization of syntactic constructions (secondary predicates, adverb–verb combinations) into morphological constructions (prefixed words, ICVs). This proposal implies that SCVs develop into ICVs, but not vice versa.

¹¹ This holistic, but separated, verb probably shows the semantic development anticipating the syntactic development, as is discussed in section 4.2.3.

The unidirectional development of SCVs into ICVs has two components: a semantic and a formal side. We hypothesized that semantic changes trigger the formal change of SCV into ICV. The data of our corpus confirmed this.

First, there is a synchronic relation between the separability of a preverb and its semantic content. That is, both the Middle and the Modern Dutch data show that separable preverbs have more independent semantic content than inseparable preverbs, while the latter impose holistic interpretations on the complex verbs they form. ICV preverbs, then, form close semantic units with their verbs and express, together with these verbal bases, the total affectedness of the direct object.

Diachronically, we found a parallel between the semantic and the syntactic development of the preverbs, in the sense that the semantic changes just mentioned lead to the loss of syntactic independence. Although most Middle Dutch SCVs are still SCVs in Modern Dutch and many Middle Dutch ICVs still function as ICVs in Modern Dutch, we also saw changes regarding the separability of the complex verbs. If such a (structural) change takes place, it is only in one direction: SCVs develop into ICVs, but not vice versa. Moreover, this syntactic change is preceded by the expected semantic changes, which are also unidirectional: if there is a semantic change, it is only in one direction, namely a change from a preverb that has independent semantic content into one that has no clear content of its own (semantic bleaching), but merely imposes a holistic meaning on the complex verb as a whole.

It should be noted, however, that only a small subset of the Middle Dutch SCVs in our corpus have actually developed into Modern Dutch ICVs. Apparently, then, the SCV system is a relatively stable system, although SCVs may function as intermediate stages in the grammaticalization of syntactic structures into words, being constructional idioms.

Future research should deal with more data, not only comprising complex verbs with the preverbs *door* and *over*, but also with other preverbs, to see whether the results of the present research can be generalized to other particles and prefixes. Another issue that should be addressed concerns the chronological and geographical variance among the Middle Dutch data. No claims regarding this point can be made on the basis of our data, since our corpus is too small to split the data according to time and place of origin.

What the present study clearly reveals, however, is that, for an SCV to become an ICV, there first have to be changes in the semantic content of the preverb in the relevant construction, leading to a holistic meaning, since it is only after such changes that there is a trigger for changing the structure of the complex verb. We saw some examples of the semantic change preceding

the syntactic change: some preverbs of Middle Dutch SCVs have holistic meanings, whereas their structure is not adjusted to this semantic change until in the Modern Dutch period, changing these SCVs into ICVs.

References

Corpus texts:

CD-ROM Middelnederlands [CD-ROM Middle Dutch] 1998. Sdu/Standaard, The Hague & Antwerp.

- I. Historie van Troyen (1479, Gouda, 27,346 words)
- II. Historie van die seuen wijse mannen van roemen (1480, Gouda, 39,000 words)
- III. Van duytsche boeken te lesen (1445, Eastern Flanders, Brabant, 3,425 words)
- IV. Verclaringhe vanden duytschen boeken (excerpten) (1460, Eastern Flanders, Brabant, 3,091 words)
- V. Historie van Reynaert die vos (1479, Gouda, 48,707 words)
- VI. Historie van Malegijs (1556, Antwerp, 104,323 words)
- VII. Brieven (1350, Gent, 28,851 words)
- VIII. Cyrurgie (1351, Flanders, 88,042 words)
- IX. Boek van Medicinen (1351, Flanders, 27,377)
- X. Chiromantie (1351, Western part of the Low Countries, 4,669 words)
- XI. Leringhe van orinen, Uroscopie (1351, Flanders, 9,350 words)
- XII. Liber Magistri Avicenne (1351, 24,776 words)
- XIII. Spiegel der sonden (1435, Oudenaarde, Western-Gelderland, 66,496 words)

Ackerman, Farrell – Pierre LeSourd 1997. Towards a lexical representation of phrasal predicates. In: Alex Alsina – Joan Bresnan – Peter Sells (eds) *Complex predicates*, 67–106. CSLI Publications, Stanford CA.

Ackerman, Farrell – Gerd Webelhuth 1998. *A theory of predicates*. CSLI Publications, Stanford CA.

Blom, Corrien 2002. Word order in Middle Dutch: the interpretation of different types of data. In: Hans Broekhuis – Paula Fikkert (eds) *Linguistics in the Netherlands 2002* (AVT Publications 19), 13–24. John Benjamins, Amsterdam & Philadelphia.

Booij, Geert 2002a. *The morphology of Dutch*. Oxford University Press, Oxford.

Booij, Geert 2002b. Separable complex verbs in Dutch: a case of periphrastic word formation. In: Nicole Dehé – Ray Jackendoff – Andrew McIntyre – Silke Urban (eds) *Verb-particle explorations*, 21–41. Mouton de Gruyter, Berlin & New York.

Bresnan, Joan – Sam Mchombo 1995. The lexical integrity principle: evidence from Bantu. In: *Natural Language and Linguistic Theory* 13: 181–254.

Campbell, Lyle 2001. What's wrong with grammaticalization? In: *Language Sciences* 23: 113–61.

Harris, Alice 2003. Preverb location and dislocation. In: Geert Booij – Jaap van Marle (eds) *Yearbook of Morphology 2003*. Kluwer, Dordrecht.

Hoeksema, Jack 1991a. Complex predicates and liberation. In: *Linguistics and Philosophy* 14: 661–710.

- Hoeksema, Jack 1991b. Theoretische aspecten van partikelvooropplaatsing [Theoretical aspects of particle preposing]. In: TABU 21:18-26.
- Hopper, Paul – Elizabeth Traugott 1993. Grammaticalization. Cambridge University Press, Cambridge.
- Horst, Jack van der – Kees van der Horst 1999. Geschiedenis van het Nederlands in de twintigste eeuw [History of Dutch in the twentieth century]. Sdu, The Hague.
- Jackendoff, Ray 1997. The architecture of the language faculty. MIT Press, Cambridge MA.
- Lapointe, Steven 1980. A theory of grammatical agreement. Ph.D. thesis, University of Massachusetts, Amherst. (Also published by Garland, New York in 1985.)
- Loey, Adolphe van 1976. Scheidbare en onscheidbare werkwoorden hoofdzakelijk in het Middelnederlands, analytische studiën [Separable and inseparable verbs principally in Middle Dutch, analytical studies]. Secretary of the Royal Academy of Dutch language and literature, Gent.
- Los, Bettelou 2002. Complex predicates in English and Dutch. Paper presented at the York-Holland Symposium, University of York, April 20.
- Lüdeling, Anke 1999. On particle verbs and similar constructions in German. CSLI Publications, Stanford CA.
- MINW 1998. Middelnederlandsch Woordenboek, CD-ROM Middelnederlands [Middle Dutch Dictionary, CD-ROM Middle Dutch]. Sdu/Standard, The Hague & Antwerp.
- Stiebels, Barbara – Dieter Wunderlich 1994. Morphology feeds syntax: the case of particle verbs. In: Linguistics 32:913-68.
- Watkins, Calvert 1964. Preliminaries to the reconstruction of Indo-European sentence structure. In: Horace D. Lunt (ed.) Proceedings of the 9th International Congress of Linguists, 1035-44. Mouton, Berlin & New York.

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ITALIAN PREFIXES AND PRODUCTIVITY: A QUANTITATIVE APPROACH*

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Abstract

The quantitative approach to morphological productivity developed by Baayen and collaborators is crucially based on the count of hapax legomena in a given, very large textual corpus. In this paper, Baayen's main idea is applied to the little explored domain of Italian prefixation, on the basis of a 75,000,000-token newspaper corpus, and a significant improvement of his procedure is proposed by calculating productivity values at equal token numbers for different affixes. Consequently, variably-sized subcorpora must be sampled to compare affixes displaying different token frequencies. Following this approach, the Italian productive prefixes *ri-* and *in-* can be ranked by productivity within their respective derivational domains, and the impact of different derivational cycles on the measure of productivity can be dealt with satisfactorily.

1. Introduction

In a number of recent contributions, Baayen (1989; 1992; 1993; 2001; see also Baayen–Lieber 1991; Baayen–Renouf 1996; Plag et al. 1999) has suggested relating the notion of productivity to the number of hapax legomena, i.e., words with frequency 1, occurring in a sufficiently large corpus. The proposed measure of productivity P for a given affix is the ratio between the number h of hapax legomena derived by that affix and the number N of all tokens of that affix occurring in the corpus:

$$(1) \quad P = h/N$$

In mathematical terms, it can be shown (Baayen 1989, 104) that the index (1) is the derivative at point N of the curve $V(N)$, which plots the type number

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V for a given affix (i.e., the number of different words derived by that affix) as a function of the token number N of the same affix. To get a concrete illustration, four instances of the curve $V(N)$ are reported in Figure 1, taken from Gaeta–Ricca (2003): they refer to the Italian suffixes *-mente*, forming adverbs, and *-mento*, *-(t)ura* and *-nza*, forming action nouns, sampled from three years of the Italian newspaper *La Stampa*. Examples of the four derivations are given in (2) below:

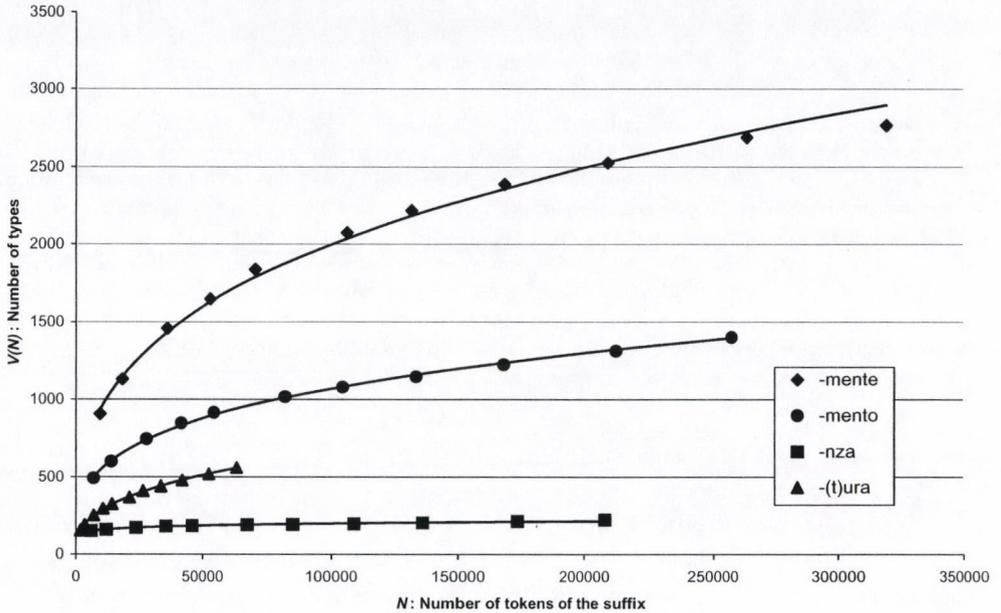


Fig. 1

La Stampa 1996–1998: types increasing curve as a function of N

- (2) lento → lenta-mente 'slowly'
 cambiare → cambia-mento 'change'
 decadere → decade-nza 'decay'
 mappare → mappa-tura 'mapping'

In simpler terms, the ratio in (1) measures the probability of encountering a new type not attested before, i.e., a hapax legomenon, after N tokens of a given affix have been sampled (Baayen 1989, 99ff). The curve $V(N)$ in Figure 1 can be conceived as portraying the growth of the lexical inventory of an affix. The measure of the slope of the curve, i.e., the derivative at a certain point, gives the speed at which new types of a certain affix come

out from the sample. If an affix is even minimally productive, new types will be encountered: the value of V may only increase as N increases—mathematically it is a non-decreasing monotonic function. However, for every affix the increasing rate of $V(N)$ will decrease as we proceed in the sample, since it will become more and more probable that new tokens of the affix will be occurrences of already attested types. Hence, as also pointed out by Baayen–Lieber (1991, 837), productivity $P(N)$ is a monotonic decreasing function and even tends to zero for N tending to infinity.

It is evident from Figure 1 that the curves $V(N)$ for the four suffixes increase at different rates, thus qualifying for different values of productivity. Whereas the curve of the suffix *-nza* immediately reaches almost the whole number of possible types and then remains stable, approximating a horizontal line, for the other suffixes the curve is clearly still increasing, although with different slopes, at the end of the sampling procedure. This is in essence the quality of the index P proposed by Baayen: investigating the increasing rate of new types formed with a certain affix in a corpus provides a clue for measuring the availability of a certain word formation rule.

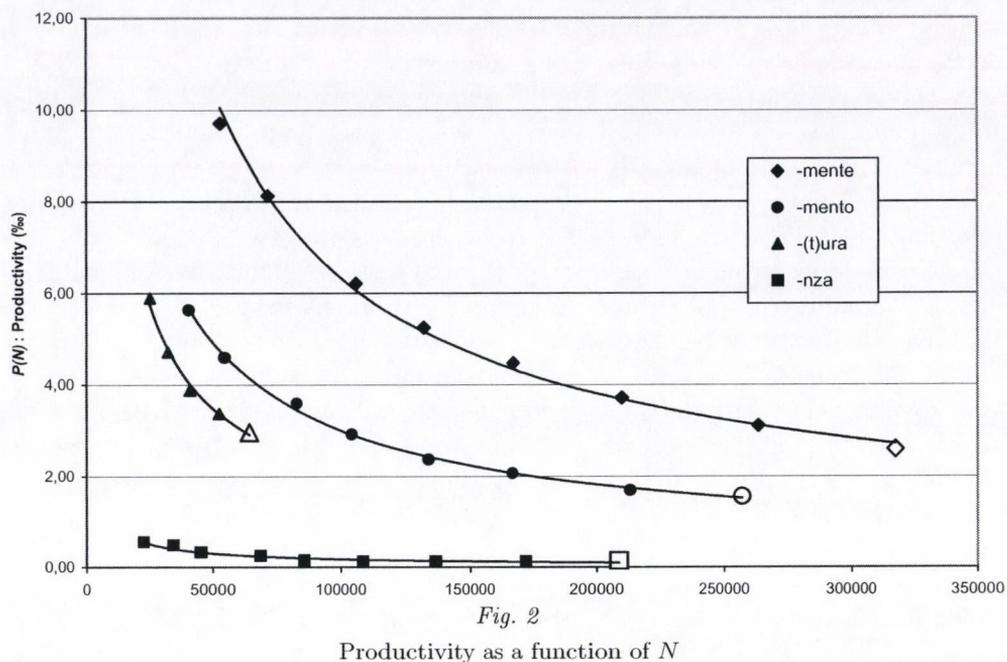
The approach outlined above has been often discussed and diversely evaluated (cf. van Marle 1992; Plag 1999, 23ff; Bauer 2001, 150ff). In this paper, we will propose a revised procedure to calculate the productivity rates; then we will devote our attention to Italian prefixes and their ranking among productive Italian affixes, and especially we will discuss the impact of different derivational cycles on the measure of productivity.¹

2. A variable-corpus approach

Most of the criticism raised against Baayen's approach is ultimately related to the presence of N in the denominator of (1), which results in underestimating the value of P for affixes with very high token frequency.² However, we argue

¹ We will not consider a further productivity measure proposed by Baayen (1993, 192), the so-called 'hapax-conditioned degree of productivity' P^* , which is basically given by the absolute number of hapaxes formed with a certain affix which occur in the whole corpus. As pointed out by Bauer (2001, 155), the main problem with P^* is that it "asks 'What proportion of new coinages use affix A?' rather than asking 'What proportion of words using affix A are new coinages?'. It is this latter which seems a more relevant question to ask".

² A very clear instance of such underestimation effect in Baayen's data is provided by the English suffix *-ly*, as discussed in Plag (1999, 113; for more details, see Gaeta–Ricca 2003).



that this underestimation effect is not related to the ratio (1) in itself, but rather to the way it is applied.

In fact, Baayen's data are always obtained by taking N as the number of affix tokens in the whole corpus, irrespective of the token frequency of the different affixes. Baayen's procedure can be graphically understood by referring to Figure 2, which displays $P(N)$ as a function of N for the four suffixes listed in (2). In Baayen's approach, the final values of the curves are compared: in Figure 2, they have been emphasized by the bigger size of the endpoints. However, these values lie on different points of the horizontal axis, due to the different token frequencies of the suffixes. Thus, for a rather infrequent suffix such as *-(t)ura*, the final value of the curve, corresponding to the sampling of the whole corpus, lies at a N value reached by a much more frequent suffix such as *-mento* after less than one year of its occurrences. For *-mento*, the final point of the curve lies much further in the horizontal axis, when the function $P(N)$ has further decreased. Therefore, very frequent affixes turn out to be disfavored because of the decreasing character of the function $P(N)$.

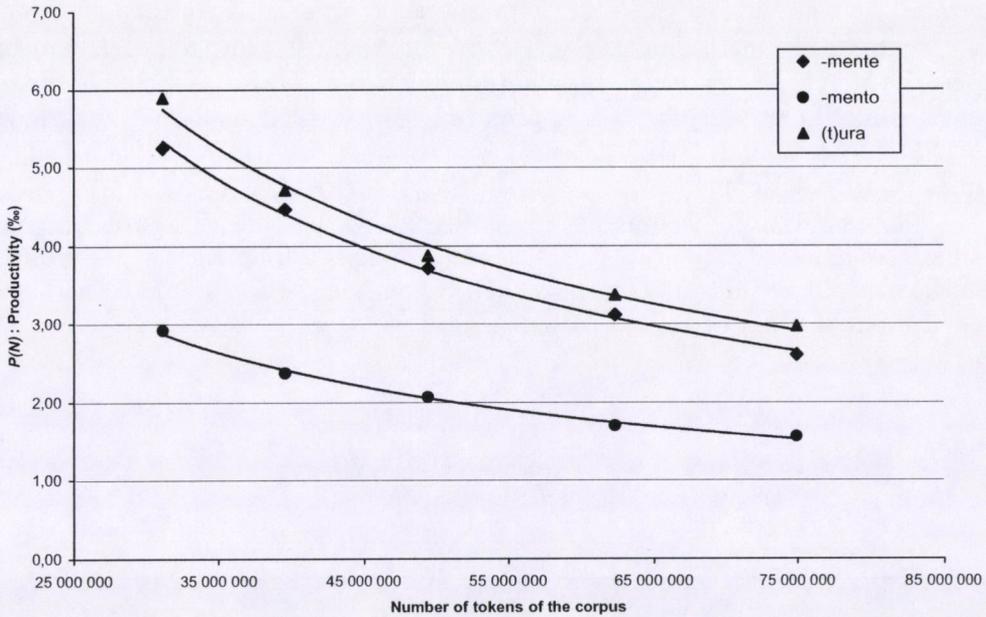


Fig. 3

Productivity as a function of fixed corpus chunks

The distorting effect of this unbalanced comparison of $P(N)$ values can be seen very clearly in Figure 3, where P is plotted as a function of the total number of tokens of the corpus, and not of the single suffixes, thus representing graphically the data actually compared by following Baayen's procedure. The P -curve for a rather infrequent suffix such as $-(t)ura$ jumps over the curves for the much more frequent suffixes $-mento$ and $-mente$.

For the reasons outlined above, when comparing values of productivity for affixes with different token frequencies, we did not adopt Baayen's procedure. Rather, we calculated $P(N)$ for equal values of N . Graphically, this means comparing the values of the curves in Figure 2 for the same values on the horizontal axis.

Of course, to implement our procedure the values of $P(N)$ for different affixes have to be extracted from differently-sized corpora, whose size is inversely proportional to the token frequency values of the affixes. Thus, a necessary presupposition for the reliability of our method is that affix frequencies remain stable throughout the sampling. To meet this requirement, we chose as a corpus three years (1996–1998) of the newspaper *La Stampa*,

around 75,000,000 tokens in all. Our corpus is structured in 36 subcorpora of progressively increasing size (1 to 36 months), so that for each subcorpus the value of $P(N)$ can be computed independently, selecting for each given affix the subcorpus best approaching the desired value for N . Values of $P(N)$ corresponding to the exact values of N can then be evaluated by linear interpolation.³

This structuring of our corpus easily allows us to check uniformity of affix frequencies. In Table 1, the data concerning the frequency of the suffixes mentioned above are reported measured on one single year, on two years and on the three years of the whole corpus.

Table 1
Token frequency in the corpus

SUFFIX	TOKEN FREQUENCY (%)		
	<i>La Stampa</i> '96 24 915 369	<i>La Stampa</i> '96-'97 49 485 568	<i>La Stampa</i> '96-'98 74 917 798
-(t)ura	0.8	0.8	0.9
-nza	2.7	2.8	2.8
-mento	3.3	3.4	3.4
-mente	4.3	4.2	4.2

Apart from minor fluctuations, the token frequency is fairly stable, as the sampling goes on. This makes our approach feasible, since comparing data extracted from different subcorpora is not—or only minimally—distorted by a non-uniform affix token distribution throughout the corpus.

As a further advantage, a newspaper corpus appears to be adequate for quantitative studies because it comprises different speech registers and different text types, as also argued by Baayen–Renouf (1996), whose *Times* corpus is fairly comparable to ours both in size and quality.

³ To be sure, our procedure does not allow unrestricted comparison between any affix. From a linguistic point of view, comparing affixes with extremely divergent token frequencies might be questionable. In any case, data are not reliable if referred to subcorpus sizes below 6 million tokens (i.e., about 3 months), since under this threshold P -values become floating when calculated on different subcorpora of equal size (cf. Gaeta–Ricca 2002). Practically, this means that given the current corpus size we are not able to compare affixes whose token frequency ratio is lower than 3:36 (i.e., 1:12).

and deadjectival domains (the latter data are taken from Gaeta–Ricca 2003). They have been calculated on the whole corpus of three years; however, as remarked above, the values are very stable much below that size.

Table 2

Frequency data for *ri-* compared to some major deverbal suffixes
(full corpus of 36 months—75,000,000 tokens)

DEVERBAL AFFIX	N OF TOKENS	FREQ. (%)
-(z)ione	1 043 979	13.9
ri- (all cycles)	500 912	6.7
ri- (outmost cycle)	270 066	3.6
-mento	257 216	3.4
-nza	208 365	2.8
-bile	102 904	1.4
-(t)ura	63 800	0.9

Table 3

Frequency data for *in-* compared to some major deadjectival suffixes
(full corpus of 36 months—75,000,000 tokens)

DEADJECTIVAL AFFIX	N OF TOKENS	FREQ. (%)
-ità/-età	356 857	4.8
-mente	317 725	4.2
in- (all cycles)	202 744	2.7
in- (outmost cycle)	146 982	2.0
-ezza	69 090	0.9
-issimo	51 636	0.7

Notice that the for the prefixes *ri-* and *in-* the tables report two markedly different values depending on whether inner-cycle derivations are included or not: this issue will be dealt with in section 4.3. For all the suffixes, only outmost-cycle values are given. From Tables 2 and 3, one can observe that *ri-* and *in-* belong to the core of Italian derivational strategies from the point of view of their token frequency. In the following sections we will try to assess if the same holds true for productivity as well, applying the methodology for calculating the productivity illustrated in section 2 above.

4. What counts as a token/type of a given affix?

Before presenting the results of our investigations, we have to make it clear what we counted as a token/type of the affixes in question. The issue is not

as trivial as it could seem, and has been the object of much debate in the literature (cf. Plag 1999, 108; Bauer 2001, 151). We cannot enter into much detail here (cf. Gaeta–Ricca 2003); we will limit our discussion to the main difficulties concerning the two prefixes under investigation.

4.1. Questions about allomorphy

Issues concerning allomorphy and segmentation are not really problematic. Both prefixes display a little amount of non-automatic, i.e., not strictly phonology-driven, allomorphy, especially when compared with the relevance of allomorphy in cases like *-(z)ione* or *-(t)ura* (cf. Thornton 1990–1991; Rainer 2001; Gaeta–Ricca 2002). The main instances of allomorphy are shown in (4) below:

- (4) (a) **in-**
 – progressive assimilation of /n/: *illegale* ‘illegal’, *irrilevante* ‘irrelevant’
 – other minor allomorphies: *scusabile* ‘forgivable’ → *inescusabile* ‘unforgivable’
- (b) **ri-**
 – lowering before /i/: *reidratate*, *reimporre*, *reinventare*
 – other minor allomorphies: *incontrare* ‘meet’ → *rincontrare* ‘meet again’

The corresponding items clearly count as types of the prefixes and have been accordingly included into our counts.

4.2. Polysemy and lexicalization

The semantic problems are more thorny, especially for *ri-*. The latter prefix displays in fact an extended polysemy, which can be described in terms of three basic meanings: the repetitive *ri-* meaning ‘again’ which is the most common and the most typical meaning for the new formations; the reversal/repair *ri-* ‘back’ which implies the restoring of a preceding situation; finally, the intensive *ri-*, which is in fact a very vague label and embraces rather divergent cases, ranging from instances where the semantic contribution of the prefix is nearly zero (*tornare/ritornare*), to cases of intensification proper (*chiedere/richiedere*), up to cases of marked lexicalization and semantic drift (*guardare/riguardare*). Examples are given in (5):

- (5) (a) repetition *ri*-: *giocare* ‘play’ → *rigiocare* ‘play again’,
 leggere ‘read’ → *rileggere* ‘re-read’
- (b) reversal/repair *ri*-: *spedire* ‘send’ → *rispedire* ‘send back’
 conquistare ‘conquer’ → *riconquistare* ‘reconquer’
- (c) ‘intensive’ *ri*-: *tornare* ≈ *ritornare* ‘come back’
 chiedere ‘ask’ → *richiedere* ‘request’
 guardare ‘watch’ → *riguardare* ‘regard, concern’

Reversal and repair readings have been included under the same label since their selection basically depends on the semantics of the base predicate (verbs involving movement vs. change-of-state). Moreover, the reversal/repair reading can be further subsumed under the more general meaning ‘repetition’ (as argued by Rainer 1993, 361 referring to Spanish), provided that repetition is meant to refer to the process only, without implying identity of participants. The ‘intensive’ meaning, on the contrary, stands clearly apart and turns out to occur with a limited amount of bases (cf. Iacobini in press).

Despite this admittedly wide semantic range, all words belonging to any of these three categories have been included into the counts, for two kinds of reasons. First, we believe that apart from extreme cases of lexicalization, even terms like *riguardare* are still able to activate the prefix *ri*- in the mental lexicon. If it is so, they should give their contribution to the token amount of the prefix. Second, the three meanings reported in (5) constitute a polysemic chain, since they are not always easily separable and often co-occur with the same base (especially the ‘again’ and ‘back’ meanings). In particular, the repetitive meaning appears to be available in practically any case and is attested in our corpus even when it has to confront with a frequent and entrenched non-compositional meaning, as is the case for *richiedere* or *riguardare*. For instance, in our corpus sentences like the following are easily found:

- (6) Se riguardiamo i cinegiornali fine Anni Sessanta (*La Stampa*, 20-5-’97, p. 24)
 ‘If we go back to the newsreels of the late sixties’

On the other hand, for both prefixes we excluded from our counts three small classes of items: (a) those without any identifiable base, at least synchronically; (b) a few cases in which the prefixes select a lexical category different from their main domain (verbs for *ri*- and adjectives for *in*-); and finally, (c) some really extreme cases of opaque lexicalizations. Examples are given in (7):

- (7) (a) *incolume* 'unhurt', *insulso* 'dull'
ripetere 'repeat', *ricordare* 'remember'
- (b) denominal *in-*: N → N: *in-azione* 'inactivity', *in-successo* 'failure'
 N → A: *in-forme* 'shapeless', *in-colore* 'colourless'
- denominal *ri-*: *ri-esame* 're-examination', *re-ingresso* 're-entering'
- parasyntetic *ri-*: *ri-modernare* 'refurbish', *ri-bassare* 'lower'
- (c) *infermo* 'sick' vs. *fermo* 'steady, motionless'
rilevare 'notice' vs. *levare* 'take away, remove'

Concerning (7c), we excluded only those cases which could clearly not be dealt with in terms of polysemic chains like (5), although we are aware that a certain amount of arbitrariness cannot be avoided. At any rate, the items which have not been included into our count amount to relatively few types: for both prefixes, they constitute about 10% of a maximal choice including nearly all verbal items beginning with *ri-* or items beginning with *in-* and carrying some negative meaning. It is true that some of the excluded items do have a high token frequency and could therefore lower significantly the *P* values if included into the count. However, the problems of delimiting the field of items to be included are on the whole less serious than for many important Italian suffixes, and the unavoidable margin of arbitrariness which still remains is unlikely to affect the quantitative results heavily.

4.3. Inner-cycle derivations

The prefixes *ri-* and *in-* are challenging for a quantitative evaluation of productivity from another point of view. They both occur in many derived words where they do not constitute the outmost derivational cycle. In fact, from *ri-* verbs one can easily further derive, for instance, action and agent nouns and verbal adjectives; from *in-* adjectives there is plenty of derivation of quality nouns and manner adverbs:

- (8) (a) *ri-*: action nouns [ri[fonda]]zione 'refund-ation'
 agent nouns [ri[fonda]]tore 'refund-er'
 possibility adjectives [ri[fonda]]bile 'refund-able'
- (b) *in-*: quality nouns [in[util]]ità 'useless-ness'
 manner adverbs [in[util]]mente 'useless-ly'

It is not clear whether the words in (8) should be considered as tokens of the *ri-* and *in-* prefixes respectively. This has never been done for counts on suffixes: *nationalization* has not been counted as a token of *-ize*, and so on, as observed by Plag (1999, 29), who points out the problem. One

could argue that a different approach might be adopted for prefixes, given their more salient position at the word beginning. Notice that for prefixes the choice of including all inner-cycle derivations is also easier from an operational point of view, since it amounts to include all words beginning with the prefix under investigation. However, if we want to compare the productivity rates of prefixes and suffixes, we should take the same attitude towards both of them: either limiting our counts to the outmost cycle, or including inner derivations.

Moreover, the possibility of these two options (counting and not counting inner derivations) raises an interesting empirical question: does the one or the other choice make a great difference in the quantitative results? If it does, this would cast some doubts on the reliability of the whole method. We will try to give an empirical answer to this question concerning the two major Italian prefixes. The results obtained by applying Baayen's procedure and ours are shown in Tables 4 and 5:

Table 4

Comparing *P*-values for *ri-* obtained by applying the fixed and the variable-corpus approach

	<i>ri-</i>				
	N tokens	V types	h hapaxes	Baayen's <i>P</i> (calculated on the whole 36-months corpus)	<i>P</i> (<i>N</i> = 270066) (calculated on a 19- months subcorpus plus interpolation)
all cycles	500 912	989	325	0.7	1.1
outmost cycle only	270 066 (53.9%)	935	312	1.2	

Table 5

Comparing *P*-values for *in-* obtained by applying the fixed and the variable-corpus approach

	<i>in-</i>				
	N tokens	V types	h hapaxes	Baayen's <i>P</i> (calculated on the whole 36-months corpus)	<i>P</i> (<i>N</i> = 146982) (calculated on a 26- months subcorpus plus interpolation)
all cycles	202 744	779	140	0.7	0.9
outmost cycle only	146 982 (72.5%)	767	148	1.0	

The inner-cycle contribution turns out to be quite relevant in both cases in terms of tokens. Much less so for the types: as can be expected, only a little amount of prefixed items with *ri-* and *in-* do occur in inner-cycle derivations only (to give a concrete example, if we find a word like *rifondabile* in the corpus, it is highly probable that we will find the word *rifondare* as well: as for the *ri-* prefix, the two words belong to the same type). The same happens *a fortiori* for the hapaxes (indeed, their number can even be reduced by the inclusion of inner cycle derivations, as is the case for *in-*). Consequently, the value of Baayen's *P* is sensibly lower if one includes also inner cycle derivations in the count, especially for *ri-* where they amount to about half of the tokens.

To be sure, a lower value for the all-cycle count might make sense linguistically, since with these two prefixes inner derivations are overwhelmingly found with the most entrenched and lexicalized words, as for instance *indennizzare* 'to indemnify' from *indenne* 'unharmed', *immobiliare* 'building (society)' from *immobile* 'immovable', etc. Therefore, it is legitimate to predict a lowering effect on productivity. However, if the two counts diverge too sharply, it becomes hard to link the prefix under investigation with a single well-defined quantitative value which could rank it consistently among other derivational affixes.

The impact of internal cycles on productivity values is much lower if we follow the procedure outlined in section 2 above. In this case, we have to compare the *P*'s for the same value of *N*. The maximum value available for *N* to compare the two counts—all-cycles and outmost-cycle only—is the one reached by the outmost-cycle count when the full corpus is sampled. We should then make the all-cycle count on a suitably sized subcorpus, such as to get a value of *N* near to the one reached on the full corpus when only the outmost cycle is taken into account. This is well approximated with 19 months for *ri-* and 26 months for *in-*, to which a tiny correction by linear interpolation is added to reach the value of *P* corresponding to the exact value of *N*. Comparing Tables 4 and 5, it can be seen that within the variable-corpus approach the results—printed in boldface in the tables—show a substantial alignment of the data for the two counts. Summing up, whereas the inner cycles strongly influence the productivity calculated with Baayen's procedure (i.e., on the full 3-year corpus), the gap between the two counts is markedly reduced by considering the values of *P* for equal values of *N*.

5. Main deverbal and deadjectival affixes ranked by productivity

We are now ready for a final assessment of the productivity rates of the two prefixes investigated. In Tables 6 and 7, they are compared with the other high-frequency deverbal and deadjectival affixes listed in Tables 2–3 above:

Table 6

P-values for deverbal affixes

DEVERBAL AFFIXES (N= 100 000)	
AFFIX (outmost cycle only)	<i>P</i> (N=100 000) ‰
-bile	4.0
-mento	3.1
-(z)ione	2.8
ri-	2.3
-nza	0.1

Table 7

P-values for deadjectival affixes

DEADJECTIVAL AFFIXES (N= 50 000)	
AFFIX (outmost cycle only)	<i>P</i> (N=50 000) ‰
-issimo	12.7
-mente	10.0
-ità	6.6
in-	2.1
-ezza	1.2

A useful value for *N* has been chosen in order to maximize the number of affixes which can be compared in both cases. The lower value of *N* = 50,000 chosen for the deadjectival ranking allows us to include two more interesting suffixes, namely *-ezza* (*bello* ‘beautiful’ → *bellezza* ‘beauty’) and *-issimo* (*bello* ‘beautiful’ → *bellissimo* ‘very beautiful’), whose total frequency values do not reach *N* = 100,000. This means that the two rankings in Tables 6 and 7 cannot be directly compared, as *P*(*N*) is a steadily decreasing function, and therefore its values for *N* = 50,000 are globally higher than those for *N* = 100,000. Most affixes in both tables, however, could be directly compared without difficulty by selecting a common value of *N*.

The comparison with the relative suffix *-issimo* is particularly interesting, since this suffix is notoriously at the border between inflection and deriva-

tion,⁵ and should therefore display the highest productivity among the affixes considered, which is indeed the case. The second-ranking affix is another borderline suffix, namely *-mente*, which some analyses would even assign to inflection (cf. e.g., Haspelmath 1996, 49f on its close English equivalent *-ly*; for a discussion see Ricca 1998).

Tables 6 and 7 show that both *ri-* and *in-* are to be included within the productive segment of Italian derivation, although their relevance in productivity is less high than in token frequency, especially for *in-*. The values for *ri-* place the prefix relatively near to the highly productive suffixes for action nouns, while *in-* falls clearly below the main adjectival formations, though doubling the productivity of a still productive suffix like *-ezza*. As for the comparison between the two prefixes, the higher productivity of *ri-* with respect to *in-* can be inferred from Tables 6 and 7, taking into account the decreasing character of the function $P(N)$, since the value for *in-* is lower than the one for *ri-* even if the latter is calculated for a value of N which is twice higher. More explicitly, making a proper comparison at equal N (not reported in the tables), we get *ri-* values clearly above *in-* values. At $N = 50,000$, P is 3.8 for *ri-* against 2.1 for *in-*, and at $N = 100,000$, P is 2.3 for *ri-* against 1.4 for *in-*. The lower value for *in-* with respect to *ri-* matches linguists' expectation since the former has a learned flavour and undergoes relevant semantic restrictions (cf. Iacobini in press). Looking at the list of low-frequency items for *in-*, its productivity—which is nevertheless considerable—comes out as being mainly due to its combination with the deverbal *-bile* adjectives, in its turn a very productive derivational process in Italian, and partly with past participles in *-to* (among the hapaxes in our corpus, we found *incapibile* 'un-understandable', *inaccoglibile* 'un-receivable', *impraticato* 'un-practised', *inabituato* 'un-accustomed', etc.).

One should probably expect still a higher value for *ri-*, nearer to the other most productive derivational processes listed in Tables 6 and 7. A factor limiting its productivity may be the fact that *ri-* is the only verbal affix taken into account: verbs are on the whole less easy to form than nouns and adjectives, as can be seen from the size of the respective type inventories in any large dictionary.

⁵ While the Italian grammatical tradition usually recognizes *-issimo* as the exponent of the inflectional category of gradation, other linguists treat it more or less along with evaluative suffixation and therefore place it on the derivational side (cf. Rainer 1983; in press).

6. The case of low-frequency prefixes

Among the low-frequency prefixes mentioned in (3c), we investigated the evaluative group in detail. With the exception of *super-*, these items are around one-hundred times less frequent than the two prefixes considered above, and therefore cannot be directly compared with them (see fn. 3). Their token frequencies are reported in Table 8, together with the number of their types and hapaxes:

Table 8
Frequency data for evaluative prefixes

AFFIX	N OF TOKENS	FREQ. (‰)	V (TYPES)	h (HAPAXES)
super-	8966	0.120	1147	667
micro-	2869	0.038	437	276
mini-	1830	0.024	612	383
iper-	1675	0.022	389	276
maxi-	1617	0.022	365	230
ultra-	1557	0.021	302	197
mega-	1399	0.019	426	252

However, one could consider the possibility of using a medium-frequency affix as a bridge to fill the gap. A good candidate is *-issimo*, which is also semantically akin to the evaluative set. The suffix *-issimo* is about seven times more frequent than *super-* and can thus be compared with it. On the other hand, *super-* can be compared with the other—still much less frequent—evaluative prefixes, which can thus also be ranked, at least indirectly, with respect to *-issimo* itself. The somehow astonishing result is given in Table 9 for the subset of augmentative/meliorative prefixes:

Table 9
The elative *-issimo* compared with some
low-frequency evaluative prefixes

AFFIX	<i>P</i> (N= 8966) ‰	<i>P</i> (N=1400) ‰
mega-		180
iper-		174
super-	74.4	165
maxi-		151
ultra-		129
-issimo	41.2	

The prefix *super-* displays a productivity rate which is nearly two times the already very high value for *-issimo*. The other evaluative prefixes in Table 9, when compared at equal *N*, show a remarkable uniformity in their productivity values, all ranging within $\pm 10\%$ of the *P* value for *super-*, except for *ultra-* whose *P* is slightly (20%) lower. It should be remembered that *-issimo* was the affix ranking highest among all those discussed until now. Does it make sense, linguistically, that such low-frequency items exhibit a top value in productivity? Indeed, it could also be the case that such methods are simply unreliable if applied to affixes of too low frequency, even when data are calculated on huge corpora. As a matter of fact, these items have such a high value precisely because they are in a way 'newcomers' to the lexicon. While they occur in very few firmly established words, like *minigonna* 'miniskirt', *maxischermo* 'maxi-screen' or *microcriminalità* 'micro-criminality', they combine very freely—but also rather loosely—with any sort of bases, giving raise to a huge amount of nonce formations like *megacena* 'mega-dinner', *mega-friggitrici* 'mega-fryer', *meaorologio* 'mega-watch', *mini-emirato* 'mini-emirate', *mini-proibizionismo* 'mini-prohibitionism', *mini-epurazione* 'mini-epuration' and so on.⁶ The peculiar character of this group of items with respect to most word-formation processes is also confirmed by two further well-known properties, extensively discussed by Montermini (2002, 170ff). First, they can be factorized in coordinate structures as in (9):

- (9) collegamenti internet su maxi e mini schermi (*La Stampa* 5-12-'97, 23)
 'Internet connections on maxi- and mini-screens'
 in un super o ipermercato (24-9-'97, 24)
 'in a super- or hyper-market'

Moreover, they can occur as free forms in adjectival position with the very same meaning they have as prefixes:

- (10) una serie davvero mega (25-8-'98, 22; cf. *megaserie* 'mega-serial TV')
 il bagagliaio è mini (22-2-'96, 34; cf. *minibagagliaio* 'mini-boot')
 i concorsi continueranno ad essere maxi (10-12-'97, 5; cf. *maxiconcorso* 'maxi-competition')
 la criminalità micro e macro (24-6-'97, 1; cf. *microcriminalità* 'micro-criminality')

Examples like (9) and (10), all taken from our corpus, further support the idea that such items do not fully behave as derivational items, but rather bor-

⁶ To have a quantitative idea, notice that for the prefixes listed in Table 8 the number of types whose token frequency in our corpus exceeds 1:1,000,000 is extremely low: *super-* 13, *micro-* 8, *mini-* 2, *iper-* 3, *maxi-* 4, *ultra-* 3, *mega-* 2.

der on syntax, and therefore their productivity cannot be straightforwardly compared with the one displayed by core instances of bound derivational processes. At any rate, we would like to leave the question open for further research.

7. Conclusion

To sum up, in our contribution we hope to have proposed a significant improvement of the quantitative approaches on productivity which rely on the counting of hapaxes in a wide text corpus and are mainly linked to the name of Baayen and collaborators.

The key point is the suggestion of comparing productivity values across affixes for equal values of their token number. In this way, those inconsistencies are avoided which come up when affixes with different token frequency are compared with reference to a corpus of fixed size: the latter procedure unavoidably results in a heavy underestimation of the productivity for the most frequent affixes. The variable-corpus procedure, on the contrary, allows a consistent ranking by productivity of affixes within a given derivational domain.

Moreover, the procedure suggested here seems to be particularly suitable for treating those prefixes, like *ri-* and *in-* in Italian, which display a great amount of inner-cycle derivations. Referring to a fixed number of tokens succeeds in minimizing the lowering impact that the inclusion of inner cycle derivations would otherwise have on the count.

References

- Baayen, Harald R. 1989. A corpus-based approach to morphological productivity. Statistical analysis and psycholinguistic interpretation. Ph.D. dissertation, Vrije Universiteit, Amsterdam.
- Baayen, Harald R. 1992. Quantitative aspects of morphological productivity. In: Booij – van Marle (1992, 109–49).
- Baayen, Harald R. 1993. On frequency, transparency and productivity. In: Geert Booij – Jaap van Marle (eds) *Yearbook of Morphology 1992*, 227–54. Kluwer, Dordrecht.
- Baayen, Harald R. 2001. *Word-frequency distributions*. Kluwer, Dordrecht.
- Baayen, Harald R. – Rochelle Lieber 1991. Productivity and English word-formations: a corpus-based study. In: *Linguistics* 29: 801–43.
- Baayen, Harald R. – Antoinette Renouf 1996. Chronicling the Times: productive lexical innovations in an English newspaper. In: *Language* 72: 69–96.

- Bauer, Laurie 2001. Morphological productivity. Cambridge University Press, Cambridge.
- Bisetto, Antonietta – Rossella Mutarello – Sergio Scalise 1990. Prefissi e teoria morfologica. In: Monica Berretta – Piera Molinelli – Ada Valentini (eds) Parallela 4. Morfologia, 29–41. Gunter Narr, Tübingen.
- Booij, Geert – Jaap van Marle (eds) 1992. Yearbook of Morphology 1991. Kluwer, Dordrecht.
- Gaeta, Livio – Davide Ricca 2002. Corpora testuali e produttività morfologica: i nomi d'azione italiani nelle annate della Stampa. In: Roland Bauer – Hans Goebel (eds.) Parallela IX. Testo – variazione – informatica / Text – Variation – Informatik (Salzburg 14 November 2000), 223–49. Egert, Wilhelmsfeld.
- Gaeta, Livio – Davide Ricca 2003. Productivity in Italian word formation: a variable-corpus approach. Manuscript. University of Turin.
- Haspelmath, Martin 1996. Word-class-changing inflection and morphological theory. In: Geert Booij – Jaap van Marle (eds) Yearbook of Morphology 1995, 43–66. Kluwer, Dordrecht.
- Iacobini, Claudio 1999. I prefissi dell'italiano. In: Paola Benincà – Alberto M. Mioni – Laura Vanelli (eds) Fonologia e morfologia dell'italiano e dei dialetti d'Italia. Atti del XXXI Congresso della Società di Linguistica Italiana, 369–99. Bulzoni, Roma.
- Iacobini, Claudio in press. Prefissazione. In: Maria Grossmann – Franz Rainer (eds) La formazione delle parole in italiano. Niemeyer, Tübingen.
- Marle, Jaap van 1992. The relationship between morphological productivity and frequency: a comment on Baayen's performance-oriented conception of morphological productivity. In: Booij – van Marle (1992, 151–63).
- Montermini, Fabio 2002. Le système préfixal en italien contemporain. Ph.D. dissertation, Université de Paris X, Paris.
- Plag, Ingo 1999. Morphological productivity. Structural constraints in English derivation. Mouton de Gruyter, Berlin & New York.
- Plag, Ingo – Chris Dalton-Puffer – Harald R. Baayen 1999. Morphological productivity across speech and writing. In: English Language and Linguistics 3: 209–28.
- Rainer, Franz 1983. L'intensificazione di aggettivi mediante '-issimo'. In: Maurizio Dardano – Wolfgang U. Dressler – Gudrun Held (eds) Parallela. Atti del 2° convegno italo-austriaco, 94–102. Gunter Narr, Tübingen.
- Rainer, Franz 1993. Spanische Wortbildungslehre. Niemeyer, Tübingen.
- Rainer, Franz 2001. Compositionality and paradigmatically determined allomorphy in Italian word-formation. In: Chris Schaner-Wolles – John Rennison – Friedrich Neubarth (eds) Naturally! Linguistic studies in honour of Wolfgang Ulrich Dressler presented on the occasion of his 60th birthday, 383–92. Rosenberg & Sellier, Torino.
- Rainer, Franz in press. Internettissimo. Internet come strumento di lavoro per il morfologo: le restrizioni di *-issimo*. In: Franz Rainer – Achim Stein (eds) Die neuen Medien als Instrument linguistischer Forschung. Peter Lang, Bern.
- Ricca, Davide 1998. La morfologia avverbiale tra flessione e derivazione. In: Giuliano Bernini – Pierluigi Cuzzolin – Piera Molinelli (eds) Ars Linguistica. Studi offerti da colleghi ed allievi a Paolo Ramat in occasione del suo 60° compleanno, 447–66. Bulzoni, Roma.
- Thornton, Anna M. 1990–1991. Sui deverbali italiani in *-mento* e *-zione* (I–II). In: Archivio Glottologico Italiano 75 & 76: 169–207 & 79–102.

Thornton, Anna M. 1998. Quali suffissi nel vocabolario di base? In: Federico Albano Leoni – Daniele Gambarara – Stefano Gensini – Franco Lo Piparo – Raffaele Simone (eds) *Ai limiti del linguaggio. Vaghezza, significato e storia*, 385–97. Laterza, Bari.

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ON PREFIXES AND ACTIONALITY IN CLASSICAL AND LATE LATIN

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Abstract

In Early and Classical Latin, we encounter a rich and complex system in which prefixes are used to render verbs telic and to emphasise the beginning or end of a process or of an activity, and in which the opposition between non-dynamicity and dynamicity or between transitivity and intransitivity is expressed by various suffixes. In the perfect there is an opposition between non-dynamic unprefixed verbs and dynamic prefixed ones. In the later centuries this system breaks down, and there is a blurring of the semantic difference between the prefixed and unprefixed verbs and often also of that between the prefixes themselves. New verbs are formed to replace old verbs that have lost their old functions. These changes pervade the whole verbal system in Latin and affect the semantic relationship between the perfect and imperfect tenses. In Romance, the definite and indefinite articles express the functions previously expressed by the various actional forms.

1. Introduction

Verbs and phrases containing a verb express different kinds of actionality. They may, for instance, indicate a non-dynamic State, an atelic Activity, a telic Accomplishment or a momentaneous Achievement.¹ In the development from Early to Late Latin there is a gradual change in the way some such semantic features are expressed.² In Early and Classical Latin (ca. 200 BCE–ca. 200 CE) there is an opposition between unprefixed verbs indicating an atelic Activity and prefixed verbs used in a telic sense, for instance between *suadeo* ‘try to persuade’ and *persuadeo* ‘persuade’ (1a). In Late Latin (ca. 200 CE–ca. 600 CE), however, these semantic oppositions are blurred. Thus in the official translation of the Bible, the so-called *Versio Vulgata*, which was revised by St. Jerome around 400 CE, we may encounter the prefixed

¹ See e.g., Vendler (1957; 1967), Comrie (1978, 41ff), Smith (1997, 22ff), Johanson (2000, 55ff), Bertinetto-Delfitto (2000); cf. also Haverling (2000, 22ff).

² Such differences are often expressed by derivational features as opposed to aspectual differences, which tend to be inflectional: see Bybee (1985, 102) and Bybee et al. (1994, 57ff).

persuadeo in the sense ‘try to persuade’ and the unprefixes *suadeo* in the sense ‘persuade’ (1b):

- (1) (a) 2nd c. BCE: *suadeo* ‘try to persuade’ (e.g., Plaut. *Stich.* 608) — *persuadeo* ‘persuade’ (e.g., Plaut. *Truc.* 200)
 (b) 4th c. CE: *suadeo* ‘persuade’ (Vulg. *Act.* 21.14) — *persuadeo* ‘try to persuade’ (e.g., Vulg. *Ruth* 1.18)

In Early and Classical Latin *edo* means ‘eat’ or ‘eat (some) of’ and *comedo* ‘eat up’ (2a), and *bibo* means ‘drink’ or ‘drink of’ and *ebibo* means ‘drink up’ (3). But in Late Latin, for instance in the *Versio Vulgata*, we frequently encounter the prefixed verb *comedo* in the sense ‘eat, eat of’ (2b):³

- (2) (a) 2nd c. BCE: *edo* ‘eat, eat (some) of’ (e.g., Plaut. *Capt.* 77) — *comedo* ‘eat up’ (e.g., Plaut. *Most.* 559)
 (b) 4th c. CE: *comedo* ‘eat (some) of’ (e.g., Vulg. *Gen.* 2.16–17)
- (3) 2nd c. BCE: *bibo* ‘drink, drink of’ (e.g., Cato *Orat.* frg. 221) — *ebibo* ‘drink up’ (e.g., Ter. *Haut.* 255)

These changes are found in the perfectum tenses too. In the earlier periods of Latin the unprefixes perfect tense form *tacui* means ‘have been silent’ or ‘was silent’ and the prefixed form *conticui* ‘have fallen silent’ or ‘stopped talking’ (4a). The earliest dynamic examples of the form *tacui* ‘stopped talking’ are met with in Late Latin; in the same period we also have some examples of a hypercorrect use of the prefixed forms, for instance *conticui* in the sense ‘have been silent’ (4b):⁴

- (4) (a) 2nd c. BCE: *tacui* ‘have been silent, was silent’ (e.g., Plaut. *Truc.* 817) — *conticui* ‘stopped talking’ (e.g., Plaut. *Asin.* 448)
 (b) 4th c. CE: *tacui* ‘stopped talking’ (e.g., Amm. 16.6.3) — *conticui* ‘have been silent, was silent’ (e.g., Symm. *Epist.* 5.89)

In Late Latin—especially in the literary language—the words look very much the same as before, but in several cases their semantic functions have changed. Due to these changes new kinds of word formation are introduced, as well as new ways of using some of the old words. These changes are presumably connected with other changes in the language, for instance in the tense system and in the development of articles in Romance.

³ See Haverling (1994; 2000, 205ff).

⁴ See Haverling (1994; 2000, 218ff, 224f).

2. Actionality and prefixes from Early to Late Latin

The changes in the way prefixes express various forms of actionality are clearly illustrated by the development of the *sco*-verbs in Latin. The *sco*-suffix is very productive in Latin (there are over 700 such verbs from the earliest attestations of the language to after 600 CE) and occurs in several different kinds of word formation (5a–f). It is found in some verbs of Indo-European descent like *nosco* or *posco* (5a), in verbs formed from transitive verbs like *augesco* (5b), in verbs formed from intransitive and dynamic verbs like *permanasco* (5c), in those formed from non-dynamic verbs like *aresco* (5d), and in verbs formed from adjectives and nouns like *siccesco* and *silvesco* (5e–f).⁵

- (5) (a) **ǵneh*₃ + *-sk-* > *nosco* ‘try to get to know’; **prek-sk-* > *posco* ‘ask for, demand’
 (b) *augeo* ‘increase, intensify’ — *augesco* ‘increase, grow’
 (c) *permano* ‘flow through, seep, percolate’ — *permanasco* ‘seep through gradually, penetrate’
 (d) *areo* ‘am dry’ — *aresco* ‘become drier, am drying, dry’
 (e) *siccus* ‘dry’ — *siccesco* ‘become drier, am drying, dry’
 (f) *silva* ‘forest’ — *silvesco* ‘become like a forest, put forth thick growth, bush out’

The most productive category is (5d), the verbs formed from the statives which incorporate the Indo-European suffix **-eh*₁. This suffix, which often interrelates in this way with the *sco*-suffix, is found in verbs indicating states which in many other languages are described by an adjective and a verb meaning ‘to be’. Common expressions for ‘is hot’ or ‘is red’ in Early and Classical Latin are simple verbal forms such as *calet* and *rubet*. As the original function of the stative suffix disappears in Vulgar Late Latin and in Romance, such verbs are replaced by the combination of an adjective and the verb meaning ‘to be’, i.e., *calet* ‘is hot’ is replaced by expressions like *calidum est*.⁶

2.1. Actionality in Early and Classical Latin

The semantic opposition between atelic unprefixes verbs and telic prefixed ones could be observed in Classical Latin in the way such verbs are used with expressions indicating how long a certain situation lasted or in what length of

⁵ See Keller (1992) and Haverling (2000, e.g., 137ff); and also Leumann (1977, §407) and Rix (1998, e.g., 149f, 229f, 245, 442f).

⁶ See e.g., Leumann (1977, §410.2.c and d), Väänänen (1981, §314) and Lehmann (1995).

time a certain result was achieved. We have unprefixing verbs with durative temporal expressions like *duos menses* 'for two months' (6a), and prefixed verbs with completive temporal expressions like *quindecim diebus* 'in fifteen days' (6b):⁷

- (6) (a) *duos menses ut siccescat* 'that it may be drying for two months' (Vitr. 5.12.4)
 (b) *quindecim diebus . . . exarescere* 'become dry in fifteen days' (Varro *Rust.* 1.32.1)

Another example of this is found in the use of prefixed and unprefixing verbs with the conjunction *dum* meaning 'while, as long as' with an unprefixing verb (7a) and 'until' with a prefixed verb (7b):⁸

- (7) (a) *dum haec silescent turbae . . .* 'while these troubles are calming down' (Ter. *Ad.* 785)
 (b) *dum haec consilescent turbae . . .* 'until these troubles calm down' (Plaut. *Mil.* 583)

Common to all of the functions in which the *sco*-suffix occurs is the fundamentally dynamic and atelic character of the suffix. To express the telic sense, in other words to indicate that a transformation takes place, Early and Classical Latin needs a prefix; for this reason we find in some cases only prefixed verbs, for instance *conticesco* 'stop talking' and *obmutesco* 'become dumb' (8a–b):⁹

- (8) (a) *taceo* 'be silent, say nothing' — *conticesco* 'stop talking'
 (b) *mutus* 'dumb, speechless, silent, mute' — *obmutesco* 'become dumb, speechless'

In several cases we find an opposition between a non-dynamic verb indicating a State and a prefixed *sco*-verb indicating a change from one State to another, for instance *dormio* and *condormisco* 'fall asleep' (9a) and *taceo* and *conticesco* 'stop talking' (10a). Latin, as opposed for instance to Gothic, usually needs a dynamic suffix to turn a non-dynamic verb into one which indicates a change of this kind; in Gothic the prefix *ga*- alone suffices to do this (9b, 10b). The unaffixed Latin verb *condormio* means 'to be fast asleep'

⁷ See Haverling (2000, 61ff); cf. e.g., Smith (1997, 27f), Johanson (2000, 61, 64, 73f), Bertinetto–Delfitto (2000, 199ff).

⁸ See Haverling (2000, 70ff); cf. Hofmann–Szantyr (1965, §§329–330).

⁹ See Haverling (2000, e.g., 1, 138, 147, 166–8, 175, 191, 205). Sometimes we find non-dynamic verbs in the imperative (e.g., *tace* 'be silent!' or *Ne time* 'don't be afraid!'): what is under control in such cases is the change into a state and not the maintenance of it; hence these examples do not show that the verbs have a dynamic or telic function; see Haverling (2000, 47ff); cf. Pinkster (1990, 17) and Smith (1997, 18).

and is found in prose (9a), whereas *conticeo* means 'stop talking' and is found in poetry (10a):¹⁰

- (9) (a) Latin: *dormio* 'am asleep' (2nd c. BCE) — *condormisco* 'fall asleep' (2nd c. BC) — *condormio* 'am fast asleep' (1st c. CE, prose)
 (b) Gothic: *slepan* 'sleep' — *gaslepan* 'fall asleep'
- (10) (a) *taceo* 'am silent, say nothing' (2nd c. BCE) — *conticesco* 'stop talking' (2nd c. BCE) — *conticeo* 'stop talking' (1st c. CE, poetry)
 (b) Gothic: *slawan* 'be silent' — *gaslawan* 'fall silent'; *Þahan* 'be silent' — *gaÞahan* 'stop talking, fall silent'

There is a certain number of prefixed but unsuffixed verbs which like *conticeo* have a poetic character in Classical Latin.¹¹

The various prefixes change the semantic function of the *sco*-verbs in different ways and often interrelate with each other. The prefix *ex*-, which indicates that an action is brought to its conclusion, often interrelates with *in*-, which indicates the entrance into it. The unprefixed verbs in (11a–c) are generally used to describe ongoing processes in nature, such as the changing colours at dawn (*rubesco*, *albesco*) or in someone's hair as the years pass (*albesco*); the verbs prefixed with *ex*- describe changes from one state to another (*exaresco*) and in several cases changes in colour that reflect a change in the state of a person's emotions (*erubesco*, *exalbesco*); and the verbs prefixed with *in*- indicate that the change starts and that it takes place to some extent (*inaresco*, *irrubesco*, *inalbesco*):¹²

- (11) (a) *aresco* 'am drying' — *inaresco* 'start becoming dry, become somewhat dry' — *exaresco* 'become totally dry, dry out'
 (b) *rubesco* 'grow red, am growing red' — *irrubesco* 'turn reddish, somewhat red' — *erubesco* 'turn red (in the face because of shame and embarrassment)'
 (c) *albesco* 'grow white, pale, am growing white' — *inalbesco* 'become somewhat white' — *exalbesco* 'turn white or pale (in the face because of fear)'

The prefix *con*- often interrelates with *ad*- (12a–b). The unprefixed verbs usually describe ongoing activities or processes. An exception is *suesco*: this is telic and first occurs in the historian Tacitus (ca. 100 CE), who probably

¹⁰ On the Latin *con*- see Haverling (2000, 251–72); cf. also Rosén (1992); on the Gothic prefix *ga*- see e.g., Josephson (1977) and Lloyd (1979).

¹¹ See Haverling (2000, 265f, 275ff, 308ff, 457).

¹² For the examples see Haverling (2000, e.g., 296ff, 328ff); cf. also Haverling (1996a).

uses it because of its poetic character (unprefixed verbs which are used in the sense of the prefixed ones are often regarded as poetic).¹³ On the other hand, the verbs prefixed with *con-* indicate a change from one state to another, without emphasising the beginning or end of that change, and those with *ad-* a gradual change that starts and goes on for some time. The state of knowing or being used to something may be expressed by the perfect tense forms *novi* and *consuevi*.¹⁴

- (12) (a) *nosco* 'am investigating, studying, trying to find out about' — *cognosco* 'get to know' — *agnosco* 'get to know gradually, identify'; *novi* 'know'
 (b) *suesco* 'get used to' (poetic) — *adsuesco* 'get used to gradually, get more and more used to' — *consuesco* 'get used to'; *consuevi* 'am used to'

In other words, it is not the so-called 'inchoative' *sco-*suffix, but the prefixes often combined with it, which cause these verbs to indicate a change of state.¹⁵

The semantic opposition between prefixed and unprefixed dynamic forms also applies to the perfectum tenses. In the earlier periods of Latin we find the unprefixed perfect tense form *tacui* in the sense 'I have been silent' with the adverb *adhuc* 'so far' and in the phrase *cum tacuisset* 'as he had been silent, had not said anything' (13a); the prefixed form *conticui* means 'I have fallen silent' or 'I stopped talking' and *cum conticuisset* 'as he had stopped talking' (13b):

- (13) (a) 2nd c. BCE: *tacui adhuc* 'so far I have been silent' (Plaut. *Truc.* 817)
 1st c. BCE: *multos cum tacuisset annos* 'had been silent for many years' (Cic. *Brut.* 226)
 (b) 2nd c. BCE: *tandem . . . conticuit* 'he finally stopped talking' (Plaut. *Asin.* 447-448)
 1st c. BCE: *cum conticuisset* 'had stopped talking' (Varro *Rust.* 1.49.1)

The general rule that unprefixed perfect tense forms like *calui* and *rubui* are non-dynamic is observed in Classical prose, where prefixed forms such as

¹³ On the poetic character of unprefixed words cf. Haverling (2000, e.g., 143f, 220, 229, 231). Several other Roman historians, like Tacitus, used a poetic and somewhat archaic kind of language, because they considered it suitable for the august matter they were dealing with.

¹⁴ See Haverling (2000, e.g., 254, 256, 277f, 280f); cf. also Haverling (1996b).

¹⁵ See Haverling (2000, e.g., 40, 247ff, 392ff). Somewhat inaccurate descriptions of the function of the Latin *sco-*suffix are common in the linguistic literature (cf. e.g., Kuryłowicz 1964, 107 and Bybee 1985, 147ff) as a result of unclear and sometimes incorrect descriptions in the handbooks on Latin (cf. e.g., Leumann 1977, §407.II.A.1); on the discussion of the suffix see Haverling (2000, 3-9).

incalui/concalui and *irrubui/erubui* are used in the dynamic sense (14a–b); but in poetry there is an increasing use of unprefixated forms of the type in a dynamic function (14c):¹⁶

- (14) (a) prose or neutral: *calui* ‘was warm’ — *incalui* ‘became somewhat warm’ — *concalui* ‘became warm’
 (b) prose or neutral: *rubui* ‘was red’ — *irrubui* ‘became somewhat red’ — *erubui* ‘turned red’
 (c) poetic: *calui* ‘became warm’ — *rubui* ‘turned red’

This is only a very rough picture of how the system works in Classical Latin; for first, there are more prefixes than the ones dealt with here; and second, each prefix may occur in more than one function and often the prefixes overlap the functions of one another. The prefix *re-*, for example, generally has the sense ‘back, again, anew’, as in *recognosco* ‘reconsider something previously known’ (15a); but it also overlaps with *con* in the verb *rescisco* ‘get to know of (a fact not previously suspected)’ (15b), so that we can compare in Plautus the phrases *ne uxor resciscat* (15b) and *ne uxor cognoscat* (15c):¹⁷

- (15) (a) *recognosco* ‘reconsider (something previously known)’ (e.g., Cic. *Verr.* I 15 *Neque enim mihi videtur haec multitudo, quae ad audiendum convenit, cognoscere ex me causam voluisse, sed ea quae scit mecum recognoscere* ‘and the purpose of the audience that has gathered to attend this trial is not, I conceive, to learn the facts of the case from me, but to join me in reviewing the facts that it knows already’)
 (b) *rescisco* ‘get to know of (a fact not previously suspected)’ (e.g., Plaut. *Asin.* 743 *ne uxor resciscat metuit* ‘he is afraid of his wife finding out’)
 (c) *cognosco* ‘get to know of’ (e.g., Plaut. *Men.* 428–429 *eadem ignorabitur, / ne uxor cognoscat te habere* ‘it will look different, so that my wife won’t find out that you have it’)

Furthermore, one and the same prefix can have more than one function in Early and Classical Latin. *Con-*, for instance, has an actional function and indicates that a transformation takes place in *consuesco* ‘get used to’ (12b) or *comedo* ‘eat up’ (16a); it underlines the intensity of the action in *commoror* ‘stay (on), remain, delay, wait’ and *condormio* ‘am fast asleep’ (16b); and it means ‘with, together’ in *congregior* ‘get together, meet’ (16c). In the

¹⁶ For examples see Haverling (1994; 2000, 218ff, esp. 224–5, 229–31); thus I cannot entirely agree with the description in e.g., Hewson (1997, 327), who says that Latin *calesco* means ‘I get warm’ and the corresponding *calui* ‘I got warm’.

¹⁷ See Haverling (2000, 362, 368); cf. also Haverling (1996b, 409ff).

actional function it often interrelates with *ad-* (16a), but when it means ‘with, together’ it often interrelates with *dis-* (16c):¹⁸

- (16) (a) *comedo* ‘eat up’ — *adedo* ‘eat away, eat into, nibble, wear down, exhaust’
 (b) *commoror* ‘stay (on), remain, delay, wait’; *condormio* ‘am fast asleep’
 (c) *congregior* ‘get together, meet’ — *digredior* ‘go in different directions, depart from’

In other words, the system is rather complicated, and it is perhaps not surprising that it did not survive but was replaced by another one.

2.2. Actionality in Late Latin

The old semantic functions of prefixed and unprefixed and even suffixed verbs become less distinct in the later centuries, as the examples (1), (2), (3) and (4) indicate. As a result we now encounter new verbs which were not possible in the earlier periods. In the earlier periods the verbs with the *sco-*suffix generally had a dynamic sense, as for instance in *aresco* ‘become drier, grow more and more dry’; but in Late Latin such verbs often have a non-dynamic function, as *lippescit* ‘has red eyes’ in St. Jerome, which can be compared to the expression *lippis . . . oculis* in the Vulgate (17a). In the same period, the late 4th century, the historian Ammianus Marcellinus has the expression *mensibus quinque delitescentes* ‘hiding for five months’ (17b), where the durative temporal adverbial ‘for five months’ shows that *delitescere* has become synonymous with the old stative verb *latere* and means ‘be hiding’ (in Classical Latin *delitescere* means ‘hide oneself, vanish’):¹⁹

- (17) (a) *Lia lippescit* ‘Leah has red eyes’ (Hier. *In Soph.* 3.19 l. 582) — *Lia lippis erat oculis* ‘Leah had red eyes’ (Vulg. *Gen.* 29.17)
 (b) *mensibus quinque delitescentes* ‘hiding for five months’ (Amm. 27.12.11)

A few previously impossible unprefixed *sco-*verbs now appear in the sense of the prefixed verb; compare *mutesco* ‘become mute, stop talking’ in an edict from the year 399, preserved in the *Codex Theodosianus* (18b), and *obmutesco* in that sense in Cicero (18a):²⁰

¹⁸ See Haverling (2000, 252–67, 267–72); cf. also Rosén (1992).

¹⁹ See e.g., Väänänen (1981, §316), and Haverling (2000, e.g., 53, 65, 178, 192, 247).

²⁰ See Haverling (2000, 191, 205f).

- (18) (a) *“De me” inquit “semper populus Romanus, semper omnes gentes loquentur, nulla umquam obmutescet vetustas . . .”* “Of me”, he says, “shall the people of Rome and all nations ever speak, of me shall no far-off age ever cease to make mention” (Cic. *Mil.* 98; 1st c. BCE)
- (b) *ut eiusdem universis actibus antiquatis omnia mutescant tempora* ‘so that, when all the administrative measures taken by him are rejected, there will be no further talk about this (scandal)’ (*Cod. Theod.* 9.40.17; 399 CE)

Several of the new unprefixated verbs occur only in the grammarians. This is where we find the only example of *tacesco* (19a); the verb *conticeo* ‘stop talking’, which was very rare and poetic in the earlier periods, now sometimes occurs in prose (19a), and in the 6th century the famous grammarian Priscian regards it as the normal form corresponding to the perfect *conticui* (19b):²¹

- (19) (a) *taceo* ‘am silent, say nothing’ (2nd c. BCE) — *conticesco* ‘stop talking’ (2nd c. BCE); ‘be silent, say nothing’ (Late Latin) — *conticeo* ‘stop talking’ (1st c. CE, poetry; Late Latin prose) — *tacesco* ‘stop talking, am silent (?)’ (7th c. CE, Virg. *Gramm. Epist.* 3.9)
- (b) *CONTICUERE* *quae pars orationis est? Indicativo, coniugationis secundae. Cur secundae? Quia in praesenti tempore secundam personam in -es productam desinit, conticeo, contices . . .* ‘Conticuere—what form is that? The indicative of the second conjugation. Why second? Because in the present tense the second person has the ending *-es*, *conticeo*, *contices*’ (Prisc. *Gramm.* 3 p. 469; 6th c. CE)

Different prefixed verbs within the same family now occur in the same semantic function; in (20a) *cognosco* and *agnosco* occur in the function of *novi* ‘I know’ (cf. (12a)); in the Greek original (20b), as well as in the classical English translation of the Greek text (20c), we find the same verb in all these cases, i.e., γινώσκω and *know*, respectively:²²

- (20) (a) *Ego sum pastor bonus: et cognosco meas, et cognoscunt me meae./ Sicut novit me Pater, et ego agnosco Patrem; et animam meam pono pro ovibus* (Vulg. *Ioh.* 10.14–15)
- (b) Ἐγὼ εἰμι ὁ ποιμὴν ὁ καλός, καὶ γινώσκω τὰ ἐμὰ καὶ γινώσκουσί με τὰ ἐμὰ καθὼς γινώσκει με ὁ πατήρ καὶ γὼ γινώσκω τὸν πατέρα, καὶ τὴν ψυχὴν μου τίθημι ὑπὲρ τῶν προβάτων (NT *Ioh.* 10.14–15)

²¹ See Haverling (2000, 265f). Priscian also regards for instance *exardeo* and *exareo* (and not the more common *exardesco* and *exaresco*) as the infectum forms corresponding to *exarsi* ‘caught fire’ and *exarui* ‘became dry’: thus from this point of view he provides us with a rather odd description of Latin: cf. Haverling (2000, 339, 457).

²² See Haverling (1996b, 410–2; 2000, 283). The Old Latin translations as well as the manuscripts of the Vulgate vary in this case, but the reading presented here has strong support and was chosen by Weber–Gryson (1994).

- (c) 'I am the good shepherd, and **know** my sheep, and **am known** of mine. As the Father **knoweth** me, even so **know** I the Father: and I lay down my life for the sheep' (King James version, *Ioh.* 10.14–15)

These changes pervade the whole verbal system and are found in all verbal families where there is an opposition between a telic prefixed verb and an atelic prefixed one. In Early and Classical Latin there is an opposition between *panem edo* 'I eat bread' (21a) and *panem comedo* 'I eat up the bread' (21b); but in Late Latin we often encounter the verb *comedo* in the sense 'eat (some) of', for instance in the famous passage in *Genesis*, where God tells Adam not that he must not eat up a certain kind of fruit but rather that he may not taste it at all (21c):²³

- (21) (a) *quasi mures semper edimus alienum cibum* 'like mice, we are forever nibbling at some one else's food' (Plaut. *Capt.* 77)
- (b) *tam facile vinces quam pirum volpes comest* 'you'll win as easily as a fox eats a pear' (Plaut. *Most.* 559)
- (c) (*Deus*) *praecepitque ei dicens: ex omni ligno paradisi comedere. de ligno autem scientiae boni et mali ne comedas. in quocumque enim die comederis ex eo morte morieris* 'And the LORD God commanded the man, saying, "You may freely eat of every tree of the garden; but of the tree of the knowledge of good and evil you shall not eat, for in the day that you eat of it you shall die."' (Vulg. *Gen.* 2.16–17)

As a result of these changes the semantic function expressed by several old verbs is more connected with their traditional use than with the originally actional character of their formation. In Classical Latin *erubesco* describes a change from one colour to another in a person's face and is used of people turning red with shame and embarrassment, whereas *irrubescere* means 'become somewhat red' (11b); but in Late Latin *erubescere* usually means 'be ashamed' (21a), and to indicate that somebody actually turns red in the face the 5th century bishop Sidonius Apollinaris uses a form of *irrubesco* (21b):²⁴

- (22) (a) Late Latin: *erubesco* 'am ashamed' — *irrubesco* 'turn red (in the face because of shame and embarrassment)'
- (b) *cum quodam prologo pudoris vultum modeste demissus inrubit* 'with what I may call a prologue of modesty, he bashfully lowered his eyes and blushed' (Sidon. *Epist.* 8.6.6; 5th c. CE)

²³ See Haverling (2000, 207, 262).

²⁴ See Haverling (1996a, 177ff; 2000, 304).

In Late Latin *agnosco* and *cognosco* are often confused with each other (20a), (23a), but in some respects the old functions are retained: *agnosco* is often, for instance in the *Codex Theodosianus* (a collection of laws published in 438 CE), a technical term for the assumption of legal duties or the acknowledgement of a specific legal situation or transaction (23b), which resembles the earlier usage. In the sense ‘recognise, identify’, however, *agnosco* and *cognosco* are often replaced by *recognosco* (23c), which in Classical Latin had the sense ‘reconsider (something previously known)’ (15a), or by the new verbs *renosco* and *reagnosco* (23a):²⁵

- (23) (a) LL *cognosco* = *agnosco* = *novi* ‘know’ — *recognosco* ‘recognise’ (ca. 200 CE), *renosco* ‘identify, recognise’ (4th c. CE), *reagnosco* ‘recognise, acknowledge’ (6th c. CE)
- (b) *praedictam multam agnoscat* ‘he shall acknowledge his duty to pay the fine’ (*Cod. Theod.* 4.8.8)
- (c) *dum illam* (scil. *idololatram*) *non solum in manifestis recognoscimus* ‘as long as we recognise it (i.e., idolatry) not only when it is in the open’ (*Tert. Idol.* 2.5; ca. 200 CE)

Several of the prefixes are no longer productive in their actional functions in Late Latin, but the prefixes *in-* and *ad-* are more productive than in earlier centuries. In the earlier periods *in-* emphasised the entrance into an action, but now it indicates dynamicity more generally. Several new *sco*-verbs prefixed with *in-* occur in the more literary Late Latin texts, where they replace the old unprefixated verbs. In Classical Latin we have the verbs *crassesco* and *pinguesco* in the sense ‘become fatter’ (24a), but in literary Late Latin we have *incrassesco* and *impinguesco* in the sense ‘become fat’ as well as the intransitive verbs *incrasso* and *impinguo* ‘make fatter’ (24b). In less literary Latin, however, we encounter the verbs *incrasso* and *impinguo* in the intransitive sense ‘become fat’ (24c):

- (24) (a) *crassesco* ‘grow thicker, thicken’ (1st c. CE; e.g., *Colum.* 8.9.2) — *pinguesco* ‘grow fatter’ (1st c. BCE; e.g., *Lucr.* 5.899)
- (b) *incrassesco* ‘grow fatter’ (4th c. CE; *Rufin. Orig. in Psalm.* 38 hom. 2.8) — *incrasso* ‘make fatter’ (3rd c. CE; e.g., *Tert. Ieiun.* 6.3)
impinguesco ‘grow thick, fat’ (4th c. CE; *Hier. In Is.* 16.58.11) — *impinguo* ‘make fat’ (4th c. CE; *Vulg. Sirach.* 35.8)
- (c) *incrassavi* ‘became fat, grew fat’ (3rd c. CE; *Vet. Lat. Is.* 6.10 in *Cypr. Testim.* 1.3)
impinguo ‘become fat, grow fat’ (4th c. CE; *Apic.* 8.7.5)

²⁵ See Haverling (1996b, 411f; 2000, 88, 283, 368).

In Early and Classical Latin *in-* is found in a number of causative verbs formed from adjectives, along the same lines as *incrasso* and *impinguo* 'make fat'. One example is *invetero* 'allow to become old, make old', which interrelates with the intransitive *inveterasco* 'grow old' (25a); but in Late Latin, in the 4th century, we encounter the unprefixd *veterasco* as well as the intransitive *invetero* in the sense 'grow old' (25b):²⁶

- (25) (a) *invetero* 'allow to become old, make old' (1st c. BCE; e.g., Cic. *Nat. deor.* 2.5) — *inveterasco* 'grow old, age, improve with age, mature' (2nd c. BCE; e.g., Ter. *Hec.* 12)
 (b) *veterasco* 'grow old, become long-established' (4th c. CE; Vulg. *Hebr.* 1.11) — *invetero* 'grow old, age, improve with age, mature' (4th c. CE; Vulg. *Is.* 65.22)

This kind of formation with *in* and *-are* is common in Romance.²⁷

Ad- is very productive in transitive as well as intransitive verbs in Late Latin, where verbs prefixed with *ad-* often replace earlier verbs without the prefix; Plautus has the expression *garrere nugas*, but when Martianus Capella in the early 5th century alludes to this expression he writes *nugulas aggarrere* (26a); when Quintilian around 100 CE talks about abbreviating a text he uses the unprefixd *brevis*, but in the 4th century Vegetius has the prefixed *abbrevio* in the same sense (26b):²⁸

- (26) (a) *garrio* 'chatter' (e.g., Plaut. *Aul.* 830, 2nd c. BCE) — *aggarrio* 'chatter' (e.g., Mart. Cap. 1.2; 5th c. CE)
 (b) *brevis* 'abbreviate' (e.g., Quint. *Inst.* 1.9.2; ca. 100 CE) — *abbrevio* 'abbreviate' (Veg. *Mil.* 3 praef.; 4th c. CE)

The original function of the actional *ad-* was to emphasise the entrance into an action and graduality; this is lost in Late Latin, but the prefix retains the capacity to indicate dynamicity and in this new function it is productive in Late Latin and Romance. In Late Latin we find a growing number of verbs with *ad-* which do not differ semantically from earlier verbs without the prefix. *Ad-* may even replace the *sco-*suffix: in Early and Classical Latin we have *vesperascit* 'it is approaching evening' and *advesperascit* 'it starts to become evening' and in Late Latin we find the verb *advesperat* in the sense

²⁶ See Haverling (1996a, 178ff; 2000, 153f, 182f, 302, 313f); for more examples of this development in Latin cf. Feltenius (1977). Many languages have deadjectival verbs meaning 'to become sth.' and 'to make sth. become sth.': cf. e.g., Beard (1995, 191ff).

²⁷ See Rohlf's (1954, §§1015, 1155); and Meyer-Lübke (1894, §607): cf. also Crocco Galéas-Iacobini (1993, esp. 38ff, 43, 48f).

²⁸ See Thomas (1938, 86, 91), and Haverling (1999, 242ff; 2000, 285f).

'become evening' (27a); parallel to Classical Latin *vesperascente caelo* (27b) we have Late Latin *die advesperante* (27c):

- (27) (a) *vesperascit* 'it is approaching evening' (2nd c. BCE) — *advesperascit* 'it starts to become evening' (2nd c. BCE) — *advesperat* 'it gets towards evening' (ca. 400 CE)
 (b) *ut vesperascente caelo Thebas possent pervenire* 'in order to be able to reach Thebes at nightfall' (Nep. *Pelop.* 2.5; 1st c. BCE)
 (c) *ad cellam eius iam die advesperante pervenimus* 'we came to his room as the day was already turning into evening' (Cassian. *Conl.* 3.2.1; ca. 400 CE)

In Romance *ad-* is a productive prefix, for instance in verbs formed from adjectives.²⁹

The new verbs with *in-* and *ad-* replace not only old unprefixated *sco-* verbs but also prefixed verbs of this type. In Early and Classical Latin we find *condormisco* and *obdormisco* in the sense 'fall asleep' and *indormio* in the sense 'sleep on, sleep during' (28a). But in Late Latin we encounter *indormisco* and *indormio* in the sense 'fall asleep' (28b); in this case French has chosen the form in *in-* (*s'endormir*) and Standard Italian that with *ad-* (*addormentarsi*) (28c):³⁰

- (28) (a) *dormio* 'be asleep' (2nd c. BCE) — *condormisco* 'fall asleep' (2nd c. BCE) — *obdormisco* 'fall asleep' (1st c. BCE) — *indormio* 'sleep on, sleep during' (1st c. BCE)
 (b) *indormisco* 'fall asleep' (4th c. CE) — *indormio* 'fall asleep' (4th c. CE); French *s'endormir*
 (c) *addormisco* 'fall asleep' (6th c. CE) — *addormio* 'fall asleep' (5th c. CE); Standard Italian *addormentarsi*

These changes affect not only the inflected tenses, but, as already indicated above (4a–b), the use of the perfect too: in the earlier periods the unprefixated form is non-dynamic, whereas the prefixed form indicates a change of state, but in the later centuries this difference no longer applies. In the earlier periods of Latin we find the unprefixated perfect tense form *tacui* in the sense 'I have been silent' with the adverb *adhuc* 'so far' and in the phrase *cum tacuisset* 'as he had been silent, had not said anything' (13a); the prefixed form *conticui* means 'I have fallen silent' or 'I stopped talking' and *cum conticuisset* 'as he had stopped talking' (13b). The earliest dynamic examples of the form *tacui* 'stopped talking' are met with in Late Latin (29a); in the

²⁹ See Rohlfs (1954, §1001); and Meyer-Lübke (1894, §598); cf. also Crocco Galèas–Iacobini (1993, esp. 38ff, 43, 45–8).

³⁰ See Haverling (1999, 244; 2000, 284, 304).

same period *cum tacuisset* occurs in the sense 'as he had stopped talking'. We also have some examples of a hypercorrect use of the prefixed forms, for instance in conservative authors who try to write as people did a few centuries earlier; in the late 4th century the conservative pagan senator Symmachus writes *hucusque conticui* (29b), which corresponds to the formulation *tacui adhuc* in a passage of Plautus from the early 2nd century BC (13a):³¹

- (29) (a) 4th c. AD: *ilico tacuit* 'he immediately stopped talking' (Amm. 16.6.3)
 4th/5th c. AD: *cum tacuisset* 'as he had stopped talking' (Aug. *Ord.* 1.6.16)
 (b) 4th c. AD: *hucusque conticui* 'so far I have been silent' (Symm. *Epist.* 5.89)

This development affects not only related verbal pairs like *taceo/tacui* and *conticesco/conticui* but also the verbal system at large, as illustrated by the development of *habui*, 'I have had, I had'. In the sense 'she got a son' Classical Latin has such expressions as *filium genuit*, whereas *filium habuit* is non-dynamic and means 'she had a son'. But in French and Italian we find phrases like *elle eut un enfant* and *ebbe un bambino* in the sense 'got a child', which shows that *habui* acquired a dynamic function in Vulgar Latin.³²

Although the original semantic function of the prefixes seems in many cases to grow indistinct, a remarkable number of new prefixed verbs are created even in the later periods, often by authors well trained in Classical Latin (as, for instance, St. Jerome, St. Augustine and the pagan Symmachus). These people knew and avoided most of the changes which had taken place in the language since the Classical norm was defined in the 1st century BCE, and which we can observe in the vulgar texts from their period. They were, however, unaware of the changes in the actional functions of the prefixes. The use of prefixed words therefore becomes a stylistic device: old words or kinds of word formation were reinterpreted by skilful authors playing with the possibilities of their language; and in a certain kind of archaising Late Latin we encounter a number of prefixed words in which the prefixes seem to have no other function than that of an exotic adornment.³³ Several old kinds of word formation therefore seem more vigorous in Late Latin than they probably were in real life.³⁴

³¹ See Haverling (2000, 218ff, 224f; cf. also 1994, 49ff).

³² See Haverling (2000, 242).

³³ On this development in Late Latin see Haverling (1988, 35, 102, 110) and the literature quoted there; cf. also Haverling (2000, e.g., 271f, 302ff, 320ff, 346, 356, 382ff).

³⁴ Affixes which are losing their original semantic function usually become rare and unproductive: cf. Aronoff-Anshen (1998, 243).

Various critical problems in the texts are connected with this development. In some manuscripts we find *sco*-verbs which probably never existed, and now and then, in the manuscript tradition of a classical author we have prefixed forms which reflect the linguistic habits of a much later period.³⁵ In other cases odd readings in medieval manuscripts hide a new verb dating from Late Antiquity and which was no longer understood by scribes in the Middle Ages.³⁶

2.3. Changes triggered by the development in the actional system

The change in the actional system is connected in various ways with other changes in the language. I shall now briefly mention two such changes, namely (1) an altered relationship between the perfect and the imperfect tense forms and (2) the development of definite and indefinite articles and various partitive expressions in the Romance languages.

As we have seen, there is a change in the relationship between the un-prefixed perfect tense form *tacui* and the prefixed form *conticui* from Early to Late Latin. In Late Latin the un-prefixed form could be used in both the dynamic and non-dynamic sense, it could mean 'stopped talking' as well as 'was silent' ((4b), (29a–b)). In my view these changes affect the relationship between the perfect and imperfect tenses of non-dynamic verbs.³⁷ In Classical Latin *tacui* serves to give an overview of past situations, for instance in 'how could Clodius remain silent ...?' (30a), or in descriptions of people who are speechless or simply refuse to say anything in reply to an important statement (30b). The imperfect *tacebam* is used with expressions that indicate contemporaneity with some other event or situation (30c) and in descriptions of habit (30d):

³⁵ For instance we have an example of *addormisceret* 'fell asleep' in the tradition of Suetonius (*Claud.* 8), who elsewhere uses *obdormisceret* in this sense (*Claud.* 33.2, *Vesp.* 4.4); the lexicographer Nonius Marcellus was sometimes careless when quoting from classical texts, and it is probable that we owe *inseniscentis*, in the sense of *senescentis*, to him rather than to Cicero (*Cic. Ac. frg.* 6 in Non. pp. 121.29–122.1) and that he and not Sisenna wrote *subito tacuit*, for *subito conticuit* (Sisenna *Hist.* 45 in Non. p. 361.20–22): see Haverling (2000, 56, 224, 284, 306).

³⁶ One example is the verb *addentire* in the sense 'get teeth' probably found in the Old Commentary to the Late Latin translation of the Hippocratic Aphorisms (*Aph.* 3.25). In Classical Latin we have the verb *dentire* 'get teeth', but in the manuscripts preserving this text we have odd readings which seem to indicate that there was a verb *addentire* in Late Latin: cf. Haverling (1999, 243; 2000, 286f; forthcoming).

³⁷ See Haverling (1998; 2000, 241–46; 2001).

- (30) (a) *Quo modo autem iis quos tu scribis et de re dicentibus et ut referretur postulantis Clodius tacuit?* ... 'And how is it that Clodius held his tongue, when the men you mention were talking about the case and asking for a motion?' (Cic. *Att.* 3.15.6)
- (b) *Aspasia autem sermonem cum ipso Xenophonte instituit. 'Quaeso', inquit, 'Xenophon, si vicinus tuus equum meliorem habeat, quam tuus est, tuumne equum malis an illius?' 'Illius', inquit. ... 'Quid, si uxorem meliorem habeat, quam tu habes, utrum (tuamne an) illius malis?' Atque hic Xenophon quoque ipse tacuit* 'But Aspasia then began to speak to Xenophon. "I wish you would tell me, Xenophon", she said, "if your neighbour had a better horse than yours, would you prefer your horse or his?" "His", was his answer. ... "Now, if he had a better wife than you have, would you prefer yours or his?" And at this Xenophon, too, himself was silent.' (Cic. *Inu.* 1.52)
- (c) *Me vero non illius oratio (scil. movit), sed eorum taciturnitas, in quos illa oratio tam improba conferebatur; qui tum quamquam ob alias causas tacebant, tamen hominibus omnia timentibus tacendo loqui, non infitiando confiteri videbantur* 'My resolution was not shaken by his language, but by the obstinate silence of those to whom that shameless language was made to refer, who at that time remained silent for other reasons, yet to men who were afraid of everything they seemed by silence to speak, and by denying to confess' (Cic. *Sest.* 40)
- (d) *At illi ... parati erant pro domino porrigere cervicem, periculum imminens in caput suum avertere; in conviviis loquebantur, sed in tormentis tacebant* 'But they (i.e., the slaves of former days) ... were ready to bare their necks for their master, to bring upon their own heads any danger that threatened him; they spoke at the feast, but kept silent in torture' (Sen. *Epist.* 47.4)

In the Vulgate, however, we find the imperfect tense of *tacere* when Jesus does not answer the high priest's questions (31a) or the Pharisees that of Jesus (31b); and the imperfect tense is found when St. Augustine describes how participants in a discussion are rendered speechless by the statements of others (31c):

- (31) (a) *Et surgens princeps sacerdotum ait illi: 'Nihil respondes ad ea quae isti adversum te testificantur?'* *Iesus autem tacebat* 'And the high priest arose, and said unto him, "Answerest thou nothing? what is it which these witness against thee?" But Jesus held his peace' (Vulg. *Math.* 26.62-63)
- (b) *Et dicit eis: 'Licet sabbatis bene facere an male, animam salvam facere an perdere?'* *At illi tacebant.* 'And he saith unto them, "Is it lawful to do good on the sabbath days, or to do evil? to save life, or to kill?" But they held their peace' (Vulg. *Marc.* 3.4-5)
- (c) *'Nam quaero, ex te, quaeso, inquit, iustusne sit Deus?'* -- *Tacebat ille, nimis, ut postea retulit, admirans et horrens subito condiscipuli ... sermonem* "But please tell me, what do you think, is God righteous?" The other one remained silent, as he afterwards told me, because he was astonished and horrified by the utterance made by his fellow student' (Aug. *Ord.* 1.7.19; ca. 400 CE)

In similar cases Cicero used the form *tacui* (30a–b). Thus the borderline between the semantic fields of the perfect tense form *tacui* and the imperfect tense *tacebam* seems to have moved slightly. These changes are reflected in the various translations of the Bible, for instance in the translation of the aorist form ἐσίγησα ‘was silent; stopped talking’ in the Greek translation of the Old Testament, the so-called *Septuagint* (32a). In the Vulgate text of the Psalms, that is, Jerome’s translation from the Greek (32b) and from the Hebrew (33a), as well as in a *Vetus Latina* manuscript (32b), we find the perfect tense form; but in another *Vetus Latina* manuscript and in the Latin translation of a Greek text containing a quotation of this passage from the *Septuagint*, Athanasius’ *Vita Antonii*, we encounter the imperfect tense (32c); the English translator interpreted the Hebrew original as non-dynamic (33b):

- (32) (a) ἐκωφώθην καὶ ἐταπεινώθην καὶ ἐσίγησα ἐξ ἀγαθῶν... (Septuag. *Psalm*. 38.3)
 (b) *obmutui et humiliatus sum et silui a bonis* (Vulg. *Psalm*. 38.3 from Greek; cf. *obsurdui* in Vet. Lat. cod. 300 *ibid.*)
 (c) “*Cum asteterit peccator in conspectu meo, insurdabar et humiliabar et tacebam a bonis*” (Vet. Lat. *Psalm*. 38.3 in *Vita Anton.* 27 p. 41.17–18; cf. *mutus tacebam* in Vet. Lat. cod. 136 *ibid.*)
- (33) (a) *obmutui silentio tacui de bono et dolor meus conturbatus est* (Vulg. *Psalm*. 38.3 from Hebrew)
 (b) ‘I was dumb with silence, I held my peace, even from good; and my sorrow was stirred’ (King James version *Psalm*. 39.2)

It is possible that those who chose the perfect tense in (32b) interpreted the Greek aorist as a dynamic form, whereas those who preferred the imperfect tense in (32c) regarded it as non-dynamic; but it is also possible that St. Jerome used the prefixed *obmutui* in a non-dynamic sense, i.e., ‘I was dumb’ (cf. Symmachus’ use of *conticui* in the sense ‘have been silent’ in (29b)). The example shows in both cases that by now the imperfect tense was the less ambiguous choice in the description of a non-dynamic situation in the past.

In Early and Classical Latin there is an opposition between *panem edo* ‘I eat bread’ and *panem comedo* ‘I eat up the bread’ ((2a), (21a–b)), but in Late Latin the prefixed verb *comedo* is sometimes used in the sense ‘eat (some) of’ (21c). This development is probably connected with the development of definite and indefinite articles as well as with the introduction of partitive expressions in Romance. In many languages the opposition between an atelic expression like (a) ‘I eat bread’ and a telic one like (b) ‘I eat up the bread’ is

expressed by a definite article, underlining the telicity in (b), or by a partitive expression, indicating the atelicity of (a).³⁸

There are certainly traces of the development towards the Romance system of definite and indefinite articles in vulgar Late Latin. The correct interpretation of many single instances has, however, been disputed and the most authoritative scholars who have dealt with the matter agree that there was no systematic use of such devices in Latin.³⁹ There seems in fact to be no Latin example of an article clearly expressing the telicity once expressed by the prefix: i.e., no example of *panem comedo* 'I eat up a/the bread' being replaced by **panem unum comedo* or **panem illum comedo*.

What we do have, however, are partitive expressions with the prefixes *de*, *ex* or *ab* which underline the atelicity once indicated by the unprefixated verb. In Early and Classical Latin we find *bibo* 'drink, drink (some) of' (34a) as well as *ebibo* 'drink up' (34b) with an object in the accusative; a partitive expression in the genitive is found only when there is a word requiring it, for instance the adverb *largiter* 'in great quantity' with *poto* 'drink' in (35a). In a few cases with *de* and the ablative the semantic function is not partitive; the expression *de alieno* in Plautus (35b) means 'at someone else's expense' (compare *edimus alienum cibum* 'we are nibbling at someone else's food' in (21a)).⁴⁰

(34) (a) (Mulier) *multitatur, si vinum bibit* 'a woman is regularly sentenced to pay a fine, if she drinks wine' (Cato *Orat.* frg. 221)

(b) *qui . . . acetum, quod forte secum habebat, ebibat et liberatus est* 'who drank up the vinegar he happened to have with him, and was saved' (Cels. 5.27.4)

(35) (a) *veteris vini largiter/ut dies noctesque potet* 'that she may drink a lot of old wine day and night' (Plaut. *Truc.* 903-904)

(b) Plaut. *Poen.* 534: *ubi bibas, edas de alieno, quantum velis usque ad fatim* 'where you can drink and eat as much as you can want and hold, at another man's expense'

³⁸ See e.g., Comrie (1989, 127) and Croft (1990, 177); Abraham (1997, 36, 47) mentions that e.g., Old High German normally uses the partitive genitive with the verb *drincan* 'drink'; cf. also Philippi (1997, 79ff).

³⁹ See e.g., Löfstedt (1942, 358-82), Hofmann-Szantyr (1965, §106) and Väänänen (1981, §215). The literature on this problem is vast, and the views on when there is a genuine use of definite and indefinite articles in Latin vary a great deal; Selig (1991, 19-24) gives an overview of the earlier discussion.

⁴⁰ In early Germanic, e.g., Gothic, there is an interaction between the actional markers on the verbs and the cases, i.e., atelic verbs are combined with the partitive genitive and telic verbs with the accusative; this system was eventually replaced by the use of articles: cf. Abraham (1997) and Philippi (1997).

In Late Latin, however, we sometimes find a partitive expression which seems to underline the atelicity of the action. Thus in (36) we have *bibo* ‘drink (some) of’ with a partitive expression *de vino*, and in (37a) a partitive expression *de cadavere* with the prefixed verb *comedo* meaning ‘eat (some) of’; by contrast the latter verb with an object in the accusative means ‘eat up’ in (37b):

- (36) *de vino eius biberunt gentes et ideo commotae sunt* ‘the nations have drunken of her wine; therefore the nations are mad’ (Vulg. *Ier.* 51.8)
- (37) (a) *non comedit leo de cadavere nec laesit asinum* ‘the lion had not eaten of the carcase, nor torn the ass’ (Vulg. *1 Reg.* 13.28)
- (b) *et panes propositionis comedit quos non licebat ei edere* ‘he ... did eat the shewbread, which was not lawful for him to eat’ (Vulg. *Matth.* 12.4)

However, in (36) where the Vulgate has *de vino*, the *Septuagint* too has a prepositional phrase (ἀπὸ τοῦ οἴνου); and the same problems regards (38a–b). In (38a) we seem to have two atelic expressions, one with an object in the accusative (*fructum eius non edit* ‘does not eat of its fruit’) and one with a partitive expression (*de lacte ... manducat* ‘does not eat of the milk’); but the Greek original has a definite article in the first case (‘does not eat the fruit’) and a prepositional phrase in the second (38b):

- (38) (a) *quis plantat vineam et fructum eius non edit quis pascit gregem et de lacte gregis non manducat* ‘who planteth a vineyard, and eateth not of the fruit thereof? or who feedeth a flock, and eateth not of the milk of the flock?’ (Vulg. *1 Cor.* 8.7)
- (b) τίς φυτεύει ἀμπελῶνα καὶ τὸν καρπὸν αὐτοῦ οὐκ ἐσθίει; ἢ τίς ποιμαίνει ποιμνὴν καὶ ἐκ τοῦ γάλακτος τῆς ποιμνῆς οὐκ ἐσθίει; (NT I *Cor.* 9.7)

The trouble with these and almost all the other examples found in Late Latin is that they are found in texts translated from Greek, or at least possibly influenced by translations from Greek, or, in a couple of cases, written by Greeks writing on medicine in Latin. There are also a few examples in Christian authors referring to the Bible. In other words, these expressions were possible in Late Latin, but there is yet no systematic use of them as a device to indicate atelicity.

3. Conclusion

In Early and Classical Latin the verbal system is characterised by a rich and complex system in which prefixes are used to render verbs telic or to emphasise the beginning or end of a process or activity. The opposition between non-dynamicity and dynamicity or between transitivity and intransitivity is expressed by various suffixes. In the perfect there is an opposition between non-dynamic unprefixated verbs and dynamic prefixed ones.

In the later centuries this system breaks down, and there is a blurring of the semantic distinctions between the prefixed and unprefixated verbs and often also of those between the prefixes themselves. We then find the old verbs in semantic functions similar but not identical to those they had in the earlier periods. It often happens that a verb which in the earlier centuries had been commonly associated with a certain semantic context acquires a new lexical meaning as a result of this association. Prefixes formerly used to emphasise the beginning or the gradual character of a process now indicate dynamicity and change more generally, and previously transitive formations are used with an intransitive function.

These changes pervade the whole verbal system in Latin and affect the semantic relationship between the perfect and imperfect tenses as well as the development of definite and indefinite articles and partitive expressions with the preposition *de*. In Late Latin the ingressive sense is more often expressed by the unprefixated perfect tense form and the non-dynamic situation in the past by the imperfect tense form. But the use of articles or partitive expressions to indicate systematically the difference between atelic and telic actionality belongs to Romance rather than to Latin. We have a few examples of new partitive expressions with verbs meaning 'eat' and 'drink', but there is no consistent use of this device to indicate atelicity.

References

- Abraham, Werner 1997. Case, aspect and referentiality. In: van Kemenade–Vincent (1997, 29–61).
- Aronoff, Mark Frank Anshen 1998. Morphology and the lexicon: lexicalization and productivity. In: Andrew Spencer – Arnold M. Zwicky (eds) *The handbook of morphology*, 237–47. Blackwell, Oxford & Malden MA.
- Beard, Robert 1995. *Lexeme-morpheme base morphology*. SUNY Press, Albany NY.
- Bertinetto, Pier Marco – Denis Delfitto 2000. Aspect vs. actionality: why they should be kept apart. In: Dahl (2000, 189–225).

- Bybee, Joan 1985. *Morphology: a study of the relation between meaning and form*. John Benjamins, Amsterdam & Philadelphia.
- Bybee, Joan – Revere Perkins – William Pagliuca 1994. *The evolution of grammar: tense, aspect and modality in the languages of the world*. The University of Chicago Press, Chicago & London.
- Comrie, Bernard 1978. *Aspect. An introduction to the study of verbal aspect and related problems*. Cambridge University Press, Cambridge.
- Comrie, Bernard 1989. *Language universals and linguistic typology (Second edition)*. Blackwell, Cambridge MA & Oxford.
- Crocco Galèas, Grazia – Claudio Iacobini 1993. *Lo sviluppo del tipo verbale parasintetico in latino: i prefissi ad-, in-, ex-*. In: *Quaderni Patavini di Linguistica* 12:31-68.
- Croft, William 1990. *Typology and universals*. Cambridge University Press, Cambridge.
- Dahl, Östen (ed.) 2000. *Tense and aspect in the languages of Europe*. Mouton de Gruyter, Berlin & New York.
- Feltenius, Leif 1977. *Intransitivizations in Latin*. *Studia Latina Upsaliensia* 9. Ph.D. dissertation, University of Uppsala, Uppsala.
- Haverling, Gerd 1988. *Studies on Symmachus' language and style*. *Studia Graeca et Latina Gothoburgensia* XLIX. Ph.D. dissertation, University of Göteborg, Göteborg.
- Haverling, Gerd 1994. *On the sco-suffix, on prefixes and on the development of the Latin verbal system*. In: József Herman (ed.) *Linguistic Studies on Latin: Selected Papers from the 6th International Colloquium on Latin Linguistics, Budapest 23-27 March 1991*. *Studies in Language Companion Series* 28, 41-53. John Benjamins, Amsterdam & Philadelphia.
- Haverling, Gerd 1996a. *On sco-verbs, on prefixes and on semantic functions*. In: Hannah Rosén (ed.) *Aspects of Latin: papers from the Seventh International Colloquium on Latin Linguistics, Jerusalem, April, 1993*. *Innsbrucker Beiträge zur Sprachwissenschaft* 86, 169-80. Institut für Sprachwissenschaft der Universität Innsbruck, Innsbruck.
- Haverling, Gerd 1996b. *Some more remarks on sco-verbs, prefixes and semantic functions*. In: Alfred Bammesberger – Friedrich Heberlein (eds) *Akten des VIII. internationalen Kolloquiums zur lateinischen Linguistik. Indogermanische Bibliothek, Reihe 3, Untersuchungen*, 401-14. Universitätsverlag C. Winter, Heidelberg.
- Haverling, Gerd 1999. *Über Aktionsarten und Präfixe im Spätlatein*. In: Hubert Petersmann – Rudolf Kettmann (eds) *Latin vulgaire—Latin tardif V: Actes du V^e Colloque International sur le latin vulgaire et tardif, Heidelberg, 5-8 septembre 1997*. *Bibliothek der klassischen Altertumswissenschaften N.F.* 2:105, 235-49. Universitätsverlag C. Winter, Heidelberg.
- Haverling, Gerd 2000. *On sco-verbs, prefixes and semantic functions: a study in the development of prefixed and unprefixed verbs from Early to Late Latin*. *Studia Graeca et Latina Gothoburgensia* LXIV (*Acta Universitatis Gothoburgensis*). University of Göteborg, Göteborg.
- Haverling, Gerd forthcoming. *Sur le latin vulgaire dans la traduction "ravennate" des Aphorismes d'Hippocrate*. In: Heikki Solin (ed.) *Latin vulgaire—latin tardif VI: Acta sexti conventus internationalis Latinitatis vulgaris et posterioris. Actes du VI^e Colloque International sur le latin vulgaire et tardif, Helsinki 28 août-2 septembre 2000*. Olms-Weidmann, Hildesheim & Zürich & New York.

- Hewson, John 1997. From Latin to Modern Romance. In: John Hewson · Vit Bubenik (eds) *Tense and aspect in Indo-European languages: theory, typology, diachrony. Current issues in linguistic theory* 145, 314–30. John Benjamins, Amsterdam & Philadelphia.
- Hofmann, Johann Baptist – Anton Szantyr 1965. *Lateinische Syntax und Stilistik*. In: Manu Leumann – Johann Baptist Hofmann – Anton Szantyr (eds) *Lateinische Grammatik. Zweiter Band. Handbuch der Altertumswissenschaft II.2.2*. C.H. Beck'sche Verlagsbuchandlung, München.
- Johanson, Lars 2000. Viewpoint operators in European languages. In: Dahl (2000, 27–187).
- Josephson, Folke 1977. On the function of the Gothic preverb *ga-*. In: *Indogermanische Forschungen* 81: 152–75.
- Keller, Madelaine 1992. *Les verbes latins à infectum en -sc-, étude morphologique (à partir des formations attestées dès l'époque préclassique)*. Collection Latomus 216. Latomus, Bruxelles.
- Kemenade, Ans van – Nigel Vincent (eds) 1997. *Parameters of morphosyntactic change*. Cambridge University Press, Cambridge.
- Kuryłowicz, Jerzy 1964. The inflectional categories of Indo-European. *Indogermanische Bibliothek, Dritte Reihe: Untersuchungen*. Universitätsverlag C. Winter, Heidelberg.
- Lehmann, Christian 1995. Latin predicate classes from an onomasiological point of view. In: *DE USU: Études de syntaxe latine offertes en hommage à Marius Lavency*, 163–73. Peeters, Louvain-La-Neuve.
- Leumann, Manu 1977. *Lateinische Laut- und Formenlehre*. In: Manu Leumann – Johann Baptist Hofmann – Anton Szantyr (eds) *Lateinische Grammatik. Erster Band. Handbuch der Altertumswissenschaft II.2.1*. C.H. Beck'sche Verlagsbuchandlung, München.
- Lloyd, Albert L. 1979. *Anatomy of the verb: the Gothic verb as a model for a unified theory of aspect, actional types, and verbal velocity*. John Benjamins, Amsterdam & Philadelphia.
- Löfstedt, Einar 1942. *Syntactica. Studien und Beiträge zur historischen Syntax des Lateins. Erster Teil: Syntaktisch-stilistische Gesichtspunkte und Probleme. Skrifter utgivna av Kungl. humanistiska vetenskapssamfundet i Lund 10:2 (Second edition)*. C.W.K. Gleerup, Lund.
- Meyer-Lübke, Wilhelm 1894. *Grammatik der Romanischen Sprachen, Zweiter Band: Formenlehre*. Reisland, Leipzig.
- Philippi, Julia 1997. The rise of the article in the Germanic languages. In: van Kemenade – Vincent (1997, 62–93).
- Pinkster, Harm 1990. *Latin syntax and semantics (transl. H. Mulder, Romance Linguistics)*. Routledge, London & New York.
- Rix, Helmut (ed.) 1998. *Lexikon der indogermanischen Verben. Die Wurzeln und ihre Primärstammbildungen*. Ludwig Reichert Verlag, Wiesbaden.
- Rohlf, Gerhard 1954. *Historische Grammatik der Italienischen Sprache und ihrer Mundarten, Band III: Syntax und Wortbildung*. Francke, Bern.
- Rosén, Haim B. 1992. Die Komposita mit *co(n)-* in funktioneller und vergleichender Sicht. In: Oswald Panagl – Thomas Krisch (eds) *Latein und Indogermanisch—Akten des Kolloquiums der Indogermanischen Gesellschaft*, 357–67. Institut für Sprachwissenschaft der Universität Innsbruck, Innsbruck.

- Selig, Maria 1991. Die Entwicklung der Nominaldeterminanten im Spätlatein: Romanischer Sprachwandel und lateinische Schriftlichkeit. *Scriptoralia* 26. Ph.D. dissertation, University of Freiburg, Tübingen.
- Smith, Carlota S. 1997. *The parameter of aspect*. Kluwer, Dordrecht.
- Thesaurus Linguae Latinae*. Leipzig 1900-.
- Thomas, François 1938. *Recherches sur le développement du préverbe latin ad-*. C. Klincksiek, Paris.
- Vendler, Zenon 1957. Verbs and times. In: *The Philosophical Review* 66:143-60.
- Vendler, Zenon 1967. *Linguistics in philosophy*. Cornell University Press, Ithaca NY.
- Väänänen, Veikko 1981. *Introduction au Latin vulgaire*. Bibliothèque Française et Romane, Ser. A, Vol. 6, 3rd ed. C. Klincksiek, Paris.
- Weber, Robert – Roger Gryson 1994. *Biblia sacra iuxta vulgatam versionem* (Fourth edition). Deutsche Bibelgesellschaft, Stuttgart.

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VERBAL 'PREFIXATION' IN THE URALIC LANGUAGES

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Abstract

The paper sets out with an overview of preverbs and prefixes in the Uralic languages. It will be shown that most Uralic languages have separable preverbs and only a few have verbal prefixes. These verbal prefixes have been borrowed from Slavic. This means that preverbs never get morphologized in Uralic. We will informally call 'cohesion' the various positions of the preverb relative to the verb. The highest degree of cohesion is the case when the preverb is a genuine prefix; the next degree is represented by adverbial-like preverbs, which obligatorily occupy a preverbal position, and which form a kind of compound with the verb; a yet lower degree is shown by preverbs which can occupy both a preverbal and a postverbal position and some other elements can intervene between the preverb and the base verb; cohesion is greater if only clitical elements can occur between the preverb and the verb. The next stage is represented by the language in which in addition to clitics also some complements can occur in this position. Finally, cohesion is least strong in cases when practically any element can occur between the preverb and the verb. Cohesion should not be confounded with grammaticalization which plays an important role in the development of aspectual and *aktionsart*-meanings. In this case it can be shown for Hungarian that the development goes through the stages 'adverbial meaning > adverbial meaning and aspectual meaning > aspectual meaning > aspectual meaning and *aktionsart*-meaning' for the old layer of preverbs and through the stages 'adverbial meaning > adverbial meaning and aspectual meaning > aspectual meaning and *aktionsart*-meaning' for more recent preverbs. In other words, preverbs may end up by having an aspectual and an *aktionsart*-meaning' but, as Hungarian shows, not all preverbs have reached this stage.

1. Introduction

Preverbs are preverbal elements which form a complex verb with the base verb. They can be inseparable in which case they are called verbal prefixes, and separable, in which case they are normally referred to as particles. From among the Uralic languages preverbs can be found in Hungarian (15 million speakers), Vogul or Mansi (3000 speakers), Ostyak or Khanti (14,000 speakers), Livonian (10 speakers), Estonian (1.15 million speakers), Votic (some dozens), Vepsian (3000 speakers), Karelian (138,000 speakers), Finnish (5.15 million speakers) and Selkup (1720 speakers). The North Samoyedic (Yurak-Samoyed or Nenets, Enisei-Samoyed or Enets, Tavgi-Samoyed or Nganasan,

altogether 30,000 speakers), the Permic (Votyak or Udmurt 500,000 speakers, Zyrjan or Komi 250,000 speakers), the Volgaic (Cheremis or Mari 542,000 speakers, Mordvin 900,000 speakers) languages, Lapp or Saamic (30,000 speakers) and Ingrian (800 speakers)¹ do not seem to have any preverbs. In the first part of the paper we are going to show that on the basis of their morphological and syntactic behavior the following typology of Uralic preverbs can be established: (a) preverbs are genuine prefixes; (b) preverbs are adverbial-like elements, which obligatorily occupy a preverbal position, and which form a kind of compound with the verb; (c) preverbs can be separated from the base verb by various other elements, and they can also occur in postverbal position; (d) preverbs can be prefixes or adverbial-like elements; in the second case other elements may intervene between the preverb and the verb. We are also going to examine what kind of elements can occur between the preverb and the base verb in the case when the preverb is not a prefix. As will be seen, four different situations are found: (i) there is no restriction either on the number or on the type of elements; (ii) only certain types of elements (object nouns, pronouns, the negative particle) may appear in this position; (iii) only clitics (particles, pronouns) are admitted; (iv) no other element may intervene between the preverb and the verb (but the preverb may be moved to postverbal position). We will informally refer to these four situations as representing four different degrees of cohesion.

We hardly find any genuine verbal prefixes in the Uralic languages; wherever they appear they have either been borrowed from another language (in the case of Livonian, Vepsian and Karelian) or are loan translations (in the case of Finnish). Prefixes can thus not be considered to be the result of morphologization in these languages.

We will also look at the problem of the grammaticalization of the meaning of the preverbs. It will be shown that in the case of the languages under discussion the following situations can be found: (i) preverbs have an adverbial meaning; (ii) they have an adverbial meaning and an associated aspectual meaning (perfectivity); (iii) they have a purely aspectual meaning; (iv) they have developed an *Aktionsart*-meaning in addition to the aspectual meaning. In the same language preverbs need not exhibit a unified picture, some of them may be characterized by stage (i), others by stage (ii) and again others by stage (iii) or stage (iv). Moreover, the same preverb may—depending on the meaning of the base verb—occur in all four situations. We will say that

¹ The figures were taken from Fodor (1999). See also Abondolo (1998).

a language has reached a certain stage if at least some of its preverbs have reached this stage.

Aspect and *aktionsart* are two related but distinct notions. Aspect has to do with telicity and boundedness whereas *aktionsart* is—according to the linguistic tradition espoused in the present paper²—a morphosemantic category: it expresses an accidental modification of the meaning of the base verb expressed by morphological means. *Aktionsart*-meanings include iterativity, resultativity, totality, exhaustivity, diminutivity, etc. Typically, if an *aktionsart* is expressed by a preverb, the complex verb thus obtained is at the same time perfective, i.e., *aktionsart*-formation is associated with perfectivization. This is not true in the case of *aktionsart*-formation by means of suffixation: in that case the aspectual category of the base verb is not changed.³ We have to do with pure aspectual meaning if the only function of the preverb is perfectivization. According to our assumptions, the four situations (i)–(iv) just mentioned represent four different stages in the grammaticalization of the meaning of preverbs: the adverbial preverb develops an aspectual meaning, which slowly becomes the exclusive meaning of the preverb and then, in certain cases, the preverb develops—in addition to the aspectual meaning—an *aktionsart*-meaning. In the last two cases, i.e., when a preverb expresses an *aktionsart* (+ perfectivization) or when it expresses just perfectivity, it has no longer any adverbial meaning.⁴

Before embarking on the discussion we have to make clear that we are moving on an extremely uncertain ground and our proposals should be considered as but very preliminary. The reasons for this situation are as follows.

(i) Reliable data are available for a few languages only (Hungarian, Finnish, Estonian, Vogul and Ostyak). In other words, we had to rely on the—in some cases very scarce—material published in various sources (this is particularly true of Livonian, Votic, Vepsian, Karelian and Selkup). One of the consequences of this state of affairs was, then, that if we did not find any

² Cf., for example, Isačenko (1962), Schlachter (1968), Steinitz (1981), and the references in Steinitz (1981).

³ For example, in Hungarian both imperfective and perfective verbs can take the iterative suffix *-gat/-get* without any change in aspect. The only exception among the Uralic languages is Nganasan where the base is perfective and all aspectual categories are introduced by suffixation. In that language the durative and the iterative, and perhaps also the habitative suffix, turn the perfective base into an imperfective verb. Cf. Nagy (1995, 269f).

⁴ In fact, it has no longer any transparent meaning. Compare, for example, the Hungarian preverb *ki* 'out' with a motion verb such as *szalad* 'run', which yields *kiszalad* 'run out', and *ki* with the *aktionsart*-meaning 'over' as in *kidolgozza magát* 'overwork oneself'.

preverb with *aktionsart*-meaning, this does not mean that the language does not have such preverbs. Moreover, it was, of course, not possible to work with informants hence there was no way to test our hypotheses.

(ii) The terminology used in the sources is not always transparent and may vary from language to language. In the Finnish tradition, for example, prefixed verbs are called ‘compound verbs’, in other works the notion of ‘verbal prefix’ may cover genuine prefixes and adverbial-like preverbal elements alike. Authors normally note that the boundary between prefixes and adverbs is not clear-cut.

The essential question, of course, is not whether a preverbal element has still an adverbial meaning but whether it forms a complex verb with the base verb or not. In the former, but not in the latter case the preverbal element is part of the deverbal derivatives (of the nominalized forms in the first place) and can thus justifiably be called a ‘preverb’. Let us illustrate this point with an example taken from Hungarian. The word *újra* ‘again’ may appear either as an adverb or as a preverb. Compare (1) and (2).

(1) A könyvet újra olvasom
the book-acc again read-1sg
‘I am reading the book again.’

(2) A könyvet újra-olvasom
the book-acc re-prev-read-1sg
‘I am going to reread the book.’

In (1), *újra* is an adverb, in (2) a preverb (= prev), and it perfectivizes the verb in (2), but not in (1). In other words, (2), but not (1) can be paraphrased as (3) where the verb is prefixed by the perfectivizing preverb *el-*.

(3) A könyvet újra el-olvasom
the book-acc again perf-read-1sg
‘I am going to reread the book.’

The preverbal *újra* has thus two semantic features: ‘again’ and ‘perfective’. Consequently, we are led to the conclusion that *újra* is ambiguous between an adverbial and a preverbal reading. Such a polysemy is, however, difficult to detect in languages which have not been thoroughly described. Notice, furthermore, that the nominalized *újraolvasás* ‘rereading’ in (4) can only have a perfective reading:

(4) A könyv újra-olvasása nagy örömet okozott
‘The rereading of the book was a great pleasure.’

(iii) The last point concerns diachronic evidence. Morphologization and grammaticalization are diachronic processes. Unfortunately, however, from among the Uralic languages diachronic evidence for morphologization and grammaticalization can be adduced for Hungarian only where the oldest texts date back to the 12th century, and Hungarian words and glosses can be found in even earlier sources (the earliest work which contains data on the Hungarian language is a book on geography written around 930 by an Arab geographer; not much younger is the first Greek source, *De administrando imperio*, written by the Byzantine emperor Constantine Porphyrogenitus). The first Finnish and Estonian texts stem from the 16th century and are exclusively translations of religious works. What we will have to say about morphologization and grammaticalization of preverbs can therefore be based on Hungarian data alone. To be sure, though similar developments can also be observed in non-Uralic (for example, Slavic) languages, we have to be cautious: the morphologization and grammaticalization processes to be discussed below do not necessarily reflect the historical development in each particular language.

2. A preliminary typology

In this section we are going to review the data. In particular, we will seek answers to the following questions: (i) is the preverb separable?, (ii) if so, does it have to occupy a preverbal position and what kind of elements can intervene between the preverb and the base verb?, (iii) can the preverb occur in postverbal position?, (iv) if so, can other elements occur between the base verb and the preverb? As to the function of the preverb, the following questions have to be answered: (i) are the preverbs adverbial-like elements which form a compound with the base verb?, (ii) does the preverb bring about perfectivity?, and, finally, (iii) can the preverb be used to express an *aktionsart*? As already pointed out, very often we do not have reliable data at our disposal, consequently, the observations presented in this section should be considered tentative.

2.1. *Preverbs can be separated from the base verb by various other elements and they can also occur in postverbal position; preverbs can be used for both aktionsart-formation and perfectivization.*

This is the situation in Hungarian and Vogul (but not in Ostyak). Compare the following data from Hungarian (5)–(9) and Vogul (10)–(13).

- (5) Péter tegnap ki-ment az erdőbe
Peter yesterday out-prev-went the forest-in
'Yesterday Peter went to the forest.'
- (6) Péter tegnap ment ki az erdőbe
Peter yesterday went out-prev the forest-in
'It was yesterday that Peter went to the forest.'
- (7) Ki az erdőbe tegnap ment Péter
out-prev the forest-in yesterday went Peter
'To the forest, it was yesterday that Peter went.'
- (8) Péter teljesen ki-pihente magát
Peter completely out-prev-refresh himself
'Peter completely refreshed himself.'
- (9) Ki-takarítok
out-prev-tidy-1sg
'I am tidying up.'

In the sentences (5)–(9) we find the preverb *ki* 'out'; sentences (5)–(7) show various preverbal and postverbal positions of the preverb, in (8) the preverb is used to express the saturative *aktionsart* (and perfectivity), in (9) just perfectivity.⁵ In (6) the preverb is moved into postverbal position (as a consequence of the focus on *tegnap* 'yesterday') and in (7) both the place and the time adverbial occur between the preverb and the verb.

Let us next turn to the Vogul examples.⁶

- (10) nē man χum kon k̄als, juw śals
woman or man out-prev went in-prev entered
'A woman and a man came out and then went in again.'
- (11) taw juw tūp śaltaps
he in-prev just entered
'He hardly entered.'

⁵ Cf. also *felmos* 'wash up', *megfőz* 'do the cooking', *megterít* 'set the table', *meggyón* 'confess', *bevásárol* 'do some shopping', *felszánt* 'plough over'. It is unclear how these verbs should be characterized, they certainly do not form a semantically definable class. It should also be made clear that these verbs can only have a clear perfective meaning (without any 'aktionsart'-meaning) if they are conjugated according to the 'indefinite paradigm'. If they take a definite ending they must also have a definite object and perfectivity gets associated with a resultative meaning (implying a change of state): *kitakarítok* (only implicit object) vs. *kitakarítom a szobát* 'I am tidying up the room'.

⁶ For the Vogul data cf. Munkácsi 1894; Kannisto-Liimola 1956; Rombandeeva 1973.

- (12) mińən in̄ jüw
 go-2sg-imp now home/back-*prev*
 'Go home now.'
- (13) äwən jil-aɣlātən
 daughter-your down-*prev*-look-2sg-imp
 'Visit your daughter.'

In (10) the preverb stands immediately before the verb, in (11) we find the adverb *tüp* 'just' between the preverb and the verb, and in (12) the preverb occurs in postverbal position. The perfectivizing function of the preverb can be seen in (13). Unfortunately, it was not possible to find examples for preverbs which express an *aktionsart* (in addition to perfectivity).

2.2. *Preverbs can be separated from the base verb by the following elements: particles, pronouns, adverbs; they cannot occur in postverbal position; preverbs have a perfectivizing function.*

We find this state of affairs in Ostyak as testified by the following examples:⁷

- (14) min jaɣ kata joɣ läɣasmân
 we-du people house-lat in/back-*prev* entered-1du
 'We went in the house of the people.'
- (15) joɣ t'eɭ ěntə jöwəl
 home-*prev* always neg-part comes
 'He still does not come home.'
- (16) palńitsaka joɣ min läɣəlkälmən
 hospital-lat in/back-*prev* we-du looked-1du
 'We dropped into the hospital.'
- (17) min mēnkälmən joɣ-pa
 we-du went-1du in/back-*prev-part*
 'We went home.'
- (18) töɣət ilə werkətəɣält
 fire away-*prev* made-3pl
 'They made fire.'

In (14) the preverb occupies the position immediately preceding the verb. In (15) we find the negative particle *ěntə* and in (16) the personal pronoun *min*

⁷ For the Ostyak data cf. Sauer (1992), Honti (1982), and Tereskin (1961).

between the preverb and the verb. In (17) the preverb occurs in postverbal position but it is combined with an emphatic particle. Since the preverb can occur in this position only if it is combined with such a particle it seems to be more like an adverb. Consequently, we may safely claim that preverbs in Ostyak cannot occur in postverbal position. In (18) the preverb has a perfectivizing function. Once again, no data could be found with respect to *aktionsart*-meanings, however, some *aktionsart*-meanings can be expressed by suffixation: e.g., the suffix *-i* seems to express the iterative (*käri-/kari-* ‘turn around repeatedly’), the suffix *-m* the ingressive (*kawərmə-* ‘start boiling’), the suffix *-əm* the semelfactive (*kolim-* ‘cough once’) and *-γ* the diminutive *aktionsart* (*posəγ-* ‘falling in small drops’).⁸

2.3. *Preverbs are adverbial-like elements which normally precede the verb; the adverbial-like preverb and the base verb form a kind of compound; the preverb has neither a perfectivizing nor an aktionsart-forming function, however it may contribute to aspect (aspect is mainly compositional). Some preverbs are genuine prefixes, which cannot be separated from the verb. No other element can intervene between the preverb and the verb.*

Finnish exemplifies this situation:⁹

- (19) Hän alle-kirjoitti sopimuksen
 he/she under-prev-wrote agreement
 ‘He/she signed the agreement.’
- (20) (a) Poliitikot saivat sopimuksen aikaan
 politicians got agreement prev
 ‘The politicians reached the agreement.’
 (b) Poliitikot aikaan-saivat sopimuksen
 Politicians prev-got agreement
 ‘The politicians reached the agreement.’
- (21) Hän meni talosta ulos
 he/she went house-from out-prev
 ‘He/she went out from the house.’

(19) exemplifies the case where Finnish has a preverb (prefix) which cannot be separated from the verb (cf. also *aliarvostaa* ‘underestimate’ German *unterschätzen*, Swedish *underskatta*, *ali* ‘under’; *ylipuhua* ‘persuade’, German

⁸ Cf. Honti (1984, 53f).

⁹ For Finnish and Estonian cf. Häkkinen (1987); Hasselblatt (1990); Lavotha (1973); Rätsep (1957); Sulkala (1996); Viitso-Hasselblatt (1992).

überreden, Swedish *övertala*, *yli* 'above'). The most common case is when the position of the preverb is not fixed and the preverb can be moved into postverbal position as in (20a) and (21). If the preverb occupies a preverbal position nothing can intervene between the preverb and the verb. The *aktionsarten* are formed by suffixation, and preverbs do not perfectivize, which is a sign that they have preserved their adverbial meaning.

2.4. *Preverbs are adverbial-like elements which normally occur in postverbal position; they can be separated from the base verb by other elements; they are never used for aktionsart-formation but they may contribute to aspect (aspect is mainly compositional). The preverb can occur in preverbal position only if the verb is emphatic and occupies the sentence-final position, in that case, however, nothing can intervene between the preverb and the verb.*

Estonian and Votic are the languages which belong to this type. Compare the following Estonian examples:¹⁰

(22) ta üle hinda oma oskusi
 he/she up-*prev* values his/her/own abilities-partitive
 'He/she overestimates his/her capacities.'

(23) ma tegin selle töö ära
 I did those work away-*prev*
 'I have finished this work.'

In (22) the preverb immediately precedes the verb and nothing can intervene. In (23) the preverb occupies a postverbal position, and, as in (23), in the case of transitive verbs it normally follows the object noun. Once again, the preverb does not perfectivize and it cannot be used to express *aktionsarten*.

2.5. *The preverbs can be genuine prefixes but they can also be adverbial-like elements; in the former case they have a perfectivizing function; other elements may intervene between the adverbial-like preverbs and the base verb (in the first place particles, but also the object noun).*

We find this 'mixed' situation in Selkup:¹¹

¹⁰ Cf. footnote 8.

¹¹ For the Selkup data cf. Bykonja-Becker (1980); Janurik (1978-1979); Kuznecova et al. (1980).

- (24) ilómdak < ille omdak, pópáks < pon paks
 down-prev-sit out-prev-jump
 'sit down' 'jump out'
- (25) kanak tabep takka mešanet
 dog squirrel-acc through-prev caught
 'The dog caught the squirrel.'
- (26) ínennä šim īsy
 forward-prev me took
 'He helped me out.'
- (27) əllə pɨl'əp kätəmbat
 down-prev dust-acc let down
 'The rain has laid the dust.'
- (28) ínannä ašša īsyty
 forward-prev neg-part took
 'He has not helped me.'
- (29) ínannä sä īläp
 forward-prev surely help-1sg
 'I do help.'
- (30) pō-t'ap čāgəmba al'd'emba iɫɫe
 tree-leaf withered fell down-prev
 'The leaves withered and fell down.'

Selkup seems to have some preverbs which are phonologically truncated forms of adverbs and merge with the base verb. This situation is exemplified in (24). In (25) the preverb immediately precedes the verb though it can also occur in postverbal position. In (26) we have a case where the preverb has a perfectivizing function, at the same time a personal pronoun intervenes between the preverb and the verb, in (27) it is the object noun which appears between the preverb and the base verb. In (28) we find the negative particle, in (29) the emphatic particle in this position; finally, in (30) the preverb occupies a postverbal position.

2.6. *Preverbs are genuine prefixes, they cannot be separated from the base verb; the prefixes may, but need not have a perfectivizing function.*

This type is represented by Livonian, Vepsian and Karelian.¹² Livonian borrowed prefixed verbs from Latvian, however, the borrowed prefixes are

¹² See Pugh (1999); Sivers (1971).

also used productively with native verbs. Vepsian and Karelian borrowed their prefixes from Russian. In Livonian most prefixes have an adverbial function and are not necessarily perfectivizing.

Latvian has eleven verbal prefixes and all of them have been borrowed in Livonian. Very often there is no semantic difference between the prefixed and the prefixless verb. The prefixes have kept their original *aktionsart*-meaning, e.g., *pa-nagrôm* 'start laughing' (the ingressive *aktionsart*), *nuo-siedô* 'eat up' (the resultative *aktionsart*). Most prefixes can also be expressed by an adverb, and sometimes a prefix may (redundantly) co-occur with the corresponding adverb.

From among the prefixes which were borrowed from Russian in Vepsian and Karelian the purely perfectivizing *po-* occurs rarely with native verbs, it is felt semantically 'empty'. It is sometimes omitted even in the case of Russian verbs. We find most often the Russian prefixes *do-* and *pere-* with native verbs, e.g., Vepsian *dopanda* 'reach, place as far as', *dosôda* 'finish eating', *perehüppähtada* 'jump across', *perepanda* 'place across, put over'.

3. Some conclusions

As already pointed out, genuine prefixes in Uralic are not the result of historical development: in Finnish they are loan translations (Swedish, German), in Karelian and Vepsian they have been borrowed from Russian, in Livonian they have been taken over from Latvian. Selkup seems to be the only Uralic language in which some traces of strong morphologization of preverbs can be found: (i) there are some examples where the preverb is phonologically reduced (truncated) and merges with the base verb: *ilómdak* < *ille omdak* 'sit down'; (ii) the prefixes have a perfectivizing effect: *tē wašegu* 'fly off'. Selkup thus seems to be the only exception among the Uralic languages, which, at least in some cases, has developed genuine prefixes by morphologization. Since we do not have any historical records on Selkup, however, there is no way to reconstruct the various steps of morphologization.

We saw above that borrowed prefixes (Karelian, Livonian, Vepsian, and we may add here the loan translations in Finnish) do not necessarily perfectivize. On the other hand, the genuine prefixes in Selkup seem to have a perfectivizing function. This observation may justify the conclusion that the main function of prefixes developed from preverbs is perfectivization.

Sentence aspect is compositional in Finnish, Estonian, Votic, Vepsian, Livonian, and Karelian, that is, even if the preverb may contribute to aspect

it does not determine it fully. On the other hand, aspect is largely lexical in the case of Hungarian, Ostyak, Vogul and Selkup, that is, verbal aspect determines the aspectual value of the sentence completely.

Since Uralic was originally a SXV language, complex verbs have been formed from XV-constituents, this state of affairs is shown by the Ugric languages (Hungarian, Ostyak and Vogul). On the other hand, the coming into being of complex verbs of the type V ADV (Finnish, Estonian) must have occurred after the typological change SXV > SVX has taken place, their development is more recent.

Adverbs normally do not perfectivize, this is why Finnish and Estonian complex verbs of the type V ADV are not perfective, perfectivity is brought about by other means. *Aktionsart*-formation is possible only if the preverb has completely lost its literal meaning since each *aktionsart* has a particular meaning, which is in conflict with the original adverbial meaning. Recall the Hungarian example (9), where the preverb *ki* has no longer anything to do semantically with the adverbial meaning 'out'. This does not mean, of course, that there is no longer any metaphorical link between the original meaning of the preverb and its *aktionsart*-meaning. In fact, such a link can be shown to exist in the majority of cases. This link is stronger in cases where the *aktionsart*-meaning has developed from the adverbial meaning directly (see further below). If a preverb expresses an *aktionsart*, it also expresses perfectivity, which can be explained by looking at the development of *aktionsarten* (cf. the next section): preverbs either develop first into pure aspect markers and subsequently some of them acquire an *aktionsart*-meaning, or an *aktionsart*-meaning develops directly from a perfectivizing adverbial meaning.

Aktionsarten can also be expressed by suffixation. In this case the aspectual value of the verb remains normally unchanged. Finnish, Estonian (and presumably Karelian, Livonian, Vepsian, Votic), and Selkup express *aktionsarten* by means of suffixation, so does Ostyak. Hungarian, on the other hand, has both preverbs and suffixes which can be used to this end.

As was argued in Kiefer (1997), morphologically expressed *aktionsarten* seem to be an areal phenomenon: Slavic, Uralic, Georgian constitute the central part of the area. Slavic has more than twenty (the exact number depends on whether productivity is considered a defining criterion of the notion 'aktionsart'), Hungarian eleven *aktionsarten*. On the other hand, German has a very small number of *aktionsarten* only (once again, the exact number depends on how the notion is defined) and no (productive) morphological *aktionsarten* can be found in Romance or English.

In the next section we will have a look at the development of Hungarian preverbs and their functions. Our findings may then be used to make some claims about the other Uralic languages.

4. The development of the Hungarian preverbs

In Hungarian the historical development of the preverbs *meg-* and *el-* shows the following stages (these two preverbs developed first).¹³

(i) adverb + directional suffix, normally *e* or *é* ('adverbial meaning'), e.g., *mégé* 'behind', *elé* 'forward';

(ii) the preverbs *mégé*, *elé* develop a purely perfectivizing meaning; in this function they are used with certain types of verbs only (*mige* (1192–1195), *mege*, *ele* (1350), e.g., *mige szakasztotta* 'interrupted', *mege lelhesse* 'should be able to find'); with verbs of movement the adverbial meaning is combined with aspectual meaning;

(iii) the adverbial meaning disappears (the preverb *meg* completely loses its original meaning); the first *aktionsart*-meanings develop (the inchoative with both preverbs: *megszomjúhozik* 'become thirsty', *elkeseredik* 'become embittered' (1466); the delimitative-durative with the preverb *el-*: *élélhet* 'live for a time', *elmunkálkodik* 'work' (1492);

(iv) a further *aktionsart* appears with the preverb *meg-*: the semelfactive *csóvál* 'wag' – *megcsóvál* 'wag once'.

The other preverbs (in the order of their coming into existence until the end of the 15th century: *fel* 'upwards, up', *ki* 'out', *be* 'in', *le* 'down', *alá* 'under', *össze* 'together', many others have developed in later times) have not gone through the same development because with most verbs they have preserved their adverbial meaning. However, *fel-*, *ki-* and *be-* have also developed *aktionsart*-meanings. The development of the meaning of preverbs may thus be generalized for the preverbs *meg-* and *el-* (which have still purely perfectivizing uses) as in (31a) and for the other (more recent) preverbs as in (31b).

- (31) (a) adverbial meaning > adverbial meaning and aspectual meaning > aspectual meaning > aspectual and *aktionsart*-meaning
 (b) adverbial meaning > adverbial meaning and aspectual meaning > aspectual and *aktionsart*-meaning

¹³ The data are drawn from *A historical grammar of Hungarian*. Cf. Máta (1991; 1992). For the historical development of Hungarian preverbs cf. also Honti (1999).

More recent preverbs, e.g., *agyon* ‘excessively’, have undergone the development according to (31b): *agyon* has an adverbial meaning ‘on the head’ (e.g., *agyon üt* originally ‘beat on the head’), as a preverb it gets the meaning ‘dead’ and at the same time perfectivizes the verb, e.g., *agyonüt* ‘beat to death’, but in cases such as *agyondolgozza magát* ‘overwork oneself’ it carries an *aktionsart*-meaning. There is no intermediate stage of pure perfective meaning.¹⁴ At the same time, the metaphorical connection between the literal and the *aktionsart*-meaning is quite apparent.

From the two clines, (31a) and (31b), the latter seems to be the more plausible and it has also been attested in other languages.¹⁵ The development of the *aktionsart*-meaning is quite straightforward. On the other hand, the cline (31a) calls for some explanation. How do we get the *aktionsart*-meaning from a purely perfectivizing preverb? It can be argued that the *aktionsart*-meaning is the result of the meaning of the base verb and the perfectivizing effect of the preverb. By way of exemplification let us consider the preverb *meg-*, which has no descriptive meaning at all. Let us now consider three types of verbs: statives, atelic and telic process verbs; none of these verb types is perfective. If we apply *meg-* to a stative verb, we get the meaning ‘coming about of a state’, which is the only way to get a perfective meaning with states, e.g., *meg-tud* ‘to get to know’, *meg-szeret* ‘to get to love’. If we use *meg-* with atelic process verbs, once again the perfective meaning can only refer to the beginning of the process since atelic verbs cannot have an end point, e.g., *meg-kondul* ‘to begin to toll’, *meg-zendül* ‘to begin to sound’. The base verbs which can be used with this meaning all belong to the lexical class of verbs of sound emission (with an inanimate source). A special case of atelic verbs is represented by the class of lexically iterative verbs such as *csóvál* ‘to wag’, *kavar* ‘to stir’, *simogat* ‘to stroke, to pet’, etc. In this case the perfective means ‘doing once’ (semelfactive): *meg-csóvál* ‘to wag once’, *meg-kavar* ‘to stir once’, *meg-simogat* ‘to stroke once’. Finally, in the case of telic verbs the use of the perfectivizing prefix results in the resultative *aktionsart*: the process has reached its end point, or the activity is completed: *meg-ír* ‘to finish writing’, *meg-varr* ‘to finish sewing’, *meg-okosodik* ‘become prudent/wise’. Similar things can be said about the perfectivizing prefix *el-*.¹⁶ It goes without saying that in the case of (31a) no metaphorical link between the *aktionsart*-meaning and the purely aspectual meaning is possible.

¹⁴ For an interesting discussion of this development cf. Ladányi (2000).

¹⁵ For example, in Slavic, cf. Regnéll (1944).

¹⁶ Cf., for more details, Kiefer-Ladányi (2000, 475–80).

It can be claimed that (31a) and (31b) are the two clines of the grammaticalization of preverbs. As we saw, among the Uralic languages, Hungarian has reached the highest degree in these clines, Ostyak and Vogul seem to represent the third stage in the cline (31a), and the other Uralic languages which have developed preverbs seem to represent the second stage in that cline. It should be made clear, however, that not all preverbs in a given language have gone through the same development.

We can also establish a cline for grammatical cohesion. In Hungarian and in Vogul (in some dialects) the preverb has the largest freedom, it can occupy practically any position in the sentence and all kinds of elements can intervene between the preverb and the base verb. In Ostyak, on the other hand, the preverb cannot occur in postverbal position and between the preverb and the verb only particles, pronouns, adverbs can occur. The third stage is represented by Finnish and Estonian where the preverb typically occupies the preverbal position but it can also be moved into a postverbal position. However, if it precedes the verb no other element can intervene. Finally, the last stage is shown by Selkup where genuine prefixes may occur. That is, we get the cline (32).

- (32) free position > only preverbal position but some elements may occur between the preverb and the base verb > preverbs may occur pre- and postverbally; if they occupy the preverbal position, nothing can intervene between the preverb and the base verb > preverbs are inseparable

It should be made clear, however, that (32) does not necessarily represent the stages in the morphologization of preverbs since no historical data can be adduced in support of such a claim. Moreover, (32) expresses the stages concerning the distance between the preverb and the base verb. As for the freedom of the position of the preverb, it is taken care of by the cline in (33).

- (33) free position > preverbs may occur pre- and postverbally; if they occupy the preverbal position, nothing can intervene between the preverb and the base verb > only preverbal position but some elements may occur between the preverb and the base verb > preverbs are inseparable

As pointed out earlier, claiming that Selkup represents the last stage does not mean that all preverbs in Selkup are prefixes. In order to assign a language to a given stage in the cline (32) it suffices to show that at least some of their preverbs exhibit the property characteristic of that stage. To sum up, then, Hungarian and Vogul represent stage one, Ostyak stage two, Finnish and Estonian stage three and Selkup stage four in cline (32).

References

- Abondolo, Daniel (ed.) 1998. *The Uralic languages*. Routledge, London.
- Bykonja, Valentina V. – Erika G. Becker 1980. Glagol'nye prefiksy v sel'kupskom jazyke. In: Erika G. Becker (ed.) *Jazyki i toponimija*. Vyp. 7, 86–99. Tomskij gosudarstvennyj pedagogičeskij institut, Tomsk.
- Fodor, István (ed.) 1999. *A világ nyelvei [The languages of the world]*. Akadémiai Kiadó, Budapest.
- Häkkinen, Kaisa 1987. Suomen kielen vanhoista ja uusista yhdyssyöbeistä [On new and old compound verbs in Finnish]. In: *Sananjalka* 29: 7–27.
- Hasselblatt, Cornelius 1990. Das estnische Partikelverb als Lehnübersetzung aus dem Deutschen. *Veröffentlichungen der Societas Uralo-Altica* 31. Harrassowitz, Wiesbaden.
- Honti, László 1982. Vaszjugáni osztják szövegek [Vasyugan Ostyak texts]. *Nyelvtudományi Közlemények* 84. Akadémiai Kiadó, Budapest.
- Honti, László 1984. *Chrestomathia Ostiaca*. Tankönyvkiadó, Budapest.
- Honti, László 1999. Das Alter und die Entstehungsweise der 'Verbalpräfixe' in uralischen Sprachen (unter besonderer Berücksichtigung des Ungarischen). Teil I. und II. *Linguistica Uralica* 35, 81–97, 161–76. Eesti Teaduste Akadeemia, Tallin.
- Isačenko, Alexander V. 1962. *Die russische Sprache*. Teil I: Formenlehre. Niemeyer, Halle.
- Janurik, Tamás 1978–1979. A szölkup névutók, igekötők és határozószók morfológiai típusainak áttekintése [An overview of the morphological types of the Selkup postpositions, verbal prefixes and adverbs]. In: *Néprajz és Nyelvtudomány* 22–23: 49–159.
- Kannisto, Artturi – Matti Liimola 1956. *Wogulische Volksdichtung gesammelt und übersetzt von A. K. bearbeitet und herausgegeben von M. L. III. Band. Märchen. Mémoires de la Société Finno-Ougrienne* 111. Finnisch-Ugrische Gesellschaft, Helsinki.
- Kiefer, Ferenc 1997. Verbal prefixation in the Ugric languages from a typological-areal perspective. In: Stig Eliasson – Ernst Hakon Jahr (eds) *Language and its ecology. Essays in memory of Einar Haugen. Trends in Linguistics. Studies and Monographs* 100, 323–41. Mouton de Gruyter, Berlin & New York.
- Kiefer, Ferenc – Mária Ladányi 2000. Az igekötők [Preverbs]. In: Ferenc Kiefer (ed.) *Strukturális magyar nyelvtan* 3. Morfológia [A structural grammar of Hungarian 3. Morphology], 453–518. Akadémiai Kiadó, Budapest.
- Kuznecova, Ariadna I. – Evgenij A. Helimskij – Elena V. Gruškina 1980. *Očerki po sel'kupskomu jazyku. Tazovskij dialekt. Tom I. Izdatel'stvo Moskovskogo universiteta*, Moskva.
- Ladányi, Mária 2000. Productivity as a sign of category change. The case of Hungarian verbal prefixes. In: Wolfgang U. Dressler – Oskar E. Pfeiffer – Markus Pöchträger – John R. Rennison (eds) *Morphological analysis in comparison*, 113–41. John Benjamins, Amsterdam & Philadelphia.
- Lavotha, Ödön 1973. *Kurzgefasste estnische Grammatik. Veröffentlichungen der Societas Uralo-Altica* 9. Harrassowitz, Wiesbaden.
- Mátai, Mária D. 1991. Az igekötők [Preverbs]. In: Loránd Benkó – Erzsébet E. Abaffy – Endre Rácz (eds) *A magyar nyelv történeti nyelvtana. 1. kötet: A korai ómagyar kor és előzményei [A historical grammar of Hungarian. Volume 1: Early Old Hungarian and its antecedents]*, 433–41. Akadémiai Kiadó, Budapest.

- Mátai, Mária D. 1992. Az igekötők [Preverbs]. In: Loránd Benkő – Erzsébet E. Abaffy (eds) *A magyar nyelv történeti nyelvtana. 2/1. kötet: A kései ómagyar kor: morfológia* [A historical grammar of Hungarian. Volume 2/1: Late Old Hungarian: morphemics], 662–95. Akadémiai Kiadó, Budapest.
- Munkácsi, Bernát 1894. *A vogul nyelvjárások szóragszékükben ismertetve* [The inflectional system of Vogul dialects]. Magyar Tudományos Akadémia, Budapest.
- Nagy, Beáta B. 1995. A nganaszan igék aspektusáról [On the aspect of Nganasan verbs]. In: *Néprajz és Nyelvtudomány* 36: 267–83.
- Pugh, Stefan M. 1999. Structural change in Karelian and Vepsian: prefixation. In: Cornelius Hasselblatt – Paula Jääsalmi-Krüger (eds) *Europa et Sibiria. Beiträge zur Sprache und Kultur der kleineren finnougri-schen, samojedischen und paläosibirischen Völker. Gedenkbund für Wolfgang Veenker. Veröffentlichungen der Societas Uralo-Altaica* 51, 341–7. Harrassowitz, Wiesbaden.
- Regnéll, Carl Göran 1944. *Über den Ursprung des slawischen Verbalaspektes*. Gleerup, Lund.
- Rombandeeva, Evdokija I. 1973. *Mansijskij (vogul'skij) jazyk*. Nauka, Moskva.
- Rätsep, Huno 1957. *Aspektikategooriast eesti keeles* [On the category of aspect in Estonian]. *Emakeele Seltsi Aastaraamat* 3. Eesti Riiklik Kirjastus, Tallinn.
- Sauer, Gert 1992. Zur Verbalpräfigierung im Ostjakischen. In: Pál Derék – Timothy Riese – Marianne Sz. Bakró-Nagy – Péter Hajdú (eds) *Festschrift für Károly Rédei zum 60. Geburtstag*, 399–402. Institut für Finnougristik der Universität Wien – ELTE BTK Finnugor Tanszék – MTA Nyelvtudományi Intézet, Wien & Budapest.
- Schlachter, Wolfgang 1968. *Arbeiten zur strukturbezogenen Grammatik*. Fink, München.
- Sivers, Fanny de 1971. *Die lättischen Präfixe des livischen Verbs*. Imprimerie Berger-Levrault, Nancy.
- Steinitz, Renate 1981. Der Status der Kategorie 'Aktionsart' in der Grammatik (oder: Gibt es Aktionsarten im Deutschen?). *Linguistische Studien. Reihe A. Arbeitsberichte* 76. Zentralinstitut für Sprachwissenschaft der DAW, Berlin.
- Sulkala, Helena 1996. Expression of aspectual meaning in Finnish and Estonian. In: Mati Ereht (ed.) *Estonian: Typological Studies I*. Tartu Riikliku Ülikooli Eesti Keele Öppetooli Toimetised 4, 165–225. Tartu Riiklik Ülikool, Tartu.
- Tereškin, Nikolaj I. 1961. *Očerki dialektov hantyskogo jazyka. Čast' pervaja. Vahovskij dialekt*. Izdatel'stvo AN SSSR, Moskva & Leningrad.
- Viitso, Tiit-Rein – Cornelius Hasselblatt 1992. Das estnische Partikelverb als Lehnübersetzung aus dem Deutschen. In: *Linguistica Uralica* 28: 55–9.

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WHY PREFIXES?

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Abstract

A variety of explanations have been offered for the observed cross-linguistic preponderance of suffixes over prefixes. Many are couched in terms of synchronic advantages, such as the cognitive simplicity of cross-category harmony between syntax and morphology, and preferences for processing the lexical meaning in stems before the grammatical material in affixes. But hypotheses about functional advantages cannot constitute explanations in themselves without accounts of the mechanisms by which the advantages are translated into grammatical structure. Here it is shown that the numerous exceptions to such hypotheses can be explained when the individual histories of the affixes are considered, including both their sources and the steps by which they develop.

It has long been recognized that suffixes outnumber prefixes cross-linguistically. As early as 1921 Edward Sapir remarked,

“Of the three types of affixing—the use of prefixes, suffixes, and infixes—suffixing is much the commonest. Indeed, it is a fair guess that suffixes do more of the formative work of language than all other methods combined.” (1921, 67)

Several kinds of explanations have been offered for the suffixing preference. Some have focused on cross-category harmony, proposing that speakers prefer consistent ordering of heads and dependents across syntax and morphology. Since more languages show head-final syntactic structure (OV), it is natural that they should also show head-final morphological structure (Stem-suffix). Other explanations have focused on processing, proposing that hearers prefer to process stems before affixes, since they contain richer information. Still other explanations have focused on production, proposing that since speakers tend to elide the ends of words, morphemes occurring later in words are more likely to erode into affixes than those occurring earlier.

But these proposals, even in combination, do not account fully for the morpheme orders we find. There are numerous examples of prefixes in languages with robust, head-final (OV) syntactic order. The identification of

speaker preferences is a reasonable first step toward possible explanation, but we cannot claim to explain particular structures if we have not identified the actual mechanisms by which such preferences might shape grammar. As noted by Greenberg (1957), mechanisms might be identified in two areas: (i) origin, that is, circumstances that could lead to the development of certain structures, and (ii) survival, that is, circumstances that could contribute to their stability.

Here we shall examine some situations in which explanations based on cross-category harmony, processing, and production fail to account for morphological structure. These involve prefixes in languages with clear, head-final (OV) syntactic structure. It will be shown that a key to explaining such structures lies first in distinguishing the kinds of affixes involved and then uncovering the different paths by which they develop.

1. Correlations and explanations

In ground-breaking typological work, Greenberg (1963; 1966) observed correlations on the one hand between word order in clauses and the placement of adpositions, and on the other between the placement of adpositions and affixes.

- a. Languages with dominant VSO order are always prepositional. (universal 3)
- b. With overwhelmingly greater than chance frequency, languages with normal SOV order are postpositional. (universal 4)
- c. If a language is exclusively suffixing, it is postpositional; if it is exclusively prefixing, it is prepositional. (universal 27)

A more direct correlation between syntactic and morphological order was reported by Winfred Lehmann (1978, 212).

“A number of morphological characteristics have been identified for specific language types. Prominent among these is the placement of affixes, notably those expressing verbal qualifiers. In VSO languages these precede the central verb; in OV languages, on the other hand, they follow.”

The proposed correlations thus link predicate-initial clause structure (often abbreviated VO) with prefixes, and predicate-final structure (abbreviated OV) with suffixes.

<u>VO</u>	<u>OV</u>
prefixes- <u>Stem</u>	Stem- <u>suffixes</u>

These correlations were generalized in a series of papers by Theo Venneman (1973; 1974, etc.) as the Natural Serialization Principle. According to this

principle, languages tend to develop toward consistent order between Operator and Operand, also termed *déterminant* and *déterminé*, or Head and Dependent. Operator-Operand order is manifested in Verb-Object, Noun-Genitive, Preposition-NP, and Auxiliary-Verb orders, while Operand-Operator order is the reverse: Object-Verb, Genitive-Noun, NP-Postposition, and Verb-Auxiliary. The prevalence of Operand-Operator order across languages was traced to a cross-linguistic tendency for topical material, usually expressed by subjects, to be placed early in sentences, before predicates. If the notion of Operator or Head is extended to affixes, then the predominance of SOV word order would result in a predominance of Stem-suffix order and explain the suffixing preference.

John Hawkins and associates (Cutler et al. 1985; Hawkins 1988b; Hawkins–Cutler 1988; Hawkins–Gilligan 1988) adopted the Venneman proposal, which they termed the HOP or Head-Ordering Principle, and added a second factor, that of language processing, to explain the prevalence of suffixes.

HEAD-ORDERING PRINCIPLE (HOP)

Heads are identically ordered relative to their modifiers in both syntax and morphology.

PROCESSING PREFERENCE FOR SUFFIXING

Lexical recognition precedes syntactic processing, so language users will prefer to process stems before affixes. Stem-affix order provides the most efficient structure for processing.

These proposals raise several issues. The first pertains to the exact nature of heads in morphology. An extensive literature on the subject indicates that identification of heads in morphology is not straightforward (Williams 1981; Selkirk 1982; Zwicky 1985; Hudson 1987; Scalise 1988; Bauer 1990; Corbett et al. 1993, and others). In early discussions of heads in syntax, the Noun was identified as the head of the Noun Phrase, and the Verb as the head of the Verb Phrase. The Noun and Verb were the essential foundations of their phrases, the more general, modified, subcategorized elements. They determined the syntactic category of the phrase. When the notion of head was extended to morphology, the parallels were not always clear. For some, headedness is primarily a semantic notion: the head is the more general, modified, subcategorized morpheme of a word. In a compound like *newspaper*, the head is the root *paper*, and in an adverb like *unkindly*, the head is the root *kind*. For others, headedness is primarily a syntactic notion: the head is the morpheme that determines the lexical category of the word. The head of *newspaper* is still *paper*, but the head of *unkindly* is identified as the suffix *-ly*, since it is the suffix that determines the lexical category of the word, the element that makes it into an adverb and identifies it as such. Even among

those who view affixes as heads, opinion is not uniform. Some consider only derivational affixes to be heads, since only they can change lexical category. Others, such as Williams (1981), have proposed that the rightmost affix in a word is always the head, even when it is inflectional, since it identifies the lexical category of the word. Such questions about the nature of headedness in morphology render principles of cross-category harmony in this domain somewhat more difficult to evaluate.

Another issue raised by all of these proposals is what constitutes adequate explanation. The identification of recurring patterns is an important step, but it only assembles the material to be explained. Hypotheses about functional advantages to certain patterns or clusters of patterns might lead us closer to an explanation by suggesting motivations for their retention. A consistent head-ordering principle might offer cognitive advantages in ease of acquisition, and stem-initial words might offer processing advantages if speakers do indeed process lexical material before grammatical material. But perceived advantages alone cannot account for the existence of particular structures in languages until we have traced the precise mechanisms by which the structures enter the language and become established.

The recognition that the diachronic dimension should be considered is not new. It has been known since the nineteenth century and before that the most common source of affixes is independent words. On this basis, Givón (1971; 1979; 1984) proposed a general principle that the position of affixes within words mirrors the earlier order of words within clauses. Like Venneman, he hypothesized that all languages originated with head-final (OV) syntax, due to the general tendency for speakers to place topical information, expressed by subjects, early in the clause. He maintained that affixes are always descended from syntactic heads, so languages characterized by head-final clause structure (OV) will show head-final word structure (Stem-suffix). The proposals that all languages were originally head-final (OV), and that all affixes are descended from heads, have not met with general acceptance, but the idea that explanation must incorporate the diachronic dimension is a crucial one. Though explicitly discussed in Greenberg (1957), it is still overlooked by many seeking explanations for cross-linguistic tendencies. Still, it is an implicit foundation of the work of many others and explicit in some, such as Bybee (1988) and Hall (1988; 1992). In work discussing explanation in morphology, Hall considers at length the kinds of factors that might favor the suffixing preference. After detailed surveys of formal models of the lexicon and results of psycholinguistic experiments involving affixes, he argues for an integration of psycholinguistic factors (both processing and production) and

diachronic considerations (the mechanisms by which psycholinguistic factors are incorporated into the grammar).

"The hypothesised universal psycholinguistic dispreference for prefixing must, it seems, be instantiated in particular languages word by word by a mechanism which, given the right conditions, 'blocks' the fusion of potential prefixes with free stems. The essential triggering conditions are present at the point where the first tentative reanalysis of a pair of free forms as one bound + one free form takes place in the mental lexicon. This phase, I suggest, is characterised by a 'flirting' process, in which a semantically and phonologically decayed free form attempts to become bound to (i.e., 'flirts' with) a full free form on which it depends and with which it is habitually contiguous. When the dispreference is triggered with sufficient strength, the pressure for a bound analysis is challenged and the form does not reduce as far as affix status." (Hall 1992, 166)

Bybee et al. (1990) undertook the task of untangling the respective roles of the original position of grammatical markers in syntax and differential resistance to the fusion of potential prefixes and suffixes. They surveyed 71 languages for the relative positions of a small set of verbal morphemes to determine whether the predominance of suffixes might be due to a general preference for postposed grammatical morphemes, or a greater tendency to affix morphemes that are already postposed. Their results showed both.

GRAMMATICAL MARKERS	ALL	FREE	BOUND
Preposed	34%	48%	52%
Postposed	66%	20%	80%

In their sample, grammatical markers appear after the verb twice as often as before the verb (66% after to 34% before), suggesting a general preference for postposed grammatical morphemes. Among the grammatical markers that followed the verb, there are four times as many affixes as independent words (80% bound to 20% free), while among those that preceded the verb, the proportions were about the same (52% bound 48% free). Together these two sets of figures suggest a greater tendency to fuse postposed morphemes. Bybee et al. did find some correlation between affix order and syntactic order. Among the languages in their sample with basic predicate-final (-V) syntactic order, there were strong tendencies for both postposing and fusion. Among those with predicate-initial order (V-), tendencies for postposing and fusion were slight. Among those with predicate-medial order (-V-), there was a slight tendency toward preposing but none for fusion. They conclude that the suffixing preference in their sample comes primarily from the prevalence of

predicate-final order languages. Of the 71 languages, 32 were predicate-final (-V), 31 predicate-medial (-V-), and just 8 predicate-initial (V-).

At least some of the forces proposed so far, that is, cross-category harmony, processing efficiency, erosion due to production, a preference for postposed grammatical morphemes, and a greater tendency to fuse postposed morphemes, undoubtedly contribute to the structures we find, but they do not account for the full range, even when considered together. We could simply accept the fact that languages are full of exceptions. Alternatively, we could try to refine our predictions by a closer examination of the cases where current explanations appear to fail. These cases are the prefixes that occur in languages with clear head-final (OV) syntactic structure.

Such cases are actually not rare. Prefixes regularly occur in languages with otherwise clear, head-final (OV) typological profiles. Navajo, for example, a language of the Athabaskan-Eyak-Tlingit family spoken in the American Southwest, shows clear, basic SOV constituent order, along with a robust inventory of postpositions but no prepositions. It is exclusively prefixing, however, with an inventory of over a hundred prefixes. Samples of these structures can be seen in (1).

(1) Navajo: Dolly Soulé, speaker p.c.

- (a) Nihijish biihdahohníí.
 nihi-jish b-iih-da-hw-oh-l-nííí
 2.pl-suitcase 3-into-distr-indefinite.object-2.pl.subject-tr-propel.several.imprf
 your suitcases you all put things into them
 ‘Pack your suitcases.’
- (b) Nihil dahat’iilwod.
 nih-il da-ha-d-’-ii-l-wod
 1.pl-with off-away-distr-indefinite.subject-completive-detr-flex.(legs).prf
 with us something ran off
 ‘It [the bus] just left with all of us.’
- (c) Alhanéít’aash.
 a-l-ha-ná-íid-’aash
 reciprocal-with-seriative-around-1.dual.subject-several.walk.prog
 ‘We’ll get together now and then.’

The interest of this morpheme order was noted by Keren Rice in her book on morpheme order in the Athabaskan languages. She treats it essentially as an aberration and posits an underlying structure in which all affixes are suffixes.

“A primary idiosyncrasy of the Athapaskan verb is that the verb stem is located in the ‘wrong’ place in the surface string. In the remainder of this book, I assume a movement-based account along the lines proposed in Speas 1990, 1991, and Rice

1993, 1998. [. . .] The verb stem originates as a sister to the preverbs, both of which are within the scope of, and therefore enter into semantic composition as a unit with, quantificational elements [. . .]. What is unusual about the verb is the surface position of the stem—it moves from its position within the verb phrase to the right of the functional morphemes.” (Rice 2000, 78)

“The greatest idiosyncrasy in the verb is the position of the verb stem and the markers of voice/valence. Given the scope hypothesis, one expects these to occur within the verb phrase. I have treated their actual placement as a quirk of the Athapaskan verb, achieved through the raising of verbs.” (Rice 2000, 414)

We can refine our understanding of the morpheme orders that occur, and the reasons behind them, by peeling apart the various diachronic forces that shape them. In most work so far, generalizations have been made over prefixes and suffixes considered as two homogenous groups. But affixes with different functions develop from different kinds of sources, by different kinds of diachronic routes. If we consider them individually, we may be able to develop a finer-grained understanding of the processes that shape grammar, and ultimately arrive at more accurate generalizations.

2. Pronominal affixes

Among the most common kinds of verbal affixes are pronominal affixes. More often than not, these morphemes run counter to the prediction that languages with head-initial (VO) syntactic structure should have prefixes, and those with head-final (OV) order should have suffixes. Navajo shows basic OV constituent order, but it contains pronominal prefixes.

(2) Navajo pronominal prefixes: Dolly Soulé, speaker p.c.

- (a) Éi shizhé'é' shíí nléi
 éi shi-zhé'é' shíí nléi
 that 1.sg.possessor-father probably there
 'My father had probably
 Fort Wingatedi shaajiniíyá
 Fort Wingate=di sh-aa-ji-níí-yá
 Fort Wingate=at 1.sg-to-4.subject-one.go.perfective
 at Fort Wingate he came to me
 gone to Fort Wingate to visit me.'
- (b) Áádi nishintí.
 áá=di ní-shi-ní-Ø-l-tí
 there=at down-1.sg.object-term-3.subject-tr-handle.animate.object.prf
 over there he put me down
 'He took me there.'

(The Navajo ‘fourth person’ category, is used for generic mentions much like English ‘one’, for respect, and often for the protagonist in narratives. In (2a) the speaker used it to refer to her father. When basic third person subjects and objects cooccur in transitive verbs, the object pronominal prefix shows a distinction between proximates, the more topical of the two, and obviatives, the less topical.)

The reason for this apparent exception is clear. These pronominal prefixes simply continue the earlier syntactic order of their sources. With predicate-final word order, independent pronouns would have preceded the verb. When they fused with the verb, they became prefixes.

There are numerous examples of the same apparent exception on the other side as well. All languages of the Salishan family of northwestern North America show clear predicate-initial (VO) order, so this order is easily reconstructed for their common ancestor Proto-Salish. Yet pronominal suffixes are common, as in Halkomelem.

- (3) Halkomelem (Salishan family, British Columbia; Galloway 1993, 176):

lém-cəl
go-1.sg.subject
‘I go.’

mcyθ-amə-cəl
help-2.sg.object-1.sg.subject
‘I help you.’

lém-cəx^w
go-2.sg.subject
‘You go.’

mcyθ-áx^y-cəx^w
help-1.sg.object-2.sg.subject
‘You help me.’

As in Navajo, the modern morpheme order continues the earlier syntactic order. But it would be premature to assume that modern morphological structure always echoes earlier syntax. Within the Salishan family we also find pronominal prefixes.

- (4) Coeur d’Alene (Salishan, Idaho; Reichard 1938 cited in Kroeber 1999, 106):

Lute hi-s-ʔap-scént.
not 1.sg-nominalizer-shoot-intransitive
‘I did not shoot.’

It is easy to explain the position of these prefixes once we uncover the route by which they developed. In all of the Salishan languages (and presumably Proto-Salish), dependent clauses can be formed by nominalization. The result is similar to English *Arriving late is always a mistake* or *I love walking along the beach at night*. The subjects of the nominalized clauses are expressed with possessive pronominal prefixes, not unlike English *My arriving late was a mistake* or *I resent his walking along the beach at night*. Salish nominalized

clauses are used regularly in certain constructions, such as negation, where the negative word serves as a predicate and the negated clause as its argument. In many of the Salishan languages nominalized clause structures have been extended to use as independent sentences, often with special discourse functions. When this independent use increases sufficiently in frequency, it can compete with the earlier independent clause structure. In some of the languages it has even replaced it.

3. Directional affixes

Among the verbal affixes that would be termed 'verbal qualifiers' by Lehmann are directional affixes. Navajo contains an extensive inventory of such affixes, and all are prefixes, despite predictions made by hypothesized cross-category harmony principles, processing preferences, and resistance to initial grammatical markers and fusion.

(5) Navajo directional prefixes: Dolly Soulé, speaker, p.c.

- (a) Hastiin adanaátsaad ndéé'
 hastiin ada-náá-0-tsaad ni=déé'
 man down-again-3.subject-scoot.momentaneous.prft that=from
 'When the man came down again ...'
- (b) habicycle bikáá' dach'iz'áq
 ha-bicycle bi-káá' da-ch'i-i-z-'á=go
 4.poss-bicycle 3-on.top up-horizontally-3.object-4.subject-handle.solid.object.prft
 =subordinate
 'he put it up on his bicycle'
- (c) T'óó hááhgóóshíí andiidlóóh.
 t'óó hááhgóóshíí 'a-ni-d-iid-dlóóh
 just really away-repeatedly-orally-1.du.subject-laugh.imprft
 'We were just laughing ourselves to death.'
- (d) la'jígóó anáánásdzá.
 la'=ji=góó a-nááná-s-d-yá
 some=to=toward away-back-dur.result.1.sg.subject-detr-one.walk.prft
 'I went somewhere else.'

An explanation of their position as prefixes is easy to find in their origins. The prefixes are descended from independent adverbs and nouns, some of which persist in the modern language. The adverbs and nouns still occur before the verb, just as they did in the parent language. The prefixes have simply continued the position of their ancestors.

- (6) Some adverb sources of Navajo directional prefixes: Dolly Soulé, speaker p.c.

PREFIXES	ADVERBS
ada- 'downward'	adah 'downward'
da- 'up'	dah 'up'
a- 'away out of sight'	áá 'there, remote'

- (a) Adáh náánádá.
adáh nááná- \emptyset -dá
 down reverse-3.sg.subject-sit.perfective
 'He came back down again.'
- (b) T'ah dah nléí
 still up there
 'He was still up there
 ndíshchí' bii'njí'ná'ó.
 ndishchi' b=ii'-ni-ji-d-na'=go
 tree 3.proximate-in-around-4.subject-detr-crawl.cont.prf=subordinate
 climbing around in the tree.'
- (c) Áádi sidá léí':
áá=di si- \emptyset -dá léí'
 there=at durative.sequel-3.subject-one.person.sit.prf mirative
 'He was sitting back there!'

- (7) Some noun sources of Navajo directional prefixes: Young (2000)

PREFIXES	NOUNS
yá- 'up into the air'	yá 'sky'
a'á- 'into a hole or burrow'	a'áán 'hole, burrow'
dá'ák'e- 'into the field'	dá'ák'eh 'cornfield, field'
lee- 'into the ashes (to cook)'	leezh 'dirt, soil'
tá- 'out of the water, to shore'	tó 'water'
tsá- 'in the belly'	-tsá 'belly'
za- 'into mouth'	-zéé' 'mouth'

But not all directional affixes have developed by this route.

Kawaiisu, a Uto-Aztecan language of California, shows the same basic head-final (OV) syntactic structure as Navajo, and this order can be reconstructed for its parent language as well. Kawaiisu also contains directional affixes, but these are suffixes. A basic translocative suffix *-kwee-* 'thither' indicates motion away from the speaker or other deictic center, and a cislocative suffix *-ki-* 'hither' indicates motion toward it.

(8) Kawaiisu directional suffixes: Zigmond et al. (1991)

ʔjga-	'enter'
ʔjga- <u>kwee</u> -	'go in'
ʔjga- <u>ki</u> -	'come in'
huʔma-	'carry several'
huʔma- <u>kwee</u> -	'take several'
huʔma- <u>ki</u> -	'bring several'
yaa-	'carry one'
yaa- <u>kwee</u> -	'take one'
yaa- <u>ki</u> -	'bring one'

The contrast in position is easy to explain if we consider the paths by which these directional markers made their way into the grammars. Kawaiisu, like other Numic languages, shows extensive compounding of many kinds, including the combination of two verb roots to yield a new, compound verb.

(9) Kawaiisu Verb-Verb compounds: Zigmond et al. (1991, 163)

kaʔa-pagi-	kaa-havi
eat-walk	sing-lie
'walk along eating'	'lie singing'
yaa-pidj	piʔaa-ʔabigi
carry-arrive	be.pretty-talk
'bring'	'say in a pretty voice'

The directional suffixes *-kwee* 'away' and *-ki* 'toward' originated as the second members of Verb-Verb compounds. The first still persists as a verb root in the modern language, that still occurs on its own.

(10) Kawaiisu verb root *-kwee* 'go': Zigmond et al. (1991, 83)

Hanaʔoko samamj ko- <u>kwee</u> -dj-mj?
when they reduplication- <u>go</u> -realized-indicative-pl
'When did they <u>go</u> ?'

The source of the cislocative suffix *-ki* 'toward' no longer persists as an independent verb root in Kawaiisu, but a probable ancestral verb root is reconstructed for an earlier stage of the language, Proto-Uto-Aztec **kim* 'come' (Miller 1987). Descendants of this verb still appear as independent roots in a number of related languages.

The best explanation for the fact that directional affixes appear as prefixes in Navajo but suffixes in Kawaiisu thus cannot be the cross-category harmony principle, since both languages have developed from ancestors with basic OV clause structure which continues in the modern languages. It is

probably also not attributable to processing preferences. It is, however, easily explained by the different kinds of sources from which the markers developed.

4. Aspect

Among the most frequent verbal affixes are aspect markers. For languages with head-initial (VO) clause structure, the cross-category harmony principle would predict that they should be prefixes, while processing and production hypotheses would predict suffixes. The head-initial Salishan languages show numerous aspectual prefixes, among them the Bella Coola stative-progressive *ʔat-*.

(11) Bella Coola stative-progressive prefix *ʔat-*: Nater (1984, 96)

- (a) $\frac{ʔalʔayucmtim}{ʔal-ʔay-uc-m-tim}$
 stative-progressive-exchange-speech-detransitivizer-3.pl.passive
 ‘somebody was telling them to ...’
- (b) $\frac{ʔalʔuyaaɣ}{ʔal-ʔuy-aaɣ}$
 stative-progressive-fall.over-tree
 ‘[tree] lies fallen’

We could conclude that the force toward cross-category harmony is more powerful than processing and production factors, or we could look more closely at the paths through which such markers develop. Common diachronic sources of aspect markers are verb roots. These verbs may first erode in shape to become verbal auxiliaries, then subsequently fuse with associated verbs to become affixes. Alternatively they may first fuse with other verbs to form compounds, while their full shapes are still intact, then subsequently erode into affixes. In either case, in languages with basic predicate-initial clause structure (VO), matrix verbs precede their complements, so we would expect the aspect markers that descend from higher verbs to be prefixes, just as in Bella Coola. The origin of this stative-progressive aspect prefix can in fact be traced to the verb root *ati-* ‘to be located, stay somewhere’, which still survives as a root in the language.

(12) Probable source: root *ati-* ‘to be located, stay somewhere’: Nater (1984, 49)

- $\frac{ʔalic}{ʔali-c}$ $\frac{ʔalasuʔac}{ʔal=sul=ʔac}$
 stay-1.sg in=house=this
 ‘I am staying in this house’

(The same root also developed into a locative preposition *ʔat* ‘in, at’, another common path.)

For languages with head-final (OV) syntax, all proposed principles would predict suffixes: cross-category harmony, production, and processing, as well as the recognized path of development from higher verbs to aspect markers. We might accordingly expect that in a language like Navajo, with the head-final patterns throughout its syntax and that of its ancestor, aspect markers should be suffixes. Navajo does exhibit an unusually rich inventory of aspectual distinctions, but there are no suffixes. Aspect is expressed by complex combinations of verbal prefixes and stem ablaut. An example is the Iterative in (13), formed with the prefix *ná-* and the Repetitive form of the verb stem ‘ask’.

- (13) Navajo iterative aspect prefix *ná-*: Dolly Soulé, speaker p.c.

Náʔadishkido.
ná-ʔa-di-sh-kid=go
 iterative-indefinite.object-orally-1.sg.subject-ask.repetitive=sub
 ‘I kept asking questions.’

The Iterative prefix evolved from a prefix of the same shape with a slightly more concrete meaning: *ná-* ‘again’.

- (14) Navajo prefix *ná-* ‘again’: Dolly Soulé, speaker p.c.

Hastiin adanáátsaad.
hastiin ada-ná-ʔ-tsaad
 man down-again-3.subject-scoot.momentaneous.perspective
 ‘The man came down again.’

This prefix can in turn be traced to an independent adverb *nááná* ‘again, once more’.

- (15) Earlier source: adverb *nááná* ‘another, again’: Young Morgan (1987, 583)

Nááná yéego *dílkos*
nááná yééʔ=go *di-l-kos*
again extremely=adv orally-detransitivizer-cough.imperfective

shíłní
shi-l-0-ní
 1.sg-to-3.subject-transitivizer-say.imperfective
 ‘He told me to cough hard once more.’

The modern prefix simply continues the position before the verb of its adverbial source. The development of aspectual prefixes in Athabaskan lan-

guages again illustrates the point that grammatical morphemes, even those with comparable functions, can develop from a variety of sources. Although there are no suffixes in modern Navajo, the stem ablaut that contributes to the aspectual marking probably originated from earlier combinations of roots and aspectual suffixes. The stem ablaut for aspect never affects the initial consonant of the stem, but it can involve changes in the color, length, and nasalization of the vowel, and add final consonants. The various forms of the stem used above for 'ask', for example, are *-keed*, *-ki'*, *-kił*, and *-kííd*.

5. Manner and means

A large number of genetically unrelated languages in North America contain verbal affixes that indicate the means or manner by which an activity takes place. Both the cross-category harmony principle and proposed processing preferences predict that such markers will be suffixes in languages with head-final (OV) syntax. But this prediction is violated more often than not. Some examples can be seen in Navajo.

(16) Navajo adverbial prefixes: Dolly Soulé, speaker p.c.

- (a) *dineezjéé'o*
dini-s-Ø-jéé'=go
 relaxing-term-durative.sequel-3.subordinateject-multiple.recline.prf=subordinate
 'when everybody was in bed'
- (b) *t'óó baayániizíí'o*
 t'óó b-aa-yá-n-í-zíí'=go
 just 3-about-ashamed-mentally-completive.1.sg-think.prf=subordinate
 'I got so embarrassed about it.'
- (c) *t'ah baa ntsídzikeesó*
 t'ah b-aa ntsí-jí-kees=go
 still 3-about mentally-4.subordinateject-ponder.imperfective=subordinateordinate
 'he was still thinking about it'
- (d) *yiskáq*
yí-s-Ø-ká=go
dawning-durative.sequel-3.subordinateject-move.in.open.container.prf=subordinate
 'tomorrow'
- (e) *hádazhntáo*
 há-da-j-ni-tá=go
 for-distributive-4.subordinateject-visually-search.continulative.imprf=subordinate
 'they were searching for it'

- (f) Náhodiiltj.
 ná-ho-di-yi-0-l-tj
 upward-4.obj-extending.long.object-cmpl-3.subj-tr-handle.anim.obj-mom.pr
 'He picked him up.'

Again there is a simple explanation. Many of these prefixes can still be seen to be related diachronically to noun roots that would have preceded the verb in predicate-final clauses.

(17) Navajo noun sources of prefixes: Young-Morgan (1987)

- (a) Chadilwáá'.
 cha-di-0-l-wáá'
crying-orally-3.subject-detransitivizer-snore.imperfective.durative
 'It (a puppy) is whimpering, whining.' YM 270
- | | | |
|------------------|------|-------------------|
| PREFIX | cha- | 'weeping, crying' |
| INDEPENDENT NOUN | cha | 'weeping, crying' |
- (b) Baa jé'íínishná.
 b-aa jé'-yini-0-sh-ná
 3-with carefully-toward-3.object-1.sg.subject-do.right.handedly.neuter.imprf
 'I handle it carefully.' YM 488
- | | | |
|------------------|-----|-----------------|
| PREFIX | jé- | 'carefully' |
| INDEPENDENT NOUN | jéi | 'pleura, heart' |
- (c) K'ad dzil gháá'di
 k'ad dzil gháá'=di
 now mountain top=at
- kééhasht'j.
 kéé-ha-sh-d-'j
residing-area-1.sg.subject-dettr-animate.be.at.rest.durative.imprf
 'I live on top of the mountain now.' YM 493
- | | | |
|------------------|-------|--------------------|
| PREFIX | kéé- | 'living, residing' |
| INDEPENDENT NOUN | kéyah | 'land' |
- (d) Bjih k'ayíílk'eh.
 bjih k'ay-ii-l-k'eh
 deer wounding-3.object-3.subject-tr-cut.momentaneous.pr
 'He wounded a deer.' YM 502
- | | | |
|------------------|-------|------------|
| PREFIX | k'a- | 'wounding' |
| INDEPENDENT NOUN | k'aa' | 'arrow' |

6. Causatives

Among the most frequent derivational affixes are causatives. As with aspectual markers, hypotheses about cross-category harmony would predict

such markers to be prefixes in languages with head-initial (VO) syntax, but hypotheses about processing and production would predict suffixes. If we consider their usual origins, the most obvious prediction would be prefixes. Causatives often evolve from matrix verbs such as ‘make’ or ‘cause’, associated with a complement clause describing the event or state caused. Since matrix verbs precede their complements in languages with head-initial (VO) syntactic patterns, we expect causatives to appear as prefixes. Just this situation can be seen in Bella Coola. The causative is a prefix *tam-*.

(18) Bella Coola causative prefix: Nater (1984, 93); Nater (1990, 123)

- (a) tam[?]ulx
 tam-[?]ulx
 causative-be.silly
 ‘to make somebody (look) silly > to fool, cheat somebody’
- (b) tamqnk
 tam-qnk
 causative-deep
 ‘to make somebody low > to ridicule somebody’
- (c) [?]altamstl’x^w
[?]al-tam-stl’x^w
 stative.progressive-causative-behave.well
 ‘to make somebody behave well > to give somebody sound advice’

The source of the causative prefix still survives in the language as the root *tam-* ‘make, construct’.

(19) Source of Bella Coola causative prefix: root *tam-* ‘make, construct’

- (a) tamsultuminu
 tam-sul-tu-mi-nu
 make-house-benefactive-1.sg.subject-2.sg.object
 ‘I will build a house for you’
- (b) tamyayaḡiitum
 tam-yayaḡii-tu-m
 make-toy-benefactive-detransitivizer
 ‘somebody made him a toy’

For languages with head-final (OV) syntactic patterns, all principles would lead us to expect causative suffixes. Lakhota, a language of the Siouan family of the Great Plains of North America, shows a basic SOV constituent order, an order which can be reconstructed for its parent, Proto-Siouan. As predicted, it contains a causative suffix, presumably descended from a higher verb, though this verb no longer exists in the language as such.

(20) Lakhota expected causative suffix *-ye*: Stanley Redbird, speaker p.c.

- (a) k^higlé
 k^higle
 go.home
 'he went home'
- (b) k^higléye
 k^higle-ye
 go.home-causative
 'he sent him home'

But Lakhota also contains some causative prefixes, among them *yu-*.

(21) Lakhota unexpected causative prefix *yu-*: Stan Redbird, speaker p.c.

- (a) páya
 páya
 drunk
 'he's drunk'
- (b) yupáya
 yu-páya
 causative-drunk
 'he got him drunk'

The existence of the Lakhota causative prefixes goes against all predictions.

Again an explanation comes from a more detailed look at the steps by which the causative prefixes entered the language. Lakhota contains a set of means/manner prefixes.

(22) Lakhota means/manner prefixes

- yu- 'involving pulling'
 pa- 'involving pushing'
 ka- 'involving sudden impact'
 ya- 'involving the mouth, biting, talking'
 na- 'involving the foot or leg'
 wa- 'involving a sawing motion or knife'
 wo- 'involving action from a distance, shooting, blowing, pounding with the end of a stick'
 na- 'involving an inner force, heat, cold'
 pu- 'involving pressure' (no longer productive)

Some examples of their use can be seen below.

(23) Lakhota verbs with means/manner prefixes: Stan Redbird, speaker p.c.; Buechel (1970)

<u>yu</u> -bláya	'to spread out, unfold, make level'
<u>pa</u> -bláya	'to spread out, as dough: to make level; to iron (clothes)'
<u>ka</u> -bláya	'to make level by beating'
<u>yu</u> -yá	'to open, e.g. a door'
<u>pa</u> -bléč ^h a	'to crunch by pressing, pushing, or sitting on, as glass'
<u>ka</u> -bléč ^h a	'to break something brittle by striking, as a glass'

These prefixes are old and can be reconstructed for Proto-Siouan. It is still possible to trace their origins, however. In all of the Siouan languages, roots can be combined to form new, compound stems.

(24) Lakhota compounds: Boas-Deloria (1941, 70, 73)

NOUN-NOUN	č ^h á-hápa	wood-moccasin	=	'shoe'
NOUN-VERB	č ^h á-lé	firewood-gather	=	'(s/he) gathers firewood'
VERB-VERB	ú [?] ima-màni	sleep-walk	=	'(s/he) is a somnambulist'

The modern means/manner prefixes have developed from the first element of such compounds. The source of at least one of the prefixes, *pa*- 'by pushing', can be traced to a verb root, *pa* 'push', which still persists in the language.

(25) Lakhota verb root *pa* 'push': Buechel (1970, 422)

Mayápa	šni	kjha,	wašté	yelo.
ma-ya-pa	šni	kjha	wašté=	yelo
1.sg.patient-2.sg.agent- <u>push</u>	not if	good=	assertive	
'It's good if you don't <u>push</u> me.'				

(Pronominal prefixes in Lakhota, like those in Mohawk and Choctaw discussed below, categorize core participants as grammatical agents and patients, rather than subjects and objects. The basis of the systems is semantic rather than discourse-pragmatic, but it is fully categorical and lexicalized, learned with each verb, and in some cases the rationale behind certain categorizations is no longer transparent.)

Verbs formed with means/manner affixes in Lakhota and other languages often include an element of causation as part of their meaning. The causation is not an explicit feature of the prefix. The prefix *ya*- 'orally' does not necessarily add causation, as can be seen in (26a) 'deceive/tell a falsehood', but stems derived with it can have a causative sense, as in (26b) 'be angry/make angry'.

(26) Lakhota occasional causative effect: Buechel (1970)

(a)	gnáyą	'deceive, cheat'
	<u>ya</u> -gnáyą	'tell a falsehood'

- (b) $\check{c}^h\acute{a}z\acute{e}ka$ 'be angry'
 $\underline{ya}\text{-}\check{c}^h\acute{a}z\acute{e}ka$ 'make angry by talking to'

The causative interpretation comes about through inference. Many situations described with means/manner affixes involve causation. If someone dies through beating, for example, it can be inferred that he or she was caused to die by the beater. If someone is knocked down by kicking, it can be inferred that she or she was caused to fall by the kicker.

Because verbs are derived only as needed, the prefixes do not appear in the lexicon and in use in equal numbers. Verbs involving hand action are especially pervasive, since so many more actions are carried out with the hands than by shooting or by sawing, for example. As is well known, the meanings of morphemes often become more general and abstract with extensive use. Several kinds of processes can be involved. An important one is the metaphorical extension of common, concrete, lexical items to new, more abstract contexts. In English, for example, we easily say *it's out of my hands*, or *the chance just slipped through my fingers*, even when no actual hand or finger action is involved. The basic, concrete meaning of the prefix *yu-* 'by hand action, pulling' can still be seen in a number of derived verbs, including many with causative meaning.

- (27) Lakhota causative *yu-* 'with discernible hand action'

$yugl\acute{o}glo$
 $\underline{yu}\text{-}glo\text{-}glo$
 by.pulling-reduplication-grunt
 'make grunt' (a buffalo calf by catching it)

But in some derived verbs, the causative element has been reinterpreted as the central meaning of the prefix. What was originally only inferred is now felt to be asserted. As a result, new causative verbs have been formed with this prefix which show no element of hand action.

- (28) Lakhota extension to abstract causation without physical hand action: Buechel (1970, 656)

Tokša, $bluwi\check{c}^h\acute{a}k^h\acute{a}kte\acute{lo}$
 tokša $wa\text{-}yu\text{-}wi\check{c}^h\acute{a}k^h\acute{a}kte=\acute{lo}$
 before.long 1.sg.agent-causative-be.true=future=assertive
 'In time, I will prove it.'

Evidence that the original means/manner prefix *yu-* 'by pulling' has been fully reanalyzed as a causative in some uses can be seen in the fact that it can now be used with verbs already containing another means/manner prefix.

- (29) Evidence of reanalysis: co-occurrence with other manner prefixes

yunáči
yu-na-či
 causative-on.foot-be.stiff
 'lift up'

Similar developments of causative prefixes from earlier means/manner prefixes in head-final (OV) languages are discussed in Mithun (2002). The existence of both causative prefixes and causative suffixes within the same language shows again that a full explanation of affix positions will ultimately require exploration of the complete range of possible histories of each kind of grammatical marker.

7. Applicatives

Many languages contain derivational affixes called 'applicatives' that add a core argument to the argument structure of verbs. The most common kinds of applicatives add a recipient or beneficiary ('cook' > 'cook-for'), an instrument ('write' > 'write-with'), a companion ('sing' > 'sing-with'), or a location ('jump' > 'jump-over'). The added participant is usually a direct object, absolutive, or grammatical patient. Examples of applicative suffixes can be seen in the Iroquoian languages of eastern North America. Among the applicatives in Mohawk, for example, are the benefactive applicative suffixes *-awi* and *-ni*.

- (30) Mohawk benefactive applicative suffixes

(a) wakenatahré:nen	rinatahrená:wi
wake-natahren-en	ri-natahren- <u>awi</u>
1.sg.patient-visit-stative	1.sg/m.sg-visit- <u>ben</u> .stative
'I've visited'	'I've visited <u>him</u> '
(b) khthárha'	rihthará:ni
k-lthar-ha'	ri-lthar-a- <u>ni</u>
1.sg.agent-talk-imprf	1.sg/m.sg-talk-ep- <u>ben</u> .imprf
'I'm talking'	'I'm talking <u>to him</u> '

The origins of both of these applicative suffixes can be seen in verb roots which still survive in the language: *-awi* 'give' and *-ni* 'lend'.

- (31) Lexical sources of Mohawk applicatives: verb root
- awi*
- 'give',
- ni*
- 'lend'

(a) koniá:wihs	koniá:wi
koni- <u>awi</u> -hs	koni- <u>awi</u>
1.sg/2.sg-give-imperfective	1.sg/2.sg-give.stative
'I give it to you'	'I've given it to you'

- | | |
|---|---|
| (b) <u>tá</u> keni
take- <u>ni</u>
2.sg/1.sg- <u>lend</u>
'Lend it to me!' | waha <u>ke</u> ni'
wa-hake- <u>ni</u> -'
factual-m.sg/2.sg- <u>lend</u> -prf
'He <u>lent</u> it to me' |
|---|---|

Modern Mohawk does not have a syntactically-defined constituent order. The order of words in sentences reflects their pragmatic status within the discourse rather than their grammatical role. A basic SOV order can be reconstructed for the ancestral language, however. The Mohawk applicatives, like those of related languages, are descended from the matrix verbs of complex sentences. Since matrix verbs usually follow their complements in languages with head-final (OV) syntactic patterns, it is no surprise that the applicatives are suffixes.

Navajo contains numerous applicative affixes. Given the strong head-final (OV) syntactic patterns of both Navajo and its ancestor, and the recognized development of applicatives from matrix verbs, there is every reason to expect that the Navajo applicatives should be suffixes. But again, Navajo runs counter to expectation. All applicatives are prefixes. One example is the locative applicative prefix *k'i-* 'on'. Added to the intransitive verb root 'gaze', it forms the transitive verb 'gaze on' > 'watch'.

(32) Navajo -'íí 'gaze' with applicative *k'i-* 'on': Dolly Soulé, speaker p.c.

-'íí 'gaze' k'i-'íí 'on-gaze' > 'watch'

- (a) Nléígo desh'íí'.
nléí=go de-sh-'íí'
yonder=to thematic-1.sg.subject-gaze.imperfective
'I'm just gazing over there.'
- (b) Awéé' bik'idésh'íí'.
awéé' bi-k'i-dé-sh-'íí'
baby 3-on-thematic-1.sg.subject-gaze.imperfective
'I'm watching the baby.'

Added to the intransitive verb 'run' (actually based on a root meaning 'flex', referring to the flexing of legs) the applicative derives the transitive verb 'run on' > 'attack'.

(33) Navajo -wod 'run' with applicative *k'i-* 'on': Dolly Soulé, speaker p.c.

-wod 'run' -k'i-wod 'on-run' > 'attack'

- (a) Eelwod.
ee-Ø-l-wod
completive-3.subject-detransitivizer-run.perfective
'It ran.'

- (b) Náshdóitsoh shik'iilwod.
 náshdoi-tsoh shi-k'i-i- \emptyset -l-wod
 wildcat-big me-upon-completive-3.subject-detransitivizer-run.prf
 'A mountain lion attacked me.'

Again a consideration of the diachronic development of the markers provides an explanation. They evolved from separate words that occurred before the verb, postpositions with pronominal prefixes representing their arguments. The language still contains a large inventory of postpositions. Some of these show suggestive resemblances in form and meaning to applicative prefixes.

- (34) Postposition origin of Navajo applicatives: Dolly Soulé, speaker p.c.

Shik'i de' dahníyeeh
 shi-k'i de' dah- \emptyset -ni-yeeh
 me-on hither up-3.object-2.sg.subject-handle.burden.imprf
 'Put it on me' = 'Put it (a heavy sack of potatoes) up on my back.'

The direction of the evolution from postposition to applicative prefix is clear. Where the postposition sources of modern applicative prefixes still persist in the language, they are often more substantial in form. One can compare, for example, the postposition -'aq 'over' with the prefix -'q-, or the postposition -lááh 'beyond' with the prefix -lá-. The development of the prefixes has been accompanied by phonological attrition.

8. Headedness

We have seen a number of failures of the hypothesized match between suffixes with head-final (OV) syntax, and there are many more. It is not unlikely that observed cross-category harmony is more often an artifact of regular processes of language change than the product of a synchronic force. We might find, as proposed by Givón, that affixes are descended from syntactic heads, but that if syntactic structure shifts, it may no longer coincide with morphological structure. But can we be certain that affixes always develop from syntactic heads? In fact they do not. Both prefixes and suffixes can develop in a language from the same construction.

The ancestor of Kawaiisu, Proto-Uto-Aztecan, is reconstructed with basic head-final (OV) syntax, which has been passed down to most of its daughters. Both the parent and the daughters show extensive compounding of various kinds. The compounds, like the syntax, would be considered right-headed (head-final) by all accounts.

(35) Kawaiisu right-headed compounds: Zigmond et al. (1991)

sana- [?] oocozi	pitch-bottle	'pitch bottle'
cjga-roci	rough-head	'tangle-haired'
hi [?] i-kama-	be.good-taste	'to taste good'
mo [?] o-zjgi-	hand-wash	'to wash one's hands'
[?] ataasiniya-kwee-	slowly-go	'to go slowly'
nazipi-kwee-	urinate-go	'to go to the bathroom'

Some suffixes have indeed developed from the heads of such compounds, the right-hand members. As seen earlier, the directional suffix *-kwee* developed from a verb root which still persists as such in the language.

(36) Root *kwee* 'go': Zigmond et al. (1991, 83)

Hana [?] oko samamj ko-kwee-dj-mj [?]	
when they	reduplication-go-realized-indicative-pl
'When did they <u>go</u> ?'	

It also appears as the right-hand member, or head, of verb-verb compounds. From constructions of this type ('crawling-go') it has been reinterpreted as a directional suffix *away*.

(37) *-kwee* 'away': Zigmond et al. (1991, 100)

Togowa	čirjwi-kwee-dj	kahni-rukwa
rattlesnake	crawl- <u>away</u> -indicative	house-under
'The rattlesnake is crawling <u>away</u> under the house.'		

It is in paradigmatic opposition to the cislocative suffix *-ki* 'hither, toward', which exists only as a suffix in modern Kawaiisu.

(38) Translocative suffix *-kwee* 'away': Zigmond et al. (1991)

[?] jga-	'enter'
[?] jga-kwee-	'go in'
yaa-	'carry one object'
yaa-kwee-	'take one object'
hu [?] ma-	'carry several objects'
hu [?] ma-kwee-	'take several objects'

The translocative has in turn given birth to another suffix with slightly more abstract meaning, an inchoative with the meaning 'become'. Added to the verb 'be loose', for example, it derives the verb 'come loose', or 'loosen'.

(39) Inchoative suffix *-kwee*: Zigmond et al. (1991)

hayjmi-	'to be loose'	hayjmi- <u>kwee</u> -	'get loose'
ʔipii	'to sleep'	ʔipii- <u>kwee</u> -	'go to sleep'
hja-ye-e	'to be aged, elderly'	hja-yeʔe- <u>kwee</u> -	'get old, to age'
cabi-	'to smash, dent'	caba- <u>kwee</u> -	'go flat (of a tire)'

It has also come to be used as a resultative. Added to the verb 'break', it yields 'broken'.

(40) Resultative suffix *-kwee*: Zigmond et al. (1991, 97)

kokapi- <u>kwee</u> -dj	ʔuusu pogo-wa=ika.
break.mom- <u>resultative</u> -indicative	already branch-possessed=its
'The tree limb is broken off.'	

The verb root *kwee* 'go' has thus evolved, in its position as the right-hand member or head of verb-verb compounds, from a root to a translocative suffix 'thither, away' then to an inchoative and resultative. The counterpart of the translocative suffix, the cislocative suffix *-ki* 'hither', can be traced to a different verb root **kim* 'come' that apparently appeared in the same head position of compounds. This root no longer survives as such in Kawaiisu, but it is reconstructed for Proto-Uto-Aztecan. The cislocative suffix has in turn evolved still further into another kind of aspect marker, a durative. Similarly, a third Kawaiisu directional suffix *-mi* 'along' can be traced to a Proto-Uto-Aztecan verb root **mi* 'walk' which has not survived as such in Kawaiisu. The Kawaiisu suffix *-mi* has also evolved further into an aspect marker, a habitual. There is thus robust evidence in Kawaiisu of the heads of verb-verb compounds, the word-final roots, evolving into suffixes serving a variety of functions.

But that is not the whole story for Kawaiisu. The very same root-root compound structures that gave rise to suffixes also gave rise to prefixes. Among the verbs that can occur in the initial, non-head position of compounds is a root *ʔaaga* 'be stealthy'.

(41) Kawaiisu *ʔaaga* 'be stealthy': Zigmond et al. (1991, 79)

- (a) sjnaʔa-vi ʔaaga-luʔiʔa-n-pigadi=ina
 Coyote-abs be.stealthy-look-momentaneous-perfective=him
 'Coyote stealthily peeked at him.'
- (b) ʔaaga-ʔabigi-
be.stealthy-talk
 'whisper'

This non-head root has given rise to a prefix *ʔaa-* 'quietly, stealthily'.

(42) Prefix *ʔaa-* ‘quietly, stealthily’: Zigmond et al. (1991, 79)

- (a) Neeziči kardj.
 girl sit
 ‘The girl is sitting.’
- (b) Neeziči *ʔaa-garj*dj.
 girl quietly-sit
 ‘The girl is sitting quietly.’

Kawaiisu, like other Uto-Aztecan languages, shows both additional prefixes and additional suffixes descended from the same compound constructions. Similar examples from Salishan languages are discussed in Mithun (1997). It is thus clear that headedness does not determine which roots will become affixes: both the heads and the dependents of compounds can evolve into affixes. Other factors must enter into the formation of prefixes and suffixes. One of these factors can be surmised from the Kawaiisu examples just seen, a factor that has been recognized for some time. This is generality of meaning. Verbs with general meanings like *go* and *come* will appear in large numbers of compounds, setting the scene for grammatical evolution.

9. Frequency

The generality of meaning of verbs like ‘go’ and ‘come’ ensures that they are likely to be used more often than verbs like ‘smash’ and ‘sleep’. As discussed at length by Bybee–Hopper (2001), a crucial factor which enters into the formation of affixes from roots is frequency of use. The role of frequency is illustrated in an interesting way in Choctaw, a language of the Muskogean family of Alabama, Mississippi, and Oklahoma, in the southern United States.

Choctaw verbs contain pronominal affixes referring to the core arguments of clauses. Grammatical agents, patients, and datives are represented. Third persons are zero. The forms of the affixes can be seen below.

(43) Choctaw pronominal affixes (Muskogean family): Ulrich (1986)

	AGENTS	PATIENTS	DATIVES
1.sg	-li	sa-	sam-
2.sg	i ² -	či-	čim-
1.pl	il-	pi-	pim-
2.pl	ha ² -	hači-	hačim-

Normally paradigmatic sets of markers all appear in the same area of the grammar. The Choctaw pronominal affixes show a surprising arrangement. All of them are prefixes except for one, the first person singular agent *-li*.

- (44) Choctaw first and second person pronominal affixes: Ulrich (1986)

písalitok	saillaači
pisa- <u>li</u> -tok	sa-illi-a:či
see-1.sg.agent-past	1.sg.patient-die-future
'I saw it'	'I am going to die'
issassotok	čiča:ha
is-sa-sso-tok	či-čaaha
2.sg.agent-1.sg.patient-hit-past	2.sg.patient-be.tall
'You hit me'	'You're tall'

Once again, the surprising positions of the affixes can be explained by investigating the events that led up to their development, this time observing the role of frequency in use. The parent language Proto-Muskogean, like the modern daughter languages, contained auxiliaries. As would be consistent with basic head-final (SOV) constituent order, the auxiliaries followed the content verb in sentences. The auxiliaries were presumably descended from higher verbs. In modern Choctaw some of these auxiliaries have evolved into verbal suffixes. The Choctaw past tense suffix *-tok*, visible above in 'I saw it' and 'you hit me' for example, apparently developed from an auxiliary which itself developed from a Proto-Muskogean verb **tah* 'finish, complete'. This verb also survives as an independent verb root in modern Choctaw.

- (45) Choctaw verb
- tah*
- 'finish': Jacob et al. 1977 cited in Booker (1980, 138)

nípi ba ² -li-t	i ² -tah-li-tok	q.
meat cut-active-same.subject	2.sg.agent-finish-active-past q	
'Did you finish cutting the meat?'		

Third person pronominal affixes are usually zero in the Muskogean languages. There was thus often no overt pronominal prefix on either verb in complex sentences with the matrix verb 'finish'. As the construction became tighter, and the 'finish' verb developed into an auxiliary, it would be easy for learners to reanalyze the position of the pronominal prefixes, when they did occur, from before the verb to before the verb phrase. In most cases the two analyses would yield the same result. But first person singular agent prefixes were probably considerably more frequent in daily conversation than plurals or second persons. For the most part, inflected verbs, and especially inflected auxiliaries, would not be assembled online as speakers spoke, but rather remembered and selected as units. The first person agent prefix was apparently so firmly attached to the auxiliaries that it remained there after the auxiliary had evolved into a tense suffix. The result is a surprising paradigm, in which only the first person singular agent reflects the earlier order of morphemes. The only explanation for its position is frequency of use.

10. Conclusion

The search for explanations of the suffixing preference has resulted in a diverse set of hypotheses about the forces that shape grammars. Many are couched in terms of synchronic advantages, such as the cognitive simplicity of cross-category harmony, and the efficiency of processing lexical material before grammatical material. Certain issues remain unresolved in these accounts, however. A compelling definition of the notion 'head' in morphology has not yet been established. The extent to which laboratory experiments on lexical recognition accurately model language processing in context remains to be demonstrated. They also leave numerous unexplained exceptions, even when considered together.

But hypotheses about functional advantages cannot constitute explanations in themselves, without accounts of the mechanisms by which the advantages are translated into grammatical structure. If we hope to explain why grammatical structures take the shapes they do, it makes sense to unpack the steps by which they come into being.

Very often the position of affixes within words simply continues the syntactic position of the lexical items from which they are descended. But the development of affixes is often more than a simple process of formal fusion. In order to explain the position of individual affixes, we first need to identify their sources. In some cases this is straightforward, because their functions have remained little changed. Independent subject and object pronouns may develop into pronominal affixes, for example, as apparently happened in Navajo and Halkomelem. In many cases, however, the path of development is less straightforward. Sometimes the sources of pronominal subject prefixes were not independent subject pronouns at all. In a number of languages, including some of the Salishan languages seen here, they originated as possessive prefixes on nominalized clauses.

The formal evolution from independent word to affix is typically accompanied by functional change. Navajo and Kawaiisu directional adverbs were seen to evolve first into directional affixes and then into aspect markers. A single lexical source may spawn a variety of grammatical markers. The Bella Coola root 'be located, stay', for example, has yielded both a locative preposition and an aspect prefix. Some kinds of affixes may develop from any one of several kinds of sources. The Bella Coola causative prefix developed from a verb root 'make', while the Lakhota causative prefix developed from a means/manner prefix 'by hand'. Causatives from both kinds of sources may even coexist within a single language, as in Lakhota. The Mohawk applica-

tives have developed from matrix verb roots, while the Navajo applicatives have developed from postpositions. The relative timing of particular functional and formal changes may vary. Lexical roots may develop first into independent grammatical words, such as auxiliaries, adverbs, or adpositions, before they fuse with hosts to become affixes, like the Navajo directional prefixes. Alternatively, roots may first fuse with other roots in compounds, then undergo the functional abstraction and phonological reduction that make them into grammatical affixes, as seen in Kawaiisu directional suffixes. So far most careful studies of suffixing preferences have involved a very limited inventory of inflectional categories.

The case for cross-category harmony as a motivating force behind the patterns we find might be strengthened if historical language changes were identified whereby prefixes shifted position, hopping over stems to suffix position, in response to a syntactic shift to head-final clause structure. So far, however, such situations are not well known. In Navajo we saw the creation of verbal prefixes from postpositions, but there was no shift in order. The postpositions, along with their pronominal object prefixes, simply fused with the verbs that immediately followed them: baby it-on gaze > baby it-on-gaze 'She is watching the baby'. In Choctaw we saw a first person singular pronominal suffix that developed from a prefix, but the marker itself never actually moved.

Without an awareness of the individual histories of affixes, attempts at general explanations for their positions are bound to fail much of the time. But generalizations are not impossible. Some of the seemingly idiosyncratic developments seen here reflect deeper, general principles. The development of adverbial prefixes and adverbial suffixes in Kawaiisu from different members of the same compound construction shows that headedness does not determine which roots will develop into affixes. But the same development suggests that semantic generality and frequency in speech might. The frequency factor has also shaped the Choctaw pronominal affix paradigm in a complex way, resulting in pronominal prefixes for the entire paradigm except for the first person agents. Explanations of both the observed suffixing preference and the occurrence of prefixes are surely not beyond our grasp. Our generalizations will suffer, however, if we fail to take into account the individual histories of the affixes we are seeking to describe.

Abbreviations

abs	absolute	mom	momentaneous
adv	adverbializer	obj	object
cmpl	completive	pl	plural
cont	continuative	prf	perfective
detr	detransitivizer	prog	progressive
distr	distributive	q	question
du	dual	sg	singular
dur	durative	sub	subordinate
ep	epenthetic vowel	subj	subject
imprf	imperfective	term	terminative
m	masculine	tr	transitivizer

References

- Bauer, Laurie 1990. Be-heading the word. *Journal of Linguistics* 26: 1-31.
- Boas, Franz – Ella Deloria 1941. *Dakota grammar*. *Memoirs of the National Academy of Sciences* 23.2. U.S. Government Printing Office, Washington D.C.
- Booker, Karen 1980. *Comparative Muskogean: aspects of Proto-Muskogean verb morphology*. 1980, University of Kansas.
- Buechel, Eugene 1970. *A dictionary of the Teton Dakota Sioux language*. Red Cloud Indian School and Holy Rosary Mission, Pine Ridge SD.
- Bybee, Joan 1988. The diachronic dimension in explanation. In: Hawkins (1988a, 350-79).
- Bybee, Joan – Paul Hopper 2001. Introduction. In: Joan Bybee – Paul Hopper (eds) *Frequency and the emergence of linguistic structure*, 1-26. John Benjamins, Amsterdam.
- Bybee, Joan – William Pagliuca – Revere Perkins 1990. On the asymmetries in the affixation of grammatical material. In: William Croft – Keith Denning – Suzanne Kemmer (eds) *Studies in typology and diachrony*, 1-39. John Benjamins, Amsterdam & Philadelphia.
- Corbett, Greville - Norman Fraser – Scott McGlashan 1993. *Heads in grammatical theory*. Cambridge University Press, Cambridge.
- Cutler, Anne – John A. Hawkins – Gary Gilligan 1985. The suffixing preference: a processing explanation. In: *Linguistics* 23: 723-58.
- Galloway, Brent 1993. *A grammar of Upriver Halkomelem*. *University of California Publications in Linguistics* 96. University of California, Berkeley CA.
- Givón, Talmy 1971. Historical syntax and synchronic morphology: an archaeologist's field trip. In: *Proceedings of the Chicago Linguistics Society* 7: 394-415.
- Givón, Talmy 1979. *On understanding grammar*. Academic Press, New York.
- Givón, Talmy 1984. *Syntax: a functional-typological introduction*. John Benjamins, Amsterdam.
- Greenberg, Joseph H. 1957. Order of affixing: a study in general linguistics. In: Joseph H. Greenberg (ed.) *Essays in general linguistics*, 86-94. University of Chicago, Chicago.

- Greenberg, Joseph H. 1963. Some universals of grammar with particular reference to the order of meaningful elements. In: Joseph H. Greenberg (ed.) *Universals of language*, 73-113. MIT Press, Cambridge MA.
- Greenberg, Joseph H. 1966. *Language universals, with special reference to feature hierarchies*. Janua Linguarum, Series Minor 59. Mouton de Gruyter, Berlin & New York.
- Hall, Christopher J. 1988. Integrating diachronic and processing principles in explaining the suffixing preference. In: Hawkins (1988a, 321-49).
- Hall, Christopher J. 1992. *Morphology and mind*. Routledge, London.
- Hawkins, John (ed.) 1988a. *Explaining language universals*. Blackwell, Cambridge MA & Oxford.
- Hawkins, John 1988b. On explaining some right-left asymmetries in syntactic and morphological universals. In: Michael Hammond - Edith Moravcsik - Jessica Wirth (eds) *Studies in syntactic typology*, 321-57. John Benjamins, Amsterdam & Philadelphia.
- Hawkins, John - Anne Cutler 1988. Psycholinguistic factors in morphological asymmetry. In: Hawkins (1988a, 280-317).
- Hawkins, John - Gary Gilligan 1988. Prefixing and suffixing universals in relation to basic word order. In: *Lingua* 74: 219-59.
- Hudson, Richard 1987. Zwicky on heads. *Journal of Linguistics* 23: 109-32.
- Kroeber, Paul 1999. *The Salish language family*. University of Nebraska Press, Lincoln.
- Lehmann, Winfred 1978. English: a characteristic SVO language. In: Winfred Lehmann (ed.) *Syntactic typology: studies in the phenomenology of language*, 169-222. University of Texas Press, Austin TX.
- Miller, Wick 1987. Computerized database for Uto-Aztecan cognate sets. Manuscript.
- Mithun, Marianne 1997. Lexical affixes and morphological typology. In: John Haiman - Joan Bybee - Sandra Thompson (eds) *Essays on language function and language type*, 357-72. John Benjamins, Amsterdam.
- Mithun, Marianne 2002. An invisible hand at the root of causation: the role of lexicalization in the grammaticalization of causatives. In: Ilse Wischer - Gabriele Diewald (eds) *New reflections on grammaticalization*, 237-57. John Benjamins, Amsterdam.
- Nater, Henk 1984. *The Bella Coola language*. Mercury Series Canadian Ethnology Service Paper 92. National Museums of Canada, Ottawa.
- Nater, Henk 1990. *A concise Nuxalk-English dictionary*. Mercury Series Canadian Ethnology Paper 115. Canadian Museum of Civilization, Ottawa.
- Rice, Keren 2000. *Morpheme order and semantic scope: word formation in the Athapaskan verb*. Cambridge University Press, Cambridge.
- Sapir, Edward 1921. *Language*. Harcourt, Brace, and World, New York.
- Scalise, Sergio 1988. The notion of 'head' in morphology. In: *Yearbook of Morphology* 1: 229-45.
- Selkirk, Elizabeth O. 1982. *The syntax of words*. MIT Press, Cambridge MA.
- Ulrich, Charles 1986. *Choctaw morphophonology*. Ph.D. dissertation, UCLA.
- Venneman, Theo 1973. Explanation in syntax. In: *Syntax and Semantics* 2: 1-50.
- Venneman, Theo 1974. Analogy in generative grammar, the origin of word order. In: Luigi Heilmann (ed.) *Proceedings of the Eleventh International Congress of Linguists*, 79-83. Il Mulino, Bologna.

- Williams, Edwin 1981. On the notions 'lexically related' and 'head of a word'. In: *Linguistic Inquiry* 12: 245-74.
- Young, Robert W. 2000. *The Navajo verb system: an overview*. University of New Mexico Press, Albuquerque.
- Young, Robert W. – William Morgan 1987. *The Navajo language*. University of New Mexico Press, Albuquerque.
- Zigmond, Maurice – Curtis Booth – Pamela Munro 1991. *Kawaiisu: a grammar and dictionary with texts*. University of California Publications in Linguistics 119. University of California, Berkeley CA.
- Zwicky, Arnold M. 1985. Heads. In: *Journal of Linguistics* 21: 1-29.

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DERIVED CHANGE-OF-STATE VERBS IN FRENCH:
A CASE OF SEMANTIC EQUIVALENCE BETWEEN PREFIXES
AND SUFFIXES*

CORALIE ROGER

Abstract

The paper reports on work carried out within Corbin's associative morphological model which postulates that form and meaning are deducible from one another. It is assumed that in French there is a neat semantic distribution between prefixes and suffixes because each affix is specified by its semantic instructional identity. If this is the case, then the affixes *a-*, *en-*, *é-* and *-is(er)*, *-ifi(er)* seem to constitute exceptions and represent semantic equivalence because each of them constructs deadjectival change of state verbs. In order to explain this apparent discrepancy, it is proposed here that the notion of "paradigm of morphological processes" is to be abandoned when characterizing the semantic scope of a rule and we should adopt the principle that one and only one affix corresponds to one and only one word formation rule.

1. Introduction

1.1. Theoretical framework

This paper reports on work carried out within the framework of Corbin's associative morphological model which postulates that form and meaning are deducible from one another.

With respect to the differences between prefixes and suffixes, it is assumed in Corbin (1999, 71) that "in a language like French, the global semantic distribution between prefixes and suffixes is quite clear". According to her, prefixes are devoted to expressing temporal and spatial relations, negation, deprivation and opposition, as well as quantification, whereas suffixes are used for notions like setting into relation, evaluation, collectivization, denomination of a process, denomination of a property, denomination of a state and denomination of an argument of the process like agent or instrument.

* This article is a quite modified version of a talk given at the 10th International Morphology Meeting, Budapest, in May 2002. I thank C. Lesselingue for her help with the English and G. Dal for useful discussions.

1.2. Data

This semantic repartition between prefixes and suffixes suggests that prefixes and suffixes cannot compete with one another. But, if this is so, then the case of French derived change-of-state verbs is problematic: actually, those verbs are constructed both with prefixes and suffixes. For instance, *appauvrir* ‘to impoverish’, *allonger* ‘to lengthen’, *enlaidir* ‘to make ugly’, *enivrer* ‘to make drunk’, *écourter* ‘to shorten’, *élargir* ‘to widen’ are prefixed verbs whereas verbs like *imperméabiliser* ‘to waterproof’, *moderniser* ‘to modernise’, *solidifier* ‘to solidify’, *rigidifier* ‘to make rigid’ are suffixed ones. It is worth noting that Corbin does not mention these affixes in her article.

1.3. The problem

The question arises whether the affixes *a-*, *é-*, *en-* and *-is(er)*, *-ifi(er)* operate within one Word Formation Rule (WFR) and constitute purely and simply an exception to the assumption of a neat semantic repartition between prefixes and suffixes¹ or whether it is worth reconsidering them from another point of view in order to reassert the associative dimension of the model by stating that one meaning cannot be expressed by several forms.

Here, I will adopt the second position. First I will try to show the inadequacy of the traditional analysis of these affixal processes in terms of ‘affixes constructing adjective-based change-of-state verbs’, secondly I will propose an alternative analysis and thirdly, I discuss the theoretical consequences of my proposition.

2. Against the traditional analysis of these affixal processes

What I mean by “traditional analysis” is the first stage of Corbin’s model. From (1987) to at least (1991), a WFR is defined:

- first by a very general meaning (change of state, relation, action) which is closely dependent upon a rigid structural frame (according to the base

¹ We find this analysis for instance in Temple (1996, 298): “La RCM qui construit des verbes de changement d’état en français est un exemple de règle disposant d’un PM (paradigme morphologique, C.R.) étendu. Celui-ci comprend trois procédés morphologiques: la conversion (*valid(er)*), la préfixation (*appauvr(ir)*) et la suffixation (*modernis(er)*), la préfixation et la suffixation pouvant être réalisées au moyen de plusieurs affixes (cf. *appauvrir/enrichir; moderniser/purifier*)”.

categorial unicity principle, only one category of bases can be selected by a given affix which constructs only one category of words)

- secondly by all the morphological processes (which constitute the morphological paradigm² of the WFR) which suit this semantico-structural definition.

Thus, in Corbin (1987), the affixes *a-*, *en-*, *é-*, *is(er)* and *-ifi(er)* are gathered into a paradigm of morphological processes which depend on one WFR of 'change-of-state verbs' because they all construct adjective-based verbs whose semantic interpretation is 'make (more) Adj.'. I think such an analysis does not fit in with the principle of associativity since meaning appears to take precedence over forms.

My claim is that both the structural and the semantic analysis is somewhat wrong. I will start with the semantic issue and I will give some arguments against the traditional way of designating the semantic contribution of those affixes only as the construction of adjective-based change-of-state verbs.

2.1. Against the traditional way of designating those affixes as change-of-state verb forming affixes

My aim is to show that the semantic characterization of those affixes in terms of 'change of state' is not satisfactory because this semantic notion it is not contributed by them.

I do not deny the fact that verbs affixed by *a-*, *en-*, *é-*, *-is(er)* or *-ifi(er)* are change of state verbs, I only claim that this semantic characterization is not satisfactory because it is not a morphologically distinctive one within an associative model.

Actually, I consider that the general meaning 'change-of-state' is the one and only interpretation allowed by the categorial relation $A > V$. Thus, we find it associated with verbs suffixed by *-oy(er)* like *rougeoyer* 'to glow red' as well as with converted verbs like *mûrir* 'to ripen'. Indeed, the notion of change can be associated with that of dynamicity. This means that adjective-based verbs never carry a non-dynamic feature and so, they cannot be state verbs, in the terms of Vendler (1967). Anyway, it seems hard to imagine a morphological process of verbalization devoted to the construction of state

² The notion of morphological paradigm of a WFR must not be understood the same way as what Bauer (1996) calls a derivational paradigm (like, for instance, the derivational paradigm of the word *nation* is {*nation*, *national*, *nationaliste*, *nationalité*, *nationaliser*, *nationalement*}) or be confused with inflexional paradigms (conjugation or declension).

verbs: so, we can suppose that it is the status of derived verbs itself that restricts the possible range of interpretations.

I think the precise semantic content associated with this kind of change is due to the presence of the adjective in the structure of the verb. Adjectives can only refer to qualities or states whereas nouns have larger referential diversity and can denote places, artefacts, human beings, substances and so on. That is why, when the base of the verb is a noun, the kinds of changes involved are more diversified. For instance, denominal verbs suffixed by *-is(er)* allow for several interpretations: Plag (1999) identifies locative, ornative, resultative, inchoative, performative, and similitive interpretations.

To sum up, in the lexicon, there is a class of verbs which refer to a change of state and this fact goes beyond the bounds of morphologically constructed meaning: some simple verbs (like *casser* 'to break') are also change-of-state verbs. It turns out that the semantic properties of the grammatical categories involved in deadjectival verbalisation are such that adjective-based verbs refer to a change-of-state process whatever affixes you find in them. We can note that verbs constructed with other affixes and showing other categorial relations than those considered here can also be said to be 'change-of-state verbs': for example, the notion of invalidation induced by verbs constructed with the prefix *dé-* (like *décoiffer* 'to disarrange somebody's hair') or *décoincer* 'to unjam, loosen' also have something to do with the notion of 'change of state'.

Faced with this abundance of 'sorts of change-of-state verbs', it is hard to maintain the claim that this semantic characterization is contributed by the affixes *a-*, *en-*, *é-*, *-is(er)*, *-ifi(er)*.

But, even if I may have shown that those derived verbs should not be semantically identified as 'change-of-state verbs', I am not yet able to provide another semantic analysis for them. My hypothesis is that this might be due to the fact that only adjective-based data were taken into account and that noun-based data were excluded. So, I will now provide some arguments against an adjective-based verb restriction.

2.2. Against an adjective-based verb restriction

2.2.1. Theoretical argument

Theoretically speaking, we can notice some changes in Corbin's model over time: if a WFR is always defined by the association between a certain structure and a certain meaning, in Corbin (1987) it is assumed that structures are characterized by base categorial unicity whereas this hypothesis is clearly

abandoned in Corbin (1997) to be replaced by the notion of a certain semantic unicity among bases.

2.2.2. Factual evidence

2.2.2.1. Generality of the double structure

Empirically, we have some reasons to include noun-based verbs in our research: the first reason is the general nature of the double structure phenomenon which concerns every affixal process studied as can be seen in Table 1: all these affixes construct both noun-based and adjective-based verbs.³

Table 1

	a-	en-	é-	-is(er)	-ifi(er)
NOUN-BASED VERBS	acculturer	endimancher	émietter	hospitaliser	panifier
ADJECTIVE-BASED VERBS	amincir	empirer	élargir	moderniser	fortifier

Then, if we consider that denominal data are not constructed by the same affixes as deadjectival ones, this entails that we analyse each affix operating on nouns as homophonous with the affix operating on adjectives. The observed regularity of the phenomenon seems to be incompatible with the accidental nature that characterizes homophony in general.

2.2.2.2. Difficulty in identifying the category of the base

In quite a large number of cases, it turns out to be rather difficult to decide whether a verb is noun-based or adjective-based. This is particularly the case for verbs derived with *-is(er)*. For instance, how should we interpret a verb like *ironiser*: is it paraphrasable as *se montrer ironique* 'to be ironical' or as *pratiquer l'ironie* 'to use irony'?

Nevertheless, I do not adopt Plag's position that is in favour of an output oriented model in which "the syntactic category of the base is underspecified" (1999, 122). I only wish to emphasize that this difficulty in identifying the category of the base suggests that denominal and deadjectival constructions

³ Glosses: *acculturer* (intégrer dans une nouvelle culture) 'to integrate into a new culture', *amincir* (rendre (plus) mince) 'to thin', *endimancher* (mettre ses habits du dimanche) 'to put on one's Sunday best', *empirer* (devenir pire) 'to get worse', *émietter* (mettre en miettes) 'to crumble', *élargir* (rendre (plus) large) 'to widen', *hospitaliser* (mettre dans un hôpital) 'to hospitalize', *moderniser* (rendre (plus) moderne) 'to modernize', *panifier* (transformer en pain) 'to make bread from', *fortifier* (rendre (plus) fort) 'to fortify'.

are in such a semantically close relationship that it can be assumed that they are constructed by the same rule and involve the same affix.

2.3. Summary

None of the facts presented is sufficient in itself for us to draw any firm conclusion about whether the prefixes *a-*, *en-*, *é-* and the suffixes *-is(er)* and *-ifi(er)* are semantically equivalent or not and how they eventually differ. They only show that their descriptions must be improved.

But the congruence of these facts leads us to the following supposition: if adjective-based data appear not to allow affixal semantic individuality to be easily apprehended, this may be explained by the fact that they constitute the central cases and that we must also examine denominal data in detail.

3. An alternative to the traditional analysis

3.1. Introductory remarks

3.1.1. The “one affix = one rule” hypothesis

The analyses of the affixes *a-*, *en-*, *é-*, *-is(er)* and *-ifier* I will propose mainly rest on the dismissal of the very general meanings that justified the existence of morphological paradigms in favour of an interest in affixal semantic individualization.⁴

Those proposed analyses about each affix plainly enforce the principle of associativity between form and meaning. The notion of morphological paradigm implies a kind of imbalance between affixal forms and affixal semantic roles since:

- on the one hand, if one affixal form exhibits “several meanings”, then this form would be analyzed as a case of affixal homonymy;
- and on the other hand, if one meaning seems to be supported by several affixes, these affixes would be analyzed as synonymous affixes.

⁴ To illustrate this remark, let me emphasize the fact that, without calling into question the notion of paradigm itself, it is assumed by Corbin and others that this kind of gathering morphological processes into a paradigm glosses the semantic individuality of affixes which should be studied much more thoroughly (see, for instance, Corbin Temple 1995).

Here, my claim is that when dealing with several forms, the hypothesis that has to be made is that these affixes have several meanings.

3.1.2. What method for what results?

In Corbin's model, affixes differ from lexical units by the fact that affixes have instructional meanings while lexical units have referential ones.

Because of the absence—to my knowledge—of a typology of what the pertinent meanings associated with affixal semantics are, the results must be understood as intermediate between the current analysis in terms of 'change of state' and real instructional meanings we wish to identify. The analyses I propose are based both on contemporary work taking place in other frameworks than the one retained in this paper and on a direct examination of the various verb corpora (with an examination of cases of doublets, considerations about the referential domains of the bases, productivity, production of neologisms and taking into account of the context, etc.) and introspection in order to synthesize all these pieces of information.

3.2. Some results

3.2.1. About the suffixes *-is(er)* and *-ifi(er)*

3.2.1.1. Hypothesis about the semantic role of each suffix

I will define the semantic scope of the rule to which they belong in terms of "assignment of properties" of the base word to one of the arguments of the constructed verbs:

- assignment of one or a subset of the properties of the base-word referent to the referent of one argument of the constructed verb in the case of *-is(er)* suffixation,
- assignment of the whole of the properties of the referent of the base-word to the referent of one argument of the constructed verb in the case of *-ifi(er)* constructions.

3.2.1.2. Argument

If my hypothesis is valid, then it can explain why *-is(er)* and *-ifi(er)* select different types of bases.

As a crucial example, let me emphasize the fact that only *-is(er)* selects proper nouns as bases (for example in *maoser*, *platoniser*, *wagnériser*). I think that this fact constitutes an argument supporting my hypothesis about the

semantic specialization of, respectively, *-is(er)* and *-ifi(er)* especially since this structure is really very productive in synchrony: one can find numerous neologisms in the newspapers (I noted the following verbs, among others, with politicians' names as bases: *arlettiser*, *balladuriser*, *bernadette-chiraquiser*, *douste-blaziser*, *hueïser*, *le péniser*, *pasquaïser*, *mégrétiser*, *tibériser*, *voynétiser*).

Indeed, probably for pragmatic reasons, persons' names seem to be compatible only with one type of meaning, the one which is associated with *-is(er)* suffixation: NP-*is(er)* verbs mean that one argument of the verb shows one property of the NP such as the way of thinking, the way of writing, the way of singing, or whatever; with *-ifi(er)*, the meaning should be a 'real conversion into NP' and it is just not conceptualizable.

Compare this with the fact that *-ifier* selects among its bases nouns of physicochemical elements. One can conceptualize a conversion 'for real' of one of these elements into another one: for instance *spathifier* 'to transform organic element into stony matter', or *éthérifier* 'to transform alcohol into ether'.

It is also noteworthy that *-ifi(er)* selects simple—morphologically simple and semantically simple—adjectives as bases: that is, adjectives referring to objective, material, concrete properties as in *rigidifier* 'to make rigid', *solidifier* 'to solidify'; whereas *-is(er)* mainly selects complex, suffixed adjectives, that is to say 'relational adjectives' like *théatral*: *relatif au théâtre* 'theatrical: relative to the theatre' in *théatraliser* which are undetermined as to the content of the properties they denote.

It follows from these differences in the selection of the bases between the two suffixes that there is a related difference in the general interpretative orientation between the two kinds of verbs:

-is(er) constructs verbs which refer to reversible, partial, subjectively grasped processes while verbs constructed by *-ifi(er)* refer to final, complete, objectively apprehended changes. For instance, one can notice that *-is(er)* verbs can mostly be correlated with the domains of intellectual human activities⁵ like religion (cf. *islamiser*, *catholiciser*, *christianiser*, *judaïser* and so on), politics (see *maoïser*, *staliniser*, *fasciser*, etc.), social organisation (*communaliser*, *départementaliser*, *présidentialiser* etc.), language (cf. *argotiser*, *anagrammatiser*, *calembourdiser*, 'to make puns' etc.) whereas those domains are absent from *-ifi(er)* constructions.

⁵ That is what I mean when I speak of "subjectively grasped processes".

3.2.2. About the prefixes *a-* and *en-*

3.2.2.1. Hypothesis about the semantic role of each prefix

My hypothesis can be formulated as follows: (i) the semantic role of *a-* consists in fitting the spatio-temporal circumstances of the denoted action in a certain punctual aspect;⁶ whereas (ii) the semantic role of *en-* consists in fitting the spatio-temporal features of the denoted action in a non-punctual dimension.

3.2.2.2. Arguments

There is some linguistic evidence that supports this proposition:

(a) In order to be in accordance with the different affixal semantic processes, different points of view about the referent of the base can be activated depending on affixes. For instance, concerning the nouns of parts of the body:

- in the case of *a-* prefixation, body parts are considered as ‘points of contact’ (see: *adosser* ‘to place something with its back against something’, *agenouiller* ‘to kneel down’, *s’accouder* ‘to lean on one’s elbow’);
- and in the case of *en-* prefixation, body parts are interpreted as surfaces of contact, as in *endosser* ‘to put on’, *embrasser* ‘to embrace’.

The same difference is visible between *atterrir* ‘to make a landfall’ and *enterrer* ‘to put in the earth’.

(b) We can see some interesting base selection phenomena; for instance, *en-* selects a lot of nouns of locking up places (for instance in *encaserner* ‘to lodge into barracks’, *emprisonner* ‘to jail’, *encaver* ‘to put into a cellar’, *encager* ‘to cage up’, etc.) and nouns of wrapping clothes (like in *ensoutaner* ‘to cover with a soutane’, *emmailloter* ‘to wrap’, *encaper* ‘to cover with a cloak’, etc.) whereas this kind of nouns are absent in the case of *a-* prefixation. I think this is due to the semantic compatibility of this type of nouns with the notion of ‘duration and completeness’ induced by the semantic role of *en-*.

(c) Concerning adjective-based verbs prefixed with *a-* or *en-*, things seem less clear. Thus, I cannot really explain why in a couple of antonyms like *pauvre/riche* ‘poor/rich’, the first is prefixed with *a-*: *appauvrir* ‘to impoverish’ and the latter with *en-*: *enrichir* ‘to make rich’. The same thing can be said for two semantically close verbs like *empirer* ‘to get worse’ and *aggraver*

⁶ According to Martin (2001), the semantic invariant of the verbs prefixed by *a-* in Middle French is perfectivity which entails a resulting state for the argument affected by the process denoted by the verb. I do not consider that it is in contradiction to what I propose but I think this approach is syntactic and not semantic.

'to aggravate'. Anyway, I think that a comparison between only two terms is not a linguistic method and that we must remain at the level of the system and take into account whole corpora and not some isolated data.

But, as *a-* prefixation is in fact not much constrained, it allows us to include quite easily the majority of deadjectival verbs like *annuler* 'to nullify' or *apurer* 'to balance' and so on. They refer to processes in which the acquisition of the property of being *nul* 'null' or *pur* 'pure' must be perceived as punctual.

I also think I can retain the notions of non-punctuality—that is to say, durativity and/or completeness—as specifying the deadjectival prefixation with *en-*: this is clearly the case with verbs like *ensanglanter* 'to cover with blood', *empuantir* 'to stink out' and more generally verbs with adjectival bases denoting something diffuse, which overcomes the affected object like *enhardir* 'to make bolder', *enivrer* 'to make drunk'.

So, to conclude this point, I will assume that a unitary morphological treatment for each prefix considered is preferable to one based on homonymy.

3.2.3. About the prefix *é-*

3.2.3.1. Hypothesis about the semantic role of *é-*

The semantic characterization I propose for *é-* is that *é-* induces in the semantic scope of the verb it derives the notion of a corruption of an initial state considered as the standard state.

3.2.3.2. Argument

With regard to *é-* prefixation, there is not much to be said. I have not found any particular restriction or selection among bases and it is also conspicuous that the meaning of the verbs is quite clear: for instance, *écheveler* 'to be disheveled' refers to the corruption of a standard state of what is supposed to be a normal hairstyle.

Aunargue–Plénat (1997) propose, as semantic characterization, the notion of 'extraction/dissociation'. I think that the notion of corruption of a standard state better suits the data because it subsumes the two notions of extraction and dissociation (that can be considered as means of corruption) but it allows us to take into account some data that are neither relevant to the notion of dissociation nor to that of extraction (*s'époumoner* 'to shout oneself hoarse', for instance).

Note that here again a unitary treatment stands out quite easily. Indeed, most *é-* prefixed adjective-based verbs appear to fit our analysis: *éborgner* 'to

poke somebody's eye out', *émincer* 'to slice thinly' clearly refer to a process which induces a non-standard state (respectively for a person or a vegetable).

See also the case of *égayer* 'to cheer up' which is employed, as confirmed by dictionaries, only in restricted contexts like *égayer un séjour à l'hôpital* 'to cheer up a stay in hospital', *égayer son deuil* 'to cheer up one's grief', *égayer une pièce sombre* 'to cheer up a dark room', contexts which do not refer to a stereotyped cheerful situation.

3.3. Summary

In the analyses I proposed above, with this destructuring of the initial paradigm, prefixes and suffixes are no longer in a situation of semantic competition. They theoretically cannot be in linguistic rivalry because of the principle I adopted that one affix defines one rule and I hope I have begun to demonstrate that they are really not so.

4. Discussion

The principle "one affix = one rule" implies change regarding the stratification of the processes of semantic specialization from the generality of the rule to the individual referential properties of each constructed verb.

In the framework integrating the notion of paradigm, the WFR is defined by a very general meaning strictly associated with the categorial relation between the base and the complex word, and is actualized by means of a certain number of morphological processes. The specialization then occurs depending on heterogeneous properties of the various affixes, but we do not know in what order and what is the relative place of each one of these properties (diachronic elements, productivity, phonetic and semantic constraints, etc.). To define the hierarchy of the pertinent properties will be one of the important tasks in future work. For instance, for the moment and at first sight, it is difficult to affirm that the three suffixes of nominalization *-ment*, *-age*, *-tion* have different semantic roles.

In the present proposition, each WFR is already defined by an affix with its very precise meaning⁷ (and all the other properties I already mentioned: diachrony, productivity, etc.) and, then, the referential specification can oc-

⁷ Meaning which must be in accordance with the general semantic properties of the kind of morphological process it belongs to: prefixation, suffixation, conversion, composition.

cur: first according to the grammatical category of the base if the affix is compatible with several of them, and then to the semantico-referential properties of the base-word. This entails that, even if the category of the base does not appear in the first level of specification, we do not agree with Plag (1999)'s proposition of an unspecified input.

By this inversion, I do not mean that this is the way “linguistic things” are, I only mean that as a morphologist, I must first be interested in and orient my research towards the scope of the morphological processes themselves because the other dimensions do not concern me in the first place and may even hide the properly morphological component of the meaning. In fact, I believe that the lexicographic activity is too pregnant over the way we are used to viewing “word analyses”: most morphologists aim to obtain something that looks like a definition (notably with their glossing activity). I think that if we have a suitable formalism (I am very far from having this ideal framework), we do not need such descriptions and that we can begin a morphological analysis of a complex word by the constructed meaning.

5. Conclusion

As a conclusion, I will summarize the results of this study. I gave a clearly negative answer to the question of whether prefixes and suffixes can be in a semantic equivalence and I hope that I have shown that the traditional gathering of the affixes *a-*, *en-*, *é-*, *is(er)* and *-ifi(er)* into one morphological paradigm of constructing change-of-state verb processes constituted the wrong analysis, first because this was not a morphologically distinctive analysis, secondly because it did not take noun-based data into account, and thirdly because it concealed the semantic individuality of each affixal process.

But I must also emphasize the fact that the propositions I have made have theoretical consequences which go beyond the empirical facts. By rejecting the notion of morphological paradigm in favour of a real affixal identity, it is the whole hierarchy of the rules we can find in Corbin's work that is questioned.

References

- Aunargue, Michel – Marc Pléat 1997. Manifestations morphophoniques de la relation d'attachement habituel. *Sillexicales 1*, Université de Lille III, C.N.R.S.
- Bauer, Laurie 1996. Derivational paradigms. In: Geert Booij – Jaap van Marle (eds.) *Yearbook of Morphology 1995*, 243–56. Kluwer, Dordrecht.

- Corbin, Danièle 1987. Morphologie dérivationnelle et structuration du lexique. Max Niemeyer Verlag, Tübingen.
- Corbin, Danièle 1991. La formation des mots: structures et interprétations. In: *Lexique* 10: 7-30.
- Corbin, Danièle 1997. La représentation d'une "famille" de mots dans le *Dictionnaire dérivationnel du français* et ses corrélats théoriques, méthodologiques et descriptifs. In: *Recherches linguistiques de Vincennes* 26: 5-38.
- Corbin, Danièle 1999. Pour une théorie sémantique de la catégorisation affixale. In: *Faits de langue* 14: 65-77.
- Corbin, Danièle – Martine Temple 1995. Le monde des mots et des sens construits: catégories sémantiques, catégories référentielles. In: *Cahiers de lexicologie* 65: 5-28.
- Martin, Robert 2001. Le préfixe *a-/ad-* en moyen français. In: *Romania* 119: 289-322.
- Plag, Ingo 1999. Morphological productivity. Structural constraints in English derivation. Mouton de Gruyter, Berlin & New York.
- Temple, Martine 1996. Pour une sémantique des mots construits. Presses Universitaire du Septentrion, Villeneuve d'Ascq.
- Vendler, Zenon 1967. *Linguistics in philosophy*. Cornell University Press, Ithaca NY.

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SPATIAL PREFIXES IN DARGI (EAST CAUCASIAN)*

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Abstract

This article explores the morphological nature of what are traditionally called spatial prefixes in the East Caucasian language Dargi. Having developed historically from adverbs, the prefixes are now completely integrated into the verb's morphology, syntax and semantics. Instead of regarding verbs derived with these spatial prefixes as prefixed stems on a synchronic level as well, the alternative proposed here is to consider them bipartite stems. This also fits a recent proposal to regard bipartite stems as a feature of the East Caucasian language family as a whole.

1. Introduction

This article explores the morphological nature of what are traditionally called spatial prefixes in the East Caucasian language Dargi. Having developed historically from adverbs, the prefixes are now completely integrated into the verb's morphology, syntax and semantics. Section 2 provides a description of the prefixes on the basis of the literature, and gives an account of their historical development. On the basis of new data collected during fieldwork, the syntagmatic, paradigmatic and semantic properties of the prefixes will be analyzed in section 3. Instead of regarding verbs derived with these spatial prefixes as prefixed stems on a synchronic level as well, the alternative that will be proposed here, is to consider them bipartite stems. This also fits a

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recent proposal to regard bipartite stems as a feature of the East Caucasian language family as a whole, which will be discussed in section 4.

1.1. Dargi

Dargi is an East Caucasian language spoken by approximately 366,000 speakers in the Republic Dagestan (Russian Federation). It is currently considered a separate branch within East Caucasian, on a par with the Nakh, Avar-Andic, Tsezic, Lak and Lezgian languages (Nikolayev–Starostin 1994). Dargi has wide dialect variety and some of the geographically more peripheral dialects are often considered separate languages. The written standard is based on the Akusha dialect. Data for this study come from Akusha Dargi and were collected during on-site fieldwork. Dargi has fairly consistent head-final word order in the clause and the noun phrase. It has rich suffixation on nouns and verbs, a well-developed case inventory and absolutive/ergative case-marking.

1.2. Dargi prefixes

There are three types of verbal prefixes in Dargi (van den Berg 2001, 32):

a. gender prefix: Dargi has three genders in the singular (masculine, feminine, neuter) and two gender distinctions in the plural.

Table 1

Gender affixes in Akusha Dargi

SINGULAR		PLURAL	
		1, 2	3
M	<i>w</i>	<i>d-, -d-, -r</i>	<i>b</i>
F	<i>r</i>		
N	<i>b</i>	<i>d-, -d-, -r</i>	

Verbs agree with their S/P in gender, thus showing ergative cross-reference of arguments e.g.,

- (1) (a) *w-ak'-ib* 'He came.'
 m-come-aor(3)
- (b) *r-ak'-ib* 'She came.'
 f-come-aor(3)

- (c) neš.li¹ w-ax-un 'Mother fed him.'
 mother(erg) m-feed-aor(3)

b. negation prefixes: there are two prefixes for negation, negative *ħe-* and prohibitive *ma-*. The latter is used in the negative imperative and negative optative, whereas *ħe-* is used in all other cases, e.g.,

- (2) neš.li ħe-w-ax-un 'Mother did not feed him.'
 mother(erg) neg-m-feed-aor(3)

c. spatial prefixes: there are two series of spatial prefixes in Dargi containing four prefixes each. The four local prefixes are *če-* 'on top of', *u-* 'under', *ħa-* 'in front of', *ħe-* 'behind'; the four directional prefixes are *a-* 'upwards', *ka-* 'downwards', *sa-* 'hither', *B-et-* 'thither'. The spatial prefixes are the topic of this article.²

The order of the three types of prefixes is space-negation-gender, see examples (3)–(5) below.

1.3. Dargi verb stems

There are three types of Dargi verb stems³ (van den Berg 2001, 33):

a. bare roots, most of which are preceded by a gender prefix.⁴ These roots are free morphemes and occur as independent verbs, e.g.,: *B-ak*/*B-aš* 'come', *B-ax*/*B-ax* 'feed', *B-ek*/*luk* 'write', *B-irz*/*iz* 'milk'.

b. compound stems, which consist of a nominal part (noun, adjective, adverb, sound symbolic element) and a root. The root belong to a limited class of both free morphemes (e.g., *B-i?*/*B-ir* 'be', *B-ar*/*B-ir* 'make, do') and bound morphemes (e.g., *B-uq*/*B-ulq*, *B-ik*/*B-irk*). Examples are: *tamaša*+*B-i?*/*B-ir* 'be surprised (surprise+be)', *ħädur*+*B-i?*/*B-ir* 'be ready (ready+be)', *bek*+*B-*

¹ Oblique (i.e., non-absolutive) case endings are added to the absolutive stem plus stem extension, which in most cases is *-li*.

² We do not include in this article the petrified prefixes *ar-* 'away', *lv-* 'towards' (as in e.g., *ar-B-äq* 'leave', *lä-B-q* 'arrive'). Unlike the spatial prefixes, they combine with a different, very limited, set of verb roots, and their historical origin is unclear.

³ Dargi verbs have a perfective and imperfective stem: the verbal paradigm is partially based on the perfective stem (Aorist, Perfect), partially on the imperfective stem (Future, Imperfect, Present).

⁴ Capital *B* in citation forms stands for the (unspecified) gender prefix, which is realized according to Table 1.

ar/B-ir 'end (head+do)', *hädur+B-ar/B-ir* 'prepare (ready+do)', *sugur+B-i?/B-ir* 'be blind (blind+be)', *q'abul+B-ik/B-irk* 'agree (agree+aux)', *čedi+B-ik/B-irk* 'defeat (above+aux)', *dura+B-ik/B-irk* 'appear (outside+aux)', *du-ra+B-urq/B-ulq* 'leave (outside+aux)', *čela+B-urq/B-ulq* 'stay behind (behind+aux)', *hala+B-urc/B-urc* 'stretch (before+catch)', *kus+B-ar/B-ir* 'set on (onom+do)', *q'ic'+B-ar/B-ir* 'cut with scissors (onom+do)', *daldar+B-urq/B-ulq* 'hang (onom+aux)'.

Beside the gender and the negation affixes, the focus particle *-ra* 'and, also, even' can also occur between the nominal part and the root of a compound.

c. prefixed stems, which consist of one of the spatial prefixes mentioned in section 1.2 type c. and a root. The root belongs to a limited class of free and bound morphemes. Examples are, e.g., (with the bound morpheme *B-urq*): *a-B-urq* 'move impetuously upwards (upwards+aux)', *ka-B-urq* 'move impetuously downwards (downwards+aux)'; (with the free morpheme *B-at* 'leave, let') *če-B-at* 'add (on-leave)', *u-B-at* 'plant, bury (under-leave)'. The stems form one phonological unit with word stress on the first syllable, i.e., on the prefix.

The principal difference between compound stems and prefixed stems is, that the nominal part of a compound belongs to an open class, which can be expanded by including borrowed lexemes. In contrast, the prefixes of the stems of type c. are a closed class. The remainder of this paper will deal with the latter type of prefixed verb stems.

2. Closer look at the spatial prefixes

2.1. Form and meaning

Table 2 gives a schematic overview of the spatial prefixes. The prefixes of the local series can in their turn be followed by a gender affix, thus giving rise to two adjacent gender affixes preceding the root. The prefix followed by the gender affix has an elative meaning, e.g., *če-* 'on top of', *če-B-* 'from the top'. Examples of a local prefix plus a root are given in (3), of a local prefix with a gender affix plus a root in (4); combinations of a directional prefix plus a root are exemplified in (5).

Table 2
Spatial prefixes in Akusha Dargi

LOCAL PREFIX		DIRECTIONAL PREFIX
-gender affix	+gender affix	
če- 'on top of'	če-B- 'from the top, off'	ka- 'downwards'
u- 'under'	u-B- 'from under'	a- 'upwards'
ha- 'in front of'	ha-B- 'from the front'	sa- 'hither'
ŕe- 'behind'	ŕe-B- 'from behind'	B-et- 'thither'

Examples:

- (3) (a) *če-b-at-ur* ' (S)he added it.'
on-n-leave-aor(3)
- (b) *če-he-b-at-ur* ' (S)he did not add it.'
on-neg-n-leave-aor(3)
- (c) *u-b-at-ur* ' (S)he planted/buried it.'
under-n-leave-aor(3)
- (d) *ha-b-at-ur* ' (S)he put it in front.'
front-n-leave-aor(3)
- (4) (a) *če-b-b-at-ur* ' (S)he took it (a piece of clothes) off.'
on-n-n-leave-aor(3)
- (b) *če-r-d-at-ur*⁵ ' (S)he took them (clothes) off.'
on-nh-nh-leave-aor(3)
- (c) *če-b-he-b-at-ur* ' (S)he did not take it off.'
on-n-neg-n-leave-aor(3)
- (5) (a) *ka-b-at-ur* ' (S)he put it down.'
down-n-leave-aor(3)
- (b) *ka-he-b-at-ur* ' (S)he did not put it down.'
down-neg-n-leave-aor(3)
- (c) *a-b-at-ur* ' (S)he put it on a higher place.'
up-n-leave-aor(3)
- (d) *sa-b-at-ur* ' (The hen) hatched (an egg).'
hither-n-leave-aor(3)

⁵ The 3rd person non-human plural gender marker has positionally conditioned allomorphy, with *d* in morpheme-initial and -medial position, and *r* in morpheme-final position. The allomorphy of this gender affix serves as the main instrument to distinguish between a gender prefix belonging to a root and a gender suffix belonging to a spatial prefix, as in cases like *čeBa?* 'see' < *če-Ba?* (*čeda?ib* '(s)he saw them') vs. *čeBas* 'take from above' < *čeB-as* (*čerasib* '(s)he took them').

2.2. Description in the literature

The literature on Dargi usually does not make a clear distinction between prefixed and compound stems: they are often treated under one heading. The underlined verbs in example (6) are actually compounds with an adverb. Various authors mention the possibility of combining more than one spatial prefix with a root (Abdullaev 1954, 158; Abdullaev 1993, 288–362; Magometov 1963, 175–83; 1983, 196–200), e.g.,⁶

“*ʔa-b-ik-es* ‘put upwards, reach, argue’, *ka-b-ik-es* ‘fall, happen’, *b-et-ik-es* ‘get (thither)’, *sa-b-ik-es* ‘get (hither)’, *b-et-sad-b-ik-es* ‘get hither-thither, get worried’, *če-b-ik-es* ‘tear into’, *če-ʔa-b-ik-es* ‘put on top’, *če-ka-b-ik-es* ‘tear into downwards’, *če-sa-b-ik-es* ‘tear into hither’, *če-b-et-ik-es* ‘tear into thither’, *če-b-a-b-ik-es* ‘break away upwards’, *če-b-ka-b-ik-es* ‘break away downwards, forgive’, *če-b-sa-b-ik-es* ‘break away hither’, *če-b-b-et-ik-es* ‘break away thither’, *če-b-b-ik-es* ‘break away, get rid of’, *če-b-ha-b-b-ik-es* ‘be moved’, *če-b-če-b-b-ik-es* ‘be filled to overflowing’, *čedi-b-ik-es* ‘win’, *če-b-ad-b-ik-es* ‘move downwards’, *čedi-b-ad-b-ik-es* ‘move downwards’, *čedi-b-ad-ka-b-ik-es* ‘move downwards’, *čedi-b-äh-b-ik-es* ‘move upwards’, *čedi-b-äh-ka-b-ik-es* ‘move upwards’, *ʔu-b-ik-es* ‘subside’, *ʔu-ka-b-ik-es* ‘add downwards’, *ʔu-sa-b-ik-es* ‘add hither’, *ʔu-b-et-ik-es* ‘add thither’, *ʔu-b-a-b-ik-es* ‘break away upwards’, *ʔu-b-ka-b-ik-es* ‘break away downwards’, *ʔu-b-sa-b-ik-es* ‘break away hither’, *ʔu-b-b-et-ik-es* ‘break away thither’, *ʔu-b-b-ik-es* ‘step back, confess’, *ʔu-b-če-b-b-ik-es* ‘cause a scuffle’, *ʔu-b-ha-b-b-ik-es* ‘slip out, dodge’, *ʔu-b-ad-b-ik-es* ‘move upwards’, *ʔu-b-ad-ka-b-ik-es* ‘move upwards’, *ʔudi-b-ik-es* ‘suffer a defeat’, *ʔudi-ka-b-ik-es* ‘suffer a defeat’, *ʔudi-b-ad-b-ik-es* ‘move upwards’, *ʔudi-b-ad-ka-b-ik-es* ‘move upwards’, *ʔudi-b-äh-b-ik-es* ‘move downwards’, *ʔudi-b-äh-ka-b-ik-es* ‘move downwards’, *ha-b-ik-es* ‘appear before’, *ha-ka-b-ik-es* ‘hinder downwards’, *ha-sa-b-ik-es* ‘hinder, block hither’, *ha-b-et-ik-es* ‘hinder, block thither’, *ha-b-b-ik-es* ‘tear’, *ha-b-ka-b-ik-es* ‘tear downwards’, *ha-b-sa-b-ik-es* ‘tear hither’, *ha-b-b-et-ik-es* ‘tear thither’, *hala-b-ik-es* ‘overtake’, *hala-b-ad-b-ik-es* ‘move from the front’, *hala-b-ad-ka-b-ik-es* ‘move from the front’, *hala-b-äh-b-ik-es* ‘move forward’, *hala-b-äh-ka-b-ik-es* ‘move forward’, *ʕe-b-ik-es* ‘put aside, keep’, *ʕela-b-ik-es* ‘hide oneself’, *ʕela-ka-b-ik-es* ‘hide downwards’, *ʕela-sa-b-ik-es* ‘hide hither’, *ʕela-b-et-ik-es* ‘hide thither’, *ʕela-b-ad-b-ik-es* ‘follow’, *ʕela-b-ad-ka-b-ik-es* ‘follow’, *ʕela-b-äh-b-ik-es* ‘move backward, step back’, *ʕela-b-äh-ka-b-ik-es* ‘move backward, step back’, *ʕe-b-ad-b-ik-es* ‘get caught upwards’” (Abdullaev 1993, 333–5)

The examples given above suggest that there are virtually no limitations to the combinatory possibilities of local and directional prefixes. This will be tested in section 3 on data from Akusha Dargi.

⁶ The examples quoted here are combinations with the auxiliary *B-ik/B-irk*. For reasons of space only the perfective stem *B-ik* is given; morpheme boundaries were inserted for the readers’ convenience. Abdullaev indicates glottal stops in initial position before a vowel; as there is no opposition in that position between the absence vs. presence of /ʔ/, I do not indicate glottal stops in my own transcription.

As to nexus, Abdullaev (1954, 161f) mentions the possibility of inserting the focus particle *-ra* 'and, also, even' between the spatial prefix and the root, e.g.:

- (6) (a) *če-as-ib*
 on-take-aor(3)
 '(S)he took it upon him/herself.'
- (b) *če-ra as-ib, taman-ra b-ar-ib*
 on-and take-aor(3) end-and n-do-aor(3)
 '(S)he took it upon him/herself and finished it.'

In Akusha Dargi, however, the particle *-ra* cannot be inserted between the spatial prefixes and the verb root: *če-ra as-ib* from example (6b) is regarded as an utterance of a different Dargi dialect. The intersected compound *taman-ra b-ar-ib* is acceptable though (see section 1.3 type b.). The possibility of inserting a focus particle is a second major difference between compound verbs and prefixed verbs, in addition to the distinction between open and closed class membership of the first element, mentioned in section 1.3.

2.3. Historical development

Dargi spatial prefixes developed from adverbs. This view is generally accepted, see however Musaev (1983) for a different approach. Given Dargi's basic SOV word order, the adverb was positioned between the object and the verb, and also functioned as an adposition with nouns. In the course of time the adverb/adposition lost its independent status: it turned into a bound morpheme with verbs and grammaticalized as spatial case marking on nouns.⁷

Akusha Dargi has four or five local cases,⁸ which in their bare form indicate 'movement to' (lative). The addition of a gender marker renders 'location' (essive); this marker can be followed by the directional suffix *-ad* to express 'movement away' (elative), e.g.:

⁷ The grammaticalization of Dargi adverbs is thus a classic example of this type of historical development as discussed in Hopper–Traugott (1993, 107f).

⁸ Akusha Dargi has an allative *-ŋi* and an illative for hollow space *-hi*: both occur with a few nouns only, and some authors consider them variants of (historically) one and the same suffix. More work on Dargi is needed to clarify this matter.

Table 3
Spatial case-marking in Akusha Dargi

	LATIVE	ESSIVE	ELATIVE
super	-č̣i	-č̣i-B	-č̣i-B-ad
in (mass)	-zi	-zi-B	-zi-B-ad
sub	-ʔu	-ʔu-B	-ʔu-B-ad
ad	-ʔi	-ʔi-B	-ʔi-B-ad
in (hollow)	-hi	-hi-B	(-hi-B-ad) ⁹

- (7) (a) galga.li-č̣i ‘onto the tree’
tree-sup
- (b) galga.li-č̣i-r ‘on (top of) the tree’
tree-sup-f
- (c) galga.li-č̣i-r-ad ‘from the tree’
tree-sup-f-ela
- (8) (a) GarGa.li-ʔu ‘under the stone’
stone-sub
- (b) ši.li-zi ‘into the village’
village-ill
- (c) qay-ʔi ‘(to) home’
house-ad

Whereas Akusha Dargi has just one directional suffix *-ad*, the Urakhi dialect has a set of four elative suffixes, which distinguish directional deixis: *-ad* ‘elative upwards’, *-kad* ‘elative downwards’, *-sad* ‘elative towards the speaker, hither’, *-bit* ‘elative away from the speaker, thither’, e.g., (Uslar 1892, 33):

- (9) (a) wac’a.li-zi ‘into the forest’
forest-ill
- (b) wac’a.li-zi-w-ad ‘out of the forest upwards’
forest-ill-m-ela
- (c) wac’a.li-zi-w-kad ‘out of the forest downwards’
forest-ill-m-ela
- (d) wac’a.li-zi-w-sad ‘out of the forest towards the speaker’
forest-ill-m-ela

⁹ This form can be obtained in elicitation, but has not occurred so far in Akusha Dargi texts.

- (e) wac'a.li-zi-b-bit 'out of the forest away from the speaker'
 forest-ill-m-ela¹⁰

Historically we therefore assume two series of adverbs, the local adverbs (e.g., *čV, *ʔu, *ha, *ʕe)¹¹ and the directional ones (e.g., *ad, *kad, *sad).¹² These adverbs grammaticalized, either separately or in combination with each other, as case-endings on nouns and as prefixes on verbs. A schematic representation of these processes is given in Tables 4–5.

Table 4
 Grammaticalization of local adverbs

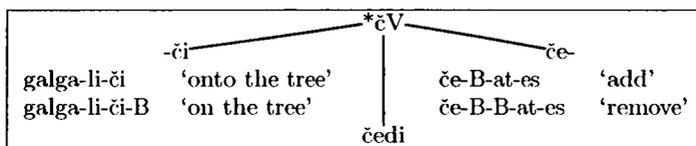
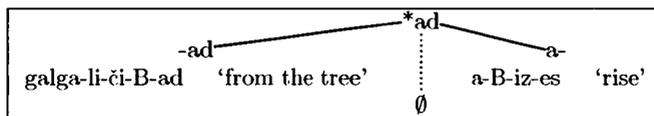


Table 5
 Grammaticalization of directional adverbs



In addition new local adverbs were formed on the basis of the old ones, e.g.: *čedi* 'on top of, above', *udi* 'under', *hala* 'in front of, before', *ʕela* 'behind, after'.¹³ The current adverbs occur independently, e.g.:

¹⁰ Apparently with the assimilation of the gender affix: *w-b* > *b-b*.

¹¹ We can at least reconstruct an adverb *čV, which developed into the case-ending -či and prefix če-; an adverb *ʔu, which developed into -ʔu and u-. The adverb *ha developed into a prefix ha-, but the location 'in front of' with nouns is expressed in Akusha Dargi by the adposition hala 'in front of', whereas some other dialects have a cognate local suffix. The spatial suffix -zi does not seem to have developed from an adposition. Due to the restricted occurrence of -ʕi, we cannot be more precise about the relationship between the prefix ʕe- and the suffix -ʕi at the moment.

¹² The directional adverbs *ad*, *kad* and *sad* lost their final consonant while being attached to verbs: in some dialects the consonant still occurs in negated forms, however, e.g., Urkarakh Dargi *sa-b-aʔ-ib* (hither-n-come-aor(3)) 'it arrived' vs. *sat-ha-b-aʔ-ib* (hither-neg-n-come-aor(3)) 'it did not arrive' (Magometov 1963, 232).

¹³ There is ample evidence that the original adverbs were monosyllabic and that the second syllable of the current adpositions (*čedi*, *udi*, *hala*, *ʕela*) has been added later. First, the

- (10) čedi-b b-erc'-ibsi řär'ä-ra sa(b)i (van den Berg 2001, 201)
 above-n n-fry-part hen(abs)-and be:n
 'On top was a fried chicken as well.'

The adverbs are also used in locative constructions, following a noun in the genitive, while taking the same suffixes as the local case-endings, e.g.:

- (11) (a) galga-la čedi '(to) above the tree'
 tree-gen above
 (b) galga-la čedi-b 'above the tree'
 tree-gen above-n
 (c) galga-la čedi-b-ad 'from above the tree'
 tree-gen above-n-ela

The adverbs also play a role in verbal compounding, see section 1.3 type b.

- (12) urši udzi.li-či-w čedi+ik-ib (van den Berg, fieldnotes)
 boy(abs) brother-sup-m above+m:pass-aor(3)
 'The boy beat his brother.'

2.4. Synchronic issues to be explored

Although it is clear from a diachronic perspective that the prefixes under consideration derive new lexical items, the synchronic description of the prefixed verb stems is still under debate. Some syntagmatic and semantic properties need to be further clarified. Therefore the following questions need to be answered:

- To what extent do spatial prefixes and verb roots combine freely?
- To what extent can local and directional prefixes be combined in a verb?
- Is the meaning of a prefixed verb stem transparent from the combination of meanings of the prefix and the root?
- Do the spatial prefixes influence valency?

These questions will be discussed in section 3 below.

original monosyllabic adverb is still found in some Dargi dialects, e.g., Megeb Dargi řu 'under' vs. Akusha Dargi *udi* (Magometov 1982, 126). In Akusha Dargi the monosyllabic adverbs are regarded as archaic and are only found in folktales and poetry. An additional argument is the variation of the second syllable across the various dialects, e.g., Akusha *čedi*, Kubachi *čüle* 'on'; Akusha *udi*, Kubachi *guule* 'under' (Magometov 1963, 244-9).

3. Synchronic morphological analysis

Tables 6–7 give an overview of the combinatory possibilities of nine series of prefixed verb stems. The verbs were taken from the text corpus in van den Berg (2001), which is a sample of Dargi folktales. Additional data were taken from Isaev (1988), and Abdullaev (1993). All prefixed verb stems were checked, whether the root of that verb would also occur with one of the other prefixes. All potential prefix combinations were checked as well. A total number of 21 verb series (i.e., 21 roots with their prefix combinations) was checked. The most elaborate series are given in tables 6–7; the other 12 verb series displayed just a few prefix-root combinations. They were taken into account for the study, but for reasons of space, they will not be fully represented in a table.¹⁴

¹⁴ These 12 verb series are the following: five of them are based on a free morpheme, e.g.,

-*uš/-urš* 'release': *čeBuš* 'throw upon, cover', *uBuš* 'make a bed', *čeBBuš* 'tear off', *uBBuš* 'give something to someone else to wear out', *kaBuš* '1. throw, 2. kill', *aBuš* 'throw into a pan', *čekaBuš* 'throw upon, cover', *ukaBuš* 'make a bed';

-*erd/-ud* 'tear': *čeBBerd* 'tear off', *uBBerd* 'tear off', *haBBerd* 'dig through';

-*üq/-irq* 'hit': *čeBäq* 'put something against something else', *uBäq* 'put the foundation', *haBäq* 'throw out with force, chase', *čeBBäq* 'cut off', *uBBäq* 'deny';

-*erx/-urx* 'turn into different form': *čeBBerx* 'forgive', *uBBerx* 'leave secretly', *B-eterrx* 'realize';

-*aq/-iq* 'pass': *B-etaq* 'get lost, disappear', *B-etkaq* 'get lost, disappear'.

Five other verb series are based on a bound morpheme:

-*ac'/-ic'*: *uBBac'* 'leave from under', *aBac'* 'rise', *kaBac'* 'leave downwards';

-*s/-ys*: *čes/čeys* 'promise', *čeBas* 'take from above', *uBas* 'take away', *haBas* 'dig from under, undermine', *ʕeBas* 'imitate', *as* 'buy, take', *kas* 'take', *sas* 'take', *haBkas* 'dig from under, undermine', *ʕeBkas* 'imitate';

-*rt'* (both perfective and imperfective): *čert'* 'pour on top', *čertert'es* 'pour out', *urert'es* 'pour out', *ert'* '1. cover by glazed frost, 2. add (liquids) into object', *kert'* 'pour', *čekart'* 'pour from above';

-*q'/-lq'*: *čeq'* 'strew on top', *uq'*=*aq* (causative only) 'strew (straw) under (the cattle)', *kaq'* 'strew';

-*g/-ig*: *čeg* 'hit', *aq* 'touch', *kag* 'fall on the floor', *čekag* 'hit'.

For two verbs, *čeBBic'* 'take revenge', *čeBarġ/čeBirġ* 'wake up', no other combination with a prefix was found, nor did the root occur in another verb. There are two additional verbs that are suspicious with regard to their morphological make-up, but which were not taken into account here, e.g., *čeh/čelh* 'dress' (negative form *če-he-h!*) and *kal/kawl* 'stay' (negative form *ka-he-!!*).

Table 6
Combinatory possibilities of Dargi spatial prefixes with free morphemes

	B-i?/B-ir 'be, become' [abs]	B-at/B-alt 'leave, let' [erg, abs]	B-a?/B-i? 'come, reach' [abs]	B-it'/B-ilt 'dig' [erg, abs]
če- 'on top of'	—	čeBat/čeBalt 'add' [erg, abs]	čeBa?/čeBi? 'see' [erg, abs]	čeBit'/čeBilt' 'pull on (slippers)' [erg, abs]
u- 'under'	—	uBat/uBalt 'plant, bury' [erg, abs]	uBa?/uBi? 'conquer' [erg, abs]	—
ha- 'in front of'	haBi?/haBir 'close' [abs]	haBat/haBalt 'move out, tuck in' [erg, abs]	haBa?/habi? 'drive on' [erg, abs]	—
ʕe- 'behind'	—	—	ʕeBa?/ʕeBi? 'tie the other way around' [erg, abs]*	—
če-B 'from, off'	—	čeBBat/čeBBalt 'take off (clothes)' [erg, abs]	—	—
u-B 'from under'	uBBi?/uBBir 'lose' [abs]	uBBat/uBBalt 'leave be- hind in deposit' [erg, abs, dat]	—	uBBit'/uBBilt' 'pull out from under [erg, abs]
ha-B 'from the front'	haBBi?/haBBir 'leave behind' [abs, sup]	—	—	haBBit'/haBBilt' 'lead away the bride with force' [erg, abs]
ʕe-B 'from behind'	—	—	ʕeBBa?/ʕeBBi? 'catch up' [abs, dat]	—
ka- 'downwards'	kaBi?/kaBir 'sit down' [abs]	kaBat/kaBalt 'put down' [erg, abs]	kaBa?/kaBi? 'reach downwards' [abs]	kaBit'/kaBilt' 'drag out' [erg, abs]
a- 'upwards'	aBi?/aBir 'sit down on top of' [abs]	aBat/aBalt 'put on a higher place' [erg, abs]	aBa?/aBi? 'reach upwards' [abs]	aBit'/aBilt' 'dig out, tear out' [erg, abs]
sa- 'hither'	—	saBat/saBalt 'hatch (eggs) [erg, abs]	saBa?/saBi? 'reach hither' [abs]	saBit'/saBilt' 1. 'cut out a pattern'; 2. 'divide milk and cream' [erg, abs]
B-et- 'thither'	—	—	B-eta?/B-eti? 'reach thither'*** [abs]	—
possible prefix com- binations	ukaBi?/ukaBir 'be on the watch' [abs]	čekaBat/čekaBalt 'add' [erg, abs]; ukaBat/ukaBalt 'plant bury' [erg, abs]; hakaBat/ha- kaBalt 'move out, tuck in' [erg, abs]	čekaBa?/čekaBi? 'see' [erg, abs]; čeBeta?/čeBeti? 'drive oneself to the edge' [abs]	čekaBit'/čekaBilt' 'pull on (slippers)' [erg, abs]

* E.g. to carry a jug of water or a pile of grass on the chest, instead of on the back, which is the normal way for carrying loads.

** Three verbs in the sample are prefixed with *B-et-*; two of them, *B-etBik* and *B-etBuq*, have a gender marker on both the prefix and the verb, while *B-eta?/B-eti?* has only one gender marker, which is carried by the prefix.

Table 7
Combinatory possibilities of Dargi spatial prefixes with bound morphemes

	B-ik/B-irk 'pass, enter'	B-iz/B-ilz 'turn into'	B-uq/B-ulq 'move'	B-iṣ/B-ilṣ 'put (itr.)'	B-iṣ/B-irṣ 'put (tr.)'
če- 'on top of'	čeBik/čeBirk 'have to' [dat, abs]	čeBiz/čeBilz 'make an effort' [abs]	čeBuq/čeBulq 'attack' [abs, sup]	čeBiṣ/ēBilṣ 'lie down on top of someone' [abs]	čeBiṣ/čeBirṣ 'put down close' [erg, abs]
u- 'under'	uBik/uBirk 'sink, settle' [abs]	uBiz/uBilz 'conti- nuously display in- decident behaviour' [abs]	—	—	uBiṣ/uBirṣ 'put under' [erg, abs]
ha- 'in front of'	haBik/haBirk 'stop up' [abs]	haBiz/haBilz 'behave provo- catively' [abs]	haBuq/haBulq 'stick out' [abs]	—	haBiṣ/haBirṣ 'close from the front' [erg, abs]
ṣe- 'behind'	—	—	—	—	—
če-B 'from, off'	čeBBik/čeBBirk 'get rid of' [abs]	—	čeBBuq/čeBBulq 'trip up' [abs]	—	—
u-B 'from under'	uBBik/uBBirk 'tear oneself away, sur- render' [abs]	—	uBBuq/uBBulq 'fall out, slip out' [abs]	uBBiṣ/uBBilṣ 'hide oneself' [abs]	uBBiṣ/uBBirṣ 'hide' [erg, abs]
ha-B 'from the front'	haBBik/haBBirk 'break up, tear' [abs]	—	haBBuq/haBBulq 'jump out' [abs]	—	—
ṣe-B 'from behind'	—	—	—	—	—
ka- 'downwards'	kaBik/kaBirk 'fall down' [abs]	kaBiz/kaBilz 'behave in a certain way' [abs]	kaBuq/kaBulq 'descend impetuously' [abs]	kaBiṣ/kaBilṣ 'lie down to sleep' [abs]	kaBiṣ/kaBirṣ 'put down' [erg, abs]
a- 'upwards'	aBik/aBirk 'reach a certain level' [abs]	aBiz/aBilz 'stand up' [abs]	aBuq/aBulq 'ascend impetuously' [abs]	—	aBiṣ/kaBirṣ 'load, put in a closed space' [erg, abs]
sa- 'hither'	saBik/saBirk 'reach a certain point hither' [abs]	—	saBuq/saBulq 'go im- petuously hither' [abs]	—	—
B-et- 'thither'	B-etBik/B-etBirk 'reach a certain point thither' [abs]	—	B-etBuq/B-etBulq 'begin' [abs]	—	—
possible prefix com- binations	čekaBik/čekaBirk 'have to' [dat, abs]; ukaBik/ukaBirk 'sink, settle' [abs]; hakaBik/ hakaBirk 'stop up' [abs]	čekaBiz/čekaBilz 'make an effort' [abs]; hakaBiz/hakaBilz 'be- have provocatively' [abs]	čekaBuq/čekaBulq 'attack' [abs, sup]; hakaBuq/hakaBulq 'stick out' [abs]	čekaBiṣ/čekaBilṣ 'lie down on top of someone' [abs]	

3.1. Possible morpheme combinations

Table 6 gives an overview of the combinatory possibilities of the spatial prefixes (in the rows) with verbal roots that are free morphemes (in the columns), viz. *B-iʔ/B-ir* 'be, become', *B-at/B-alt* 'leave let, *B-uʔ/B-iʔ* 'come, reach', and *B-itʔ/B-iltʔ* 'dig'. Table 7 presents the combinations of the spatial prefixes with verbal roots that are bound morphemes, viz. *B-ik/B-irk* 'pass, enter', *B-iz/B-ilz* 'turn into', *B-uq/B-ulq* 'move', *B-iĥ/B-ilĥ* 'put (itr.)', *B-iĥ/B-irĥ* 'put (tr.)'. The translation of the bound morphemes only approximates their semantics: the precise meaning of these verbal roots needs further research.

It turns out that no verb series is complete, i.e., there is no verb root that combines with all the spatial prefixes. In general, a local prefix followed by a gender marker only combines with a certain root, if the same prefix also occurs with that root without the gender marker, e.g., *ĉeBBik/ĉeBBirk* 'get rid of' and *ĉeBik/ĉeBirk* 'have to'; *haBBuq/haBBulq* 'jump out' and *haBuq/haBulq* 'stick out', etc. There are a few exceptions to this tendency, mainly verbs with the prefix *u-B-*, e.g., *uBBiʔ/uBBir* 'lose' (***uBiʔ/uBir*), *uBBuq/uBBulq* 'slip out' (***uBuq/uBulq*); *haBBitʔ/haBBiltʔ* 'lead away the bride with force' (***haBitʔ/haBiltʔ*).

As to the combinatory possibilities of the local and directional prefixes, tables 6–7 show that local prefixes only combine with the directional prefix *ka-* e.g.,: *ĉeBat/ĉeBalt* 'add' and *ĉekaBat/ĉekaBalt* 'add'; *haBuq/haBulq* 'stick out' and *hakaBuq/hakaBulq* 'stick out'; *uBik/uBirk* 'sink, settle' and *ukaBik/ukaBirk* 'sink, settle'. The presence of *ka-* does not seem to change the meaning of the verb substantially: probably the semantic difference between verbs with and without *ka-* is in the process of being lost, or *ka-* is on its way of becoming a kind of discourse particle, the exact meaning of which is (yet) unknown. The single other combination of prefixes is *ĉe-* and *B-et-* in the verb *ĉeBetaʔ/ĉeBetiʔ* 'drive oneself to the edge', the meaning of which cannot be related directly to the verbs prefixed with just *ĉe-* or *B-et-*, i.e., *ĉeBaʔ/ĉeBiʔ* 'see' and *B-etaʔ/B-etiʔ* 'reach thither'.

3.2. Frequency

Table 8 gives an overview of the number and percentage of occurrences in the sample of 21 verb series tested here and in the corpus. Combinations with *ka-*, *ĉe-* and to a lesser extent *a-* are the most frequent, both for token and type frequency. An interesting discrepancy is observed between the large number

of theoretically possible combinations with *u-* and *u-B-* and their much lower frequency in the corpus. This holds to a lesser extent also for *ha-* and *ha-B-*.

Table 8
Number of occurrences of spatial prefixes

	OCCURRENCES IN SAMPLE		OCCURRENCES IN CORPUS (TOKENS)		OCCURRENCES IN CORPUS (TYPES)	
	number	percentage	number	percentage	number	percentage
<i>če-</i> + <i>če-B-</i>	15+9	23.3	57+10	26.2	7+6	27.7
<i>u-</i> + <i>u-B-</i>	8+14	21.4	1+3	1.6	1+3	8.5
<i>ha-</i> + <i>ha-B-</i>	8+6	13.6	2+3	1.9	1+2	6.4
<i>ʕe-</i> + <i>ʕe-B-</i>	1+3	3.9	0+1	0.4	0+1	2.1
<i>a-</i>	15	14.5	35	13.7	8	17.0
<i>ka-</i>	15	14.5	119	46.3	13	27.7
<i>sa-</i>	6	5.8	5	1.9	2	4.2
<i>B-et-</i>	3	2.9	20	7.8	3	6.4
TOTAL	103	100	256	100	47	100

3.3. Semantic properties

The meaning of a prefixed verb is transparent in some cases, in particular when the directional prefixes are contrasted with each other, e.g., *kaBik/kaBirk* 'fall down', *aBik/aBirk* 'reach a certain level', *saBik/saBirk* 'reach a certain point hither', *B-etBik/B-etBirk* 'reach a certain point thither' or *kaBuq/kaBulq* 'descend impetuously', *aBuq/aBulq* 'ascend impetuously', *saBuq/saBulq* 'go impetuously hither' (but not *B-etBuq/B-etBulq* 'begin'). Some verb stems that contain a prefix plus gender marker, indicate a movement opposite to the movement encoded in the corresponding stems with the bare prefix, e.g., *čeBat/čeBalt* 'add' vs. *čeBBat/čeBBalt* 'take off'; *haBik/haBirk* 'stop up' vs. *haBBik/haBBirk* 'tear'. Other verb pairs of this type do not show a direct semantic correspondence (anymore), e.g., *uBat/uBalt* 'plant, bury' and *uBBat/uBBalt* 'leave behind in deposit'; *ʕeBaʔ/ʕeBiʔ* 'tie the other way around' and *ʕeBBaʔ/ʕeBBiʔ* 'catch up'.

In most cases, however, the meaning of a verb can be remotely reconstructed from the components. This is only possible 'in hindsight', i.e., after having learned the meaning of the whole verb, e.g., *čeBaʔ/čeBiʔ* 'see (< on+reach?)', *saBat/saBalt* 'hatch eggs (< hither+leave)', *haBiz/haBilz* 'behave provocatively (< in front+turn into?)', *haBBit/haBBilt* 'lead away the bride with force (< from the front+dig?)', etc.

In general, intransitive prefixed verbs are derived from an intransitive root and transitives from transitive roots. A few valency changes can be

observed however, e.g., *čeBaʔ/čeBiʔ* ‘see’, *uBaʔ/uBiʔ* ‘conquer’, *haBaʔ/haBiʔ* ‘drive on’, *ʕeBaʔ/ʕeBiʔ* ‘tie the other way around’ are transitive, although the simplex verb *B-aʔ/B-iʔ* ‘come, reach’ is intransitive. One could of course decide that these verbs are derived from a different, homophonous, root, also in the light of the semantic differences between the root and the derived stems. Alternatively, one would have to allow for the possibility of valency changes in the derivation by spatial prefixes.

3.4. Conclusion for the Dargi data

Given the morphological and semantic peculiarities of the Dargi prefixed verb stems described above, we conclude that these stems must be regarded as one whole. Therefore we propose to analyze these Dargi verbs as bipartite stems,¹⁵ consisting of two morphemes, the spatial prefix and the root. The concept of bipartite stems was first introduced for East Caucasian languages by Johanna Nichols (see also section 4.1 below), who defined it as follows:

“A bipartite verb stem consists of two morphemes, which make up a single, and often discontinuous, stem. One of the morpheme slots usually has to do with motion, direction, the other on with means, shape classification. The morphemes of at least one, but sometimes both, slots are likely to be a closed class or otherwise limited.” (Nichols 2000, based on DeLancey 1996)

The arguments for treating the Dargi verb stems under consideration as bipartite are the following:

- a. Syntagmatic arguments: the prefixed verb stems are one phonological word. The nexus between the two parts is fairly tight: only the gender and negation affixes may interrupt the stem, but not the focus particle (section 1.3). The data presented in section 3.1 have shown that there is a limited amount of possible combinations of roots and prefixes: roots do not combine freely with just any prefix. Combinations with the prefixes *če-*, *ka-* and *a-* are significantly more frequent than with other prefixes (section 3.2). There is a constraint on the occurrence of the local prefix with a gender marker when the prefix does not also occur without a gender marker with the same verb root. Finally, there are fewer possibilities for combining local and directional prefixes in one stem than the literature suggested.

¹⁵ According to DeLancey (1996, 37) the term ‘bipartite stem’ comes from Jacobsen (1980), which I was unable to consult.

- b. Paradigmatic arguments: the prefixes come from a closed class, the roots from a limited class of bound and free morphemes. Half of the roots are bound morphemes and do not occur as independent verbs, i.e., the paradigmatic absence of a prefix does not render a semantically and syntactically meaningful verb stem.
- c. Semantic arguments: the data discussed in section 3.3 have shown that most verbs display considerable semantic differences between the root and prefixed stems derived from that root. Valency changes have to be accounted for in addition.

These arguments lead us to conclude that the Dargi prefixed stems must be regarded as lexicalized, inseparable combinations of a prefix and a root, i.e., as bipartite stems. As some roots occur as free stems and others do not, it seems that some stems are more lexicalized than others.

Taking up the issue of nexus once more, Dargi bipartite stems can be interrupted by two types of elements, i.e. the gender and negation affixes, as in example (3b), repeated here for convenience.

- (13) *če-he-b-at-ur* '(S)he did not add it.' Dargi
 on-neg-n-leave-aor(3)

The insertion of inflectional affixes between two parts of a single prosodic and grammatical word is in no way unique for Dargi, e.g., the Dutch past gerund marker *ge-* (14); the negation marker in Hungarian (example (15), Perrot 1995, 110); endoclititic person markers in Udi (example (16), Harris 2002, 123):

- (14) *op-ge-sloten* 'locked up' Dutch
 on-partic-lock:partic
- (15) *el* *nem* *men-t* 'did not leave' Hungarian
 prev *neg* *go-pst(3)*
- (16) *mzia-n* *arux-ne-be* 'Mzia built a fire.' Udi
 Mzia-erg *fire-3sg-do-aor*

In the process of lexicalization of the spatial prefix and the root, the Dargi gender and negation affixes got entrapped between the two morphemes of the stem. As a result they have become infixes with bipartite stems. Of course, the base that is split is not a single morpheme - as in the strict definition of infixation. The two morphemes that make up the bipartite stem, however, bear a closer semantic and phonological relation to each other than they do

to the infix markers (see for a discussion of this type of infixes, Moravcsik 2000, 546).

Example (13) will therefore be reanalyzed as:

- (13') $\check{c}e(\text{he})(b)at\text{-ur}$ '(S)he did not add it.' Dargi
 add:neg:n-aor(3)

4. Bipartite stems in other languages

The analysis of the Dargi verbs under consideration as bipartite stems fits in with a pattern more widely found in verb stems in East Caucasian languages and other language families.

4.1. East Caucasian context

The East Caucasian language family is divided in 6 branches: Nakh, Avar-Andic, Tsezic, Lak, Dargi, Lezgi. Topuria (1983) and Sulejmanov (1992), among others, noted the presence of spatial elements in the initial part of verb stems, while working from a historical-comparative point of view.

In Ingush, a language of the Nakh branch, verbs have discrepant initials and vocalism, but clearly related meanings. The spatial elements are found in stem-final position, whereas the initial elements do not have a discernible meaning, see Table 9 (Nichols 2000).¹⁶

Table 9
 Spatial elements in Ingush verb stems

-tt 'vertical/standing'	-ss 'throw, cause to move through air'	-ll 'lying/spreading over surface'
ott 'stand up' Dott 'pour, lay foundation' laatt 'stand' (progressive) ghott 'fly away, take off'	Doss 'descend'? toss 'sprinkle, strew' qoss 'throw, cast' moss 'splash, pour water'	oll 'hang up' Dull 'put, cover' toll 'put on top' qoll 'throw, cast' ull 'lie'

Nichols proposes the concept of bipartite stems in the first place to be able to account for this synchronic state of affairs in the modern Nakh languages. In

¹⁶ Capital *D* denotes the (unspecified) gender marker.

addition, the bipartite concept would also explain some historical-comparative facts of East Caucasian,¹⁷ like, e.g., the presence of discrepant initials in otherwise cognate verb sets, or the different position of gender markers in the various branches of the language family (prefixal in Nakh, Avar-Andic, both prefixal and infixal in Lak, Dargi, Lezgi). More details and arguments are given in Nichols (2000).

Hunzib, which belongs to the Tsezic branch, has a few verbs with remnants of spatial prefixes. All verbs are given in Table 10 (van den Berg 1995, 353).

Table 10
Spatial elements in Hunzib verb stems

*g- 'downwards'	*n-/r- 'upwards'	*t- 'horizontal'
gu 'come down (precipitation)'	nu 'come hither'	tu 'come thither'
guc'u 'show up'	ruc'u 'show up'	tuc'u 'show up'
guuc'u 'look' (Nakhada dial.)	nuuc'u 'look' (Hunzib dial.)	tuuc'u 'look'
gušu 'touch downwards'		tušu 'touch'
guk' 'put on (a hat, scarf)'	ruk' 'belch'	
gul 'put down'		

Except for the verb series *gu/nu/tu* 'come', the spatial dimension of the verbs is currently only known by the elder generation. Younger people use the verbs at random or have generalized one of them. These verbs indicate gender agreement by apophony, e.g., (van den Berg 1995, 80):

- (17) (a) ože nə-r 'The boy came.'
 boy(abs) come:I-pst
- (b) kid ni-r 'The girl came.'
 girl(abs) come:II-pst
- (c) wə nu-r 'The dog came.'
 dog(abs) come:IV-pst

Rutul, a language of the Lezgi branch, has 7 spatial prefixes: *s-* 'down, beneath', *l-* 'on, above', *k-* 'in solid mass, in contact', *g-* 'under', *ʔ-* 'inside', *q-* 'behind, back', *ǰ-* 'outside', *x-* 'by, around, in the hands of'. Some verb series are given in Table 11 (Alekseev 1994, 227).

¹⁷ Nichols (2000) uses the term Nakh-Daghestanian language family, where I use East Caucasian language family. My use of the term East Caucasian does not necessarily imply a further connection of these languages to a larger North Caucasian stock and equals the term Nakh-Daghestanian.

Table 11
Spatial elements in Rutul verb stems

	-äč'w	-eyg	-aǧw	-iḥ	-ayč
s- 'down, beneath'	säč'was 'dismount'	seygas 'pour down (rain)'	saǧwas 'set down'		sayčes 'scatter'
l- 'on, above'	läč'was 'climb up'	leyges 'grow'	laǧwas 'set up'	liḥes 'put on'	layčes 'jump, fly'
k- 'in a solid mass'	käč'was 'enter (water)'		kaǧwas 'lose'	kiḥes 'bury'	
g- 'under'	gäč'was 'crawl under'			giḥes 'put under'	gayčes 'crawl under'
?- 'inside'	äč'was 'enter'	eygas 'round up cattle'	aǧwas 'let in'	iḥes 'place in'	
q- 'behind, back'		qeygas 'catch up'			
ǧ- 'outside'		ǧeygas 'drive out (cattle)'	ǧaǧwas 'hatch out'	ǧiḥes 'beat'	
x- 'by, around'				xiḥes 'apply, put next to'	

Rutul prefixed verbs indicate gender agreement by infixes which entail some morphological changes, e.g., (Maxmudova 2001, 14):

- (18) (a) dux li(y)či-ri 'The boy jumped.'
 boy(abs) jump:I-pst
- (b) riš le(r)či-ri 'The girl jumped.'
 girl (abs) jump:II-pst
- (c) c'ii li(w)či-ri 'The goat jumped.'
 goat(abs) jump:III-pst
- (d) yiz li(y)či-ri 'The snow flew.'
 snow(abs) jump:IV-pst

In some other Lezgetic languages, viz. Tsakhur and Kryz, the gender infixes cause more morphological changes in the stem, which boils down to apophony. There seems to be a sliding scale with regard to the level of morphological changes instigated by gender infixes: one minor morphological change in Dargi,¹⁸ some, or even considerable, morphological changes in

¹⁸ Verb forms with masculine gender agreement undergo two morphological changes, /awi/ > /ay/ and /ewa/ > /e/, e.g., *ka.yk-ib* (fall:m-aor(3)) 'he fell' (< *ka(w)ik-ib*), *čeʔ-ib* (see:m-aor(3)) '(s)he saw him' (< *če(w)aʔ-ib*).

Lezgi, apophony in Hunzib. The level of morphological changes caused by the gender infixes in its turn reflects the different levels of lexicalization (univerbation) of the verb stems in these languages.

4.2. Other languages with bipartite stems

Bipartite stems have long been noted for a number of languages of western North America, in particular for Washo, Klamath, Sahaptin, Yana, and Atsugewi, and, to a lesser extent for some surrounding languages. They were initially described in terms of instrumental prefixes and locative suffixes. According to DeLancey (1996, 38), however, these terms do not cover the whole semantic range of the initial part, and underspecify the meaning of the final part of the stem. They also seem to imply a grammatical phenomenon, instead of a lexical one. DeLancey therefore proposes the terms 'lexical prefixes' and 'locative-directive stems'.

The lexical prefixes in Klamath are bound morphemes; most of them occur with locative-directional stems only, some also with free stems. They can be roughly divided into three groups (DeLancey 1999, 64–7):

- a. classifying lexical prefixes, e.g., *c'a* 'handful of granular objects', *c'i* 'liquid in container', *c'in* 'act with the back', *l'oc* 'act with the knee', *ksV* 'living object', *ne* 'flat object' *sci* 'bunch of objects', *?i* 'plural objects'. Examples of bipartite stems are, e.g., *lewa* 'round object in(to) water', *neq'ya* 'flat object in(to) the road'.
- b. instrumental lexical prefixes, e.g., *c'le* 'act with finger(nail)s', *dV* 'act with hands, fingers: rub, knead', *kV* 'act with a pointed instrument', *kt* 'hit with fist, kick', *n* 'act with a round instrument, act upon a round object', *s* 'act with a sharp instrument, stab', *yV* 'act with the foot, feet, act violently'. Examples of bipartite stems are, e.g., *qew'a* 'break in two (itr.)', *tqew'a* 'break with a blow, kick', *ngew'a* 'break with a round instrument'.
- c. motion and miscellaneous lexical prefixes, e.g., *cV* 'sg. sit, slide', *lw'Vlw* 'pl. stand', *tgV* 'sg. stand', *gV* 'go, move of one's own volition', *cV* 'go (group of animals)', *hod* 'sg. run, jump'. Examples of bipartite stems are, e.g., *gewa* 'go into water', *howwa* 'run, jump into water', *tgewa* 'stand in water'.

The locative-directive stems cover the semantic fields of direction, path and location. They are bound morphemes, always occur as the final element

of a compound stem, and combine freely with both motional and shape-classifying initials. The Klamath bipartite stem can be interrupted by a small number of affixes marking reflexive and causative categories (DeLancey 1996, 42; 1999, 59).

The languages of the area display various degrees of grammaticalization (DeLancey's terminology), i.e., they vary considerably in the number of lexical prefixes and locative-directive stems and also differ to whether these are bound or free morphemes. For instance, the locative-directive stems in Nez Perce are a small closed class of bound morphemes; in Chinookan, it is a small closed class of stems, half of which is bound, half of which occurs independently as well; Klamath has a large closed class of bound morphemes (DeLancey 1996, 42).

The overall correspondences between the languages discussed by DeLancey and the East Caucasian languages are rather striking. In both areas the prefixes and the roots to which they are attached are usually bound morphemes that form a closed class. The languages in DeLancey's sample display different stages of univerbation, as do the various East Caucasian languages: whereas the Dargi bipartite stems are still rather transparent, other East Caucasian languages, like Rutul, Tsakhur, Kryz, and Hunzib, seem to have lexicalized their bipartite stems to a larger extent.

There are differences between the two areas as well: first, the western North American languages seem to have large groups of lexical prefixes and, sometimes, as in Klamath, locative-directive stems. As a result, bipartite stems form a considerable part, -for Klamath even the majority- of verb stems in these languages. The role of bipartite verb stems in East Caucasian seems to be much more modest, e.g., eight prefixes and some 20 odd roots making up a hundred of bipartite verb stems in Dargi. Furthermore, the Dargi and other East Caucasian prefixes are very different semantically: they have a local or directional meaning, which does not seem to be part of the semantics of the lexical prefixes treated by DeLancey.

If we regard bipartite stems as a particular kind of complex verbs, we might be able to come across bipartite stems in those languages, for which complex verbs have been described, e.g., the languages of Northern Australia. The overview of complex verbs given by Schultze-Berndt (forthc.) provides at least two languages, in which possible candidates for a bipartite stem analysis can be found, i.e., Mangarrayi and Nunggubuyu, both belonging to the Non-Pama-Nyungan stock of languages.

One type of complex verbs in Mangarrayi is described as a compound construction: it has a large set of initial elements, the majority of which is

bound, and a closed class of auxiliaries which also occur as free morphemes. The compound is a single phonological and morphological word and cannot be interrupted by other elements (Merlan 1982, 123-31), e.g., (example from Merlan 1982, 68, transcription from Schultze-Berndt *forthc.*):

- (19) *ngiyan-galij-ma-ny* 'He reported to us.'
 3sg:1pl-report-aux-pst

A subset of the complex verbs in Nunggubuyu, called auxiliary compounds, consists of a large set of bound initial elements connect to one verb root *-bu/-wu*, which also occurs as the independent verb 'hit, kill' (Heath 1984, 470). A problematic point in the analysis of these stems in Mangarrayi and Nunggubuyu is that the initial parts seem to lack the spatial, instrumental or classifying semantics typical for bipartite stems of western North America and the East Caucasus. This may however be a matter of analysis.

On the basis of language-internal and comparative evidence, Schultze-Berndt (*forthc.*) argues that Northern Australian languages have gone through several cycles of complex verb formation. Different stages in this cycle are reflected by the synchronically observable types: the type of stems exemplified above, which can probably be analyzed as bipartite stems, is then one stage of that development. This might be an assumption worth exploring for East Caucasian languages as well.

5. Conclusion and outlook

Although the Dargi prefixes have a clear diachronic background of deriving prefixed stems, this approach is not suitable for synchronic description as well. Prefixation is not a free derivational process in Dargi anymore: the prefixes and the majority of roots, to which they are attached, are closed classes of bound morphemes. The concept of bipartite stems proposed here for Dargi provides a more coherent morphological analysis of the data. In addition, it has the advantage of having a broader application to the whole East Caucasian language family. A further area of research could be the semantics of the bound roots, which might be found in the 'path of an event', e.g., *rt* 'pour fluids', *lq* 'strew granular material', *-ik* 'gradual/involuntary movement', *-uq* 'voluntary/telic movement', *-it* 'pull', *-iŋ* 'put' etc. The bipartite approach presents a stimulating point of view for the synchronic analysis of the verbal morphology of East Caucasian languages, with repercussions for the historical-comparative analysis of these languages as well.

Abbreviations

I, II, III, IV = gender markers for systems with more than 3 genders; 1, 2, 3 = 1st, 2nd, 3rd person; abs = absolutive; ad = adlative; aor = aorist; aux = auxiliary, dat = dative; ela = elative; erg = ergative; f = feminine; gen = genitive; ill = illative; m = masculine; n = neuter; neg = negation; nh = non-human plural; onom (onomatopoeia) = sound symbolic element; part = past participle; partic = particle; pl = plural; prev = preverb; pst = past; sg = singular; sub = sublative; sup = superlative.

References

- Abdullaev, Said N. 1954. *Grammatika darginskogo jazyka (fonetika i morfologija)* [A grammar of Dargi: phonetics and morphology]. Dagestanskij filial AN SSSR, Maxačkala.
- Abdullaev, Zapir G. 1993. *Darginskij jazyk. Tom II Morfologija* [The Dargi language. Vol. II Morphology]. Nauka, Moskva.
- Alekseev, Mikhail E. 1994. Rutul. In: Rieks Smeets (ed.) *The indigenous languages of the Caucasus*, vol. 4, part 2, 213–58. Caravan, Delmar.
- Berg, Helma E. van den 1995. *A grammar of Hunzib (with texts and lexicon)*. Lincom, Munich.
- Berg, Helma E. van den 2001. *Dargi folktales. Oral stories from the Caucasus with an introduction to Dargi grammar*. Research School of Asian, African and Amerindian Studies, Leiden.
- DeLancey, Scott 1996. The bipartite stem belt: disentangling areal and genetic correspondences. In: D. Librik – R. Beeler (eds) *BLS 22: Special session on Historical Issues in Native American Languages*, 37–54. Berkeley Linguistic Society, Berkeley.
- DeLancey, Scott 1999. Lexical prefixes and the bipartite stem construction in Klamath. In: *International Journal of American Linguistics* 65: 56–83.
- Harris, Alice C. 2002. *Endoclititics and the origins of Udi morphosyntax*. Oxford University Press, Oxford.
- Heath, Jeffrey 1984. *Functional grammar of Nunggubuyu*. Australian Institute of Aboriginal Studies, Canberra.
- Hopper, Paul – Elizabeth Traugott 1993. *Grammaticalization*. Cambridge University Press, Cambridge.
- Isaev, Magomedshapi A. 1988. *Russko–darginskij slovar'*. Dagučpedgiz, Maxačkala.
- Jacobsen, William 1980. Washo bipartite verb stems. In: K. Klar et al. (eds) *American Indian and Indoeuropean Studies. Papers in honor of Madison S. Beeler*, 85–99. The Hague, Mouton.
- Magometov, Alexandr A. 1963. *Kubačinskij jazyk. Issledovanie i teksty* [The Kubachi language: investigation and texts]. Mecniereba, Tbilisi.
- Magometov, Alexandr A. 1982. *Megebskij dialekt darginskogo jazyka* [The Megeb dialect of Dargi]. Mecniereba, Tbilisi.
- Magometov, Alexandr A. 1983. *Sistema posleložnyx padežej i preverbov v darginskom jazyke* [The system of postpositional cases and preverbs in Dargi]. In: *Sistema preverbov i poslelogov v iberijsko-kavkazskix jazykax*, 191–202. Institut Istorii, filologii i ekonomiki, Čerkessk.

- Maxmudova, Sveta M. 2001. Morfologija rutul'skogo jazyka [A morphology of Rutul]. RAN, Moskva.
- Merlan, Francesca C. 1982. Mangarayi. North Holland, Amsterdam.
- Moravcsik, Edith A. 2000. Infixation. In: Geert Booij – Christian Lehmann – Joachim Mugdan (eds) *Morphologie: ein internationales Handbuch zur Flexion und Wordbildung*, vol. I, 545–52. Walter de Gruyter, Berlin & New York.
- Musaev, Magomedsaid M. 1983. Padežnye okončanija i ix genetičeskie paralleli v sisteme preverbov i poslelogov darginskogo jazyka [Case-endings and their genetic parallels in the system of preverbs and postpositions in Dargi]. In: *Sistema preverbov i poslelogov v iberijsko-kavkazskix jazykax*, 255–62. Institut Istorii, filologii i èkonomiki, Čerkessk.
- Nichols, Johanna 2000. Bipartite verb stems in Proto-Nakh-Daghestanian. Invited paper at the 10th Caucasian Colloquium of the Societas Caucasologica Europæa. Munich.
- Nikolayev, Sergey L. – Sergey A. Starostin 1994. *A North Caucasian Etymological Dictionary*. Asterisk, Moscow.
- Perrot, Jean 1995. Préverbes et suffixes casuels en hongrois. In: A. Rousseau (ed.) *Les préverbes dans les langues d'Europe. Introduction à l'étude de la préverbation*, 107–26. Presses Universitaires du Septentrion, Lille.
- Schultze-Berndt, Eva forthc. Preverbs as an open word class in Northern Australian languages: synchronic and diachronic correlates. In: Geert Booij – Ans van Kemenade (eds) *Yearbook of Morphology 2002*. Kluwer, Dordrecht.
- Sulejmanov, Nadir D. 1992. K istorii formirovanija napravitel'nyx morfem s vertikal'noj orientaciej v dagestanskix jazykax [Towards the diachronic developments of directional morphemes with a vertical orientation in Daghestanian languages]. In: *Problemy sravnitel'no-istoričeskogo issledovanija morfologii jazykov Dagestana*, 108–30. DNC RAN, Maxačkala.
- Topuria, Guram V. 1983. K istorii vzaimootnošeniya predlogov i posleložnyx padežej v lezginskom jazyke [Towards the diachronic relationship of preverbs and postpositional cases in Lezgian]. In: *Sistema preverbov i poslelogov v iberijsko-kavkazskix jazykax*, 203–6. Institut Istorii, filologii i èkonomiki, Čerkessk.
- Uslar, Petr K. 1892. Ètnografija Kavkaza. Jazykoznanie V. Xjurkilinskij jazyk [Ethnography of the Caucasus. Linguistics V. The Hurkili language]. Upravlenie Kavkazskago Učebnago Okruga, Tiflis.

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WORD-LEVEL AND PHRASE-LEVEL PREFIXES IN ZULU*

JOCHEN ZELLER

Abstract

This article investigates two strategies of relative clause formation in Zulu, a Bantu language spoken in South Africa. The standard way of forming a relative clause in Zulu involves a prefix (a so-called “relative concord”) which is attached to the predicate of the relative clause. In this strategy, the relative concord expresses agreement with the subject of the relative clause. In a second strategy, the relative concord seems to be prefixed to the first word of the relative clause; in this position, it agrees with the head noun. The main claim of this article is that the second strategy of relative clause formation in Zulu is an example of phrasal affixation. I show that the relative concord does not merge morphologically with the first word of the relative clause, but is attached to the whole relative clause. Following Anderson (1992), I analyse this kind of phrasal affixation as an inflectional process; the relative clause is a predicate, and the relative concord in the second strategy expresses agreement between this phrasal predicate and the head noun.

1. Introduction

In Zulu, one of the nine officially recognised Bantu languages of South Africa, the predicate of a relative clause is usually modified with a prefix which expresses both relativisation and agreement with the subject of the relative clause (a so-called relative concord). However, there is a second strategy of relative clause formation in Zulu in which the relative concord seems to be prefixed to the initial noun of the relative clause. In this position, it no longer agrees with the relative clause subject, but with the head noun of the construction. This paper investigates these two different relative clause formation strategies in Zulu.

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In sections 2 and 3, the properties of the two strategies are outlined and discussed. I assume that the relative concord in the first strategy is a word-level prefix which morphologically combines with the predicative stem of the relative clause. I then argue in section 4 that the relative concord in the second strategy is prefixed to the relative clause as a whole. Following a proposal articulated in Anderson (1992), I analyse this kind of “phrasal affixation” in terms of cliticisation. I assume that the relative marker in these constructions is a clitic which uses the initial noun of the relative clause as its phonological host. In section 5 I suggest that the relativising phrasal affix of the second strategy represents an intermediate stage of a grammaticalisation process that derived the relative concord of the first strategy from an earlier relative clause construction in Zulu which used relative pronouns.

2. Relative concords in Zulu

Zulu is part of the Nguni group of languages spoken in South Africa. As in other Bantu languages, each noun in Zulu belongs to a particular noun class. Class membership determines agreement with nominal modifiers, verbs, adjectives etc. In a normal declarative sentence, a prefix is attached to the verbal stem which expresses agreement with the subject.¹

- (1) (a) Abafana ba-sebenza esitolo
 boy2 sp2-work in.shop7
 ‘The boys are working in the shop.’
- (b) Isitshudeni si-funda incwadi
 student7 sp7-read letter9
 ‘The student is reading the letter.’
- (c) Izintombi zi-dlala ne-ngane
 girl10 sp10-play with-child9
 ‘The girls are playing with the child.’

¹ In the glosses, I mark the noun classes and agreement through numbers, according to Meinhof’s (1906) numbering system of Proto-Bantu. Morphemes are glossed as follows: apl = applicative, cop = copula, def = sentential definitiser, dem = demonstrative pronoun, det = determiner, fem = feminine gender, foc = focus marker, fut = future tense, masc = masculine gender, neg = negation, neut = neuter gender, oc = object clitic, pass = passive, pc = pronominal clitic, perf = perfect tense, pl = plural, poss = possessive marker, rc = relative concord, refl = reflexive clitic, rel = relative complementiser, rp = relative pronoun, rs = relative suffix, sg = singular, sp = subject prefix, tns = Tense.

In relative clauses, the form of the initial prefix which is attached to the verb stem changes. The verb is now prefixed with a so-called relative concord (cf. Doke 1954), printed in boldface in the examples that follow. As the examples in (2) and (3) show, the relative concord always agrees with the subject of the relative clause; relativisation and subject agreement are simultaneously expressed by the relative concord:²

- (2) (a) Abafana [**aba**-sebenza esitolo] ba-fik-e namhlanje
 boy2 rc2-work in.shop sp2-arrive-perf today
 'The boys who work in the shop arrived today.'
- (b) Incwadi [**esi**-yi-funda-yo isitshudeni] in-de
 letter9 rc7-oc9-read-rs student7 sp9-long
 'The letter that the student is reading is long.'
- (c) Ingane [**ezi**-dlala na-**yo** izintombi] i-ya-hleka
 child9 rc10-play with-pc9 girl10 sp9-foc-laugh
 'The baby with whom the girls play is laughing.'

The examples in (2) illustrate that the relative concords in Zulu are the result of combining the subject prefix of the respective noun class with a relative morpheme whose underlying form is *a-*. The overt phonological form of the relative morpheme is determined by a general rule of Vowel Raising that causes the vowel *a-* to assimilate in height and backness to the high vowel of the following subject prefix (cf. e.g., Khumalo 1992; van der Spuy 2001), deriving the two allomorphs *o-* and *e-*. If the subject prefix starts in a consonant, as in the examples in (2), the relative concord has the form relative morpheme + subject prefix. However, if the subject prefix is a vowel, it is deleted.³ In noun classes with vowel subject prefixes, the relative concord therefore only consists of the relative morpheme:

- (3) (a) Umfana [**o**-sebenza lapha] u-ya-gula
 boy1 rc1-work here sp1-foc-be.sick
 'The boy who works here is sick.'
- (b) Ukudla [ugogo **a**-ku-pheka-yo] ku-mnandi impela
 food14 granny1a rc1a-oc14-cook-rs sp14-tasty indeed
 'The food that granny cooks is tasty indeed.'

² The subjects of the relative clauses in (2b) and (2c) are extraposed. Subject extraposition in relative clauses of this type is not compulsory in Zulu; however, it is the preferred option for some speakers (cf. e.g., Du Plessis-Visser in prep.).

³ If a high vowel subject prefix is followed by a vowel-commencing morpheme, the former is replaced by a glide, cf. Khumalo (1992).

- (c) Incwadi [e-fund-wa yi-sitshuden] in-de
 letter₉ rc₉-read-pass by.student₇ sp₉-long
 'The letter that is being read by the student is long.'

In the examples in (2a), (3a) and (3c), the head noun corresponds to the subject of the relative clause. Following Doke (1954), I refer to these constructions as **direct** relatives. When the head noun corresponds to some other constituent in the relative clause, as in (2b), (2c) and (3b), the construction is called an **indirect** relative. In indirect relatives, the grammatical function of the head noun is indicated through a pronominal clitic inside the relative clause (underlined in (2) and (3)). In (3b), for example, the head noun corresponds to the object of the verb, and hence, an object clitic which agrees with the head noun is attached to the verb stem. In (2c), the head noun corresponds to the object of the prepositional prefix *na-* 'with', and the clitic appears adjoined to the preposition. The verb of a relative clause in Zulu occurs in the so-called participial mood which is taken to express subordination (cf. Doke 1954). Furthermore, a relative suffix is usually attached to the predicate of the relative clause when it occurs in phrase-final position, (2b) and (3b). Another interesting observation that can be made with respect to relative concords is that they strongly resemble the Zulu demonstrative pronouns of the so-called first position (whose meanings correspond to English *this* and *these*). The only surface difference is that the initial lateral consonant of the demonstratives is lost with the relative concords.⁴ (I come back to this observation in section 5.1.) Table 1 lists the full paradigm of relative concords in relation to subject prefixes and demonstratives.

In the following I adopt the terminology introduced in Poulos (1982) and refer to this way of forming relative clauses in Zulu as "Strategy 1".

3. Strategy 2

Zulu grammars and textbooks present an alternative way of forming relative clauses. When the head noun corresponds to a possessor in the relative clause, it seems possible to attach the relative concord to the **initial noun** of the relative clause (cf. (4)–(7)):

⁴ Notice that in Swati, another Nguni language, relative concords have also maintained the initial consonant. Therefore, relative concords and demonstrative pronouns are identical in Swati.

Table 1

Subject prefixes, demonstratives and relative concords in Zulu

NOUN CLASS	SUBJECT PREFIX	RELATIVE CONCORD	1ST POSITION DEMONSTRATIVE
1, 1a	u-	o- (direct relatives) a- (indirect relatives) ⁵	lo-
2, 2a	ba-	aba-	laba
3	u-	o-	lo
4	i-	e-	le
5	li-	eli-	leli
6	a-	a-	la(wa)
7	si-	esi-	lesi
8	zi-	ezi-	lezi
9	i-	e-	le
10	zi-	ezi-	lezi
11	lu-	olu-	lolu
14	bu-	obu-	lobu
15	ku-	oku-	loku

- (4) umfazi [o-bantwana ba-khe u-ba-limaz-ile]
woman1 rc1-child2 poss2-pc1 2sg-oc2-hurt-perf
'the lady whose children you hurt' (Poulos Msimang 1998, 162f)
- (5) Si-zo-theng-ela entsha ikhehla [eli-mbazo ya-lo i-lahlek-ile-yo]
1pl-fut-buy-apl new.one old.man5 rc5-axe9 poss9-pc5 sp9-be.lost-perf-rs
'We shall buy the old man whose axe is lost a new one.' (Ziervogel et al. 1985, 225)
- (6) umuntu [o-'zandhla za-ke zi-mhlope]
person1 rc1-hand8 poss8-pc1 sp8-white
'the person whose hands are white' (Colenso 1859, 48)
- (7) amakosi [a-'masimu a-wo si wa bona-yo]
chief6 rc6-field6 poss6-pc6 1pl oc6 see-rs
'the chiefs whose fields we see' (uNemo no date; 19th century, 114)⁶

⁵ The relative concord of class 1/1a in direct relatives seems to be based on the indicative subject prefix of class 1/1a, which is *u-*, whereas the relative concord of class 1 in indirect relatives seems to be based on the subject prefix of the participial mood, which is *a-*.

⁶ The example in (7) illustrates that the first orthographers of Zulu used a much more disjunctive form of writing than the one which is used in present-day Zulu. Many morphemes were written as separate words (cf. van der Spuy 2001).

Poulos (1982) provides more examples illustrating the properties of this construction which he labels "Strategy 2" (cf. Poulos 1982, 172):

- (8) (a) Indoda [e-baba u-shay-e izinja za-yo] i-thukuthele
 man9 rc9-father1a spla-hit-perf dog10 poss10-pc9 sp9-be.angry
 'The man whose dogs my father hit is angry.'
- (b) INgisi [eli-baba u-hlala endlini ya-lo] li-ya-vilapha
 Englishman5 rc5-father1a spla-stay in.hut9 poss9-5 sp5-foc-be.lazy
 'The Englishman in whose hut my father is staying is lazy.'

The examples show that in Strategy 2, the relative concord is no longer attached to the verb, but to the initial noun of the relative clause. This initial noun is usually the subject, as in the examples (5), (6) and (8). However, in (4) and (7), the object of the relative clause has been preposed, and consequently, the relative concord combines with the object noun. Importantly, the "misplaced" relative concord no longer agrees with the subject, but with the head noun (note that e.g., in (8b), we get class 5 *eli-*, not class 1a *o-* or *a-*). When combined with the relative concord, the subject noun loses the initial vowel (sometimes called the augment or prevowel) of its class prefix. Whereas some grammars list Strategy 2 as the only way to form relative clauses with possessors, others mention both Strategy 1 and Strategy 2 as acceptable constructions for possessive relative clauses. For example, Poulos (1982, 171) presents (9) as a possible alternative to (8a):

- (9) Indoda [ubaba a-shay-e izinja za-yo] i-thukuthele
 man9 father1a rc1a-hit-perf dog10 poss10-pc9 sp9-be.angry
 'The man whose dogs my father hit is angry.'

(9) is the Strategy 1-variant of (8a). The relative concord is attached to the verb and expresses agreement with the subject. Poulos (1982) argues that Strategy 2 is also found with other kinds of indirect relatives. (10a) illustrates Strategy 1 with a relative clause construction whose head noun corresponds to the direct object; (10b) expresses the same grammatical relation by means of Strategy 2 (cf. Poulos 1982, 119):

- (10) (a) Indoda [ubaba a-yi-thanda-yo] i-y-inkosi
 chief9 father1a rc1a-oc9-love-rs sp9-cop-chief9
- (b) Indoda [e-baba u-ya-yi-thanda] i-y-inkosi
 man9 rc9-father1a spla-foc-oc9-love sp9-cop-chief9
 'The man whom father likes is a chief.'

In the following example, from van der Spuy (2001, 56), the head noun corresponds to the complement of a preposition:

- (11) intombi [e-nina a-zi-hlupha nga-yo]
 girl9 rc9-mother1a spl1a-refl-worry with-pc9
 ‘the young woman whose mother worries about her’

In Strategy 2, it seems no longer compulsory to mark the relative clause as a subordinate clause. Recall that in Strategy 1, the relativised verb would always appear in the participial mood. In contrast, the verb of a relative clause in Strategy 2 may occur in the indicative, and usually appears without the relative suffix.⁷

It must be noted that Strategy 2 is not fully acceptable for all Zulu speakers. Many of my informants considered the examples in (4)–(11) “bad Zulu”, clumsy, or even ungrammatical; Strategy 1 was generally preferred (I come back to this point in section 5.2). The responses, however, were quite diverse. Some Zulu speakers accepted the examples from Strategy 2 that are found in the literature, others accepted them with minor changes. For example, some of my informants did not accept the example in (12a), where the verb appears in the indicative mood, but they found that the example improved when the verb morphology followed that in Strategy 1 (i.e., participial subject prefix and relative suffix), (12b):

- (12) (a) inkosi [e-mntwana wa-yo u-ya-gula]
 chief9 rc9-child1 poss1-pc9 spl1-foc-be.sick
 ‘the chief whose child is ill’
- (b) inkosi [e-mntwana wa-yo a-gula-yo]
 chief9 rc9-child1 poss1-pc9 spl1-be.sick-rs
 ‘the chief whose child is ill’

Some speakers detected interesting semantic differences between Strategies 1 and 2. In (9), which is the Strategy 1-variant of (8a), the subject of the relative clause *ubaba* was interpreted as referring to the speaker’s father. However, in (8a), where the subject is modified with the relative concord (*ebaba*), it was taken to be more closely related to the head noun; my informants interpreted this as ‘the man’s father’ (or as ‘the Englishman’s father’ in (8b)). Example (11) reflects the same situation; although there is no possessive pronoun, the subject of the relative clause is interpreted as standing in a possessive

⁷ The data are not clear in this respect. In most examples in Strategy 2, the indicative subject prefix is attached to the verb stem (cf. e.g., *u-* (class 1/1a) in (8a)). However, one also finds examples where the participial subject prefix appears instead (cf. e.g., *a-* (class 1/1a) in (11) and in (12b) below). In Xhosa, another language of the Nguni group which forms relative clauses by the same two strategies found in Zulu, the relative suffix *-yo* occurs regularly in both Strategy 1 and Strategy 2 (cf. Pahl 1983).

relation to the head noun. Furthermore, some of my informants observed that Strategy 2 occurs more often in idiomatic expressions such as (13):

- (13) Insizwa [e-ntombi zi-yi-celukhisi] a-yi-kho namhlanje
 young.man9 rc9-girl10 sp10-oc9-ask.for.kiss neg-sp9-be.here today
 ‘The charming young man is not here today.’
 Literally: ‘The man from whom the girls ask a kiss is not here today’.

I do not address the semantic implications of Strategy 2. Rather, I want to account for the observation that the relative concord in Strategy 2 combines with the first word of the relative clause. In the next section, I discuss some problems with the idea that the relative concord in Strategy 2 is morphologically affixed to the initial noun of the relative clause. I offer an alternative explanation which treats the relative concord in examples like (4)–(13) as a “phrasal affix”.

4. Clitics and phrasal affixation

One might conclude from the data discussed in section 3 that Strategy 2 involves the prefixation of a relative concord to an adjacent noun stem. In this section I present some conceptual problems with this view and suggest an alternative proposal. I argue that the relative concord in Strategy 2 does not form a morphosyntactic word with the initial noun of the relative clause. Rather, I suggest that the relative marker in this construction is a clitic which is prefixed to the whole relative clause.

4.1. The problem: predication and agreement

In Strategy 1, the relative concord is a genuine prefix; it is an inflectional morpheme which is attached to the predicate of the relative clause (which can be a verb or an adjective). If the merging of the relative concord and the noun observed in Strategy 2 was the same morphological process which combines a prefix and a stem on the word level, then one would have to conclude that relative concords can also attach to nominal stems. But then we would expect to find relative clauses like (14a):

- (14) (a) *Indoda [e-baba] i-hamb-ile.
 man9 rc9-father1a sp9-go-perf

- (b) Indoda [e-ng-ubaba] i-hamb-ile
 man9 rc9-cop-father1a sp9-go-perf
 'The man who is a father has left.'

(14) shows that if a nominal predicate is used in a relative clause, it is not possible to simply attach a relative concord directly to the nominal stem, (14a). Instead, the insertion of a copula affix is required, (14b). But if a relative concord cannot attach to a nominal predicate in Strategy 1, why can it apparently be affixed to a noun in Strategy 2?

A related question arises from the observation that the relative concord in Strategy 2 establishes agreement with the head noun. Agreement is usually determined by specific syntactic contexts. If one really wanted to argue that the relative marker in Strategy 2 expresses agreement between the head noun and the subject of the relative clause, then it would need to be stipulated that an element in subject position can agree with an NP outside its clausal projection. This kind of long distance agreement between two nouns is itself not unproblematic, but suppose a reasonable analysis could be presented for the agreement between head noun and relative clause subject in Strategy 2. Then the next problem is raised immediately by constructions like (4) and (7), where the agreement marker is not attached to the subject, but to a fronted object noun. If one did not want to claim that a fronted object occupies the canonical subject position (a claim which would be difficult to substantiate), then yet another stipulation would need to be made to account for the fact that agreement can also be expressed between a fronted object and the head noun.

In the light of these problems, it seems that an alternative analysis is called for which does not treat the relative marker in Strategy 2 as a word-level prefix which combines with a nominal stem.

4.2. The solution: relative markers as phrase-level affixes

When a relative concord in Strategy 1 attaches to a verb or an adjective in the relative clause, it expresses a predication relation between this predicate and the subject which is overtly marked by agreement. The relative marker in Strategy 2 agrees with the head noun, but neither the subject of the relative clause nor a fronted object can possibly be interpreted as predicates. Obviously, it is not the initial noun of the relative clause which is the predicate, but rather the whole relative clause itself. Relativisation turns a sentence into a "complex adjective" (cf. Quine 1960) which forms a complex predicate with the head noun (cf. Partee 1975; Heim-Kratzer 1998; Rebuschi 2002). In

the light of this observation I propose that the relative marker in Strategy 2 attaches to the whole relative clause. Like the relative concord of Strategy 1, it attaches to a predicate, but in contrast to Strategy 1, the relevant predicate is not a word, but a phrase. This means that I analyse the relative marker in Strategy 2 as a “phrasal affix”.

Anderson (1992) argues that besides inflectional word-level morphology, there is also “inflectional morphology of phrases”. Like inflectional word formation rules, which may change the phonological form of a host by attaching an inflectional affix to a word stem, the rules of phrase-level morphology may require affixes to attach to a phrasal host, depending on the phrase’s morphosyntactic feature specification. The standard case of phrasal inflection discussed by Anderson is cliticisation. Clitics are affixes that are added as overt manifestations of a morphological rule that operates on phrases.⁸ A well-known example of such a phrasal affix is the English possessive clitic ‘s:

- (15) (a) [a friend of mine]’s book
 (b) [a man I know]’s hat (Lieber 1992, 14)
 (c) I once knew[that guy you’re talking about]’s brother in law (Anderson 1992, 212)

Although the syntactic and semantic scope of the possessive marker is the whole preceding noun phrase, the clitic is attached only to the last word of the respective noun phrase (cf. Marantz 1988; Halpern 1995). Anderson (1992) and Lieber (1992) therefore analyse ‘s as an inflectional phrasal affix which realises a morphological property of the preceding noun phrase, the feature [+possessive]. The clitic does so by attaching to the last word of this phrase, regardless of the syntactic category of that word.

I adopt these considerations for my analysis of Strategy 2 in Zulu relatives. Whereas the phrase-final morpheme in English possessives is a phrasal suffix, the relative marker in Strategy 2 can be regarded as a phrasal prefix.

⁸ Zwicky (1977) distinguishes between two kinds of clitics, *viz.* **simple** and **special** clitics. A simple clitic is the phonologically reduced form of an independent word; it belongs to the same syntactic category as this word and appears in the same syntactic position in which the full word would be licensed. For example, the reduced form of the auxiliary *is* in *How’s your old man?* is a simple clitic. In contrast, a special clitic appears in a syntactically “unexpected” position which is determined by a special clitic-rule. Anderson (1992) adopts Zwicky’s distinction and only analyses special clitics as phrasal affixes; he treats simple clitics merely as phonologically “weak” lexical items. Furthermore, Anderson (1992) argues that next to special clitics with properties of **inflectional** affixes, there are also **derivational** phrasal affixes, i.e., special clitics that introduce a change of meaning or discourse function of the phrase with which they combine. For more details of Anderson’s classification, I refer the reader to Anderson (1992, chapter 8).

What looks like a relative concord affixed to the initial noun of the relative clause is in fact a phrasal affix which formally expresses agreement between the relative clause and the head noun.

The phrase-level inflection of relative clauses illustrated by Strategy 2 in Zulu corresponds to the word-level inflection of adjectives which agree with their nouns in languages like German:

- (16) (a) eine stark-e Frau
 det.fem strong-fem woman.fem
 'a strong woman'
- (b) ein stark-er Mann
 det.masc strong-masc man.masc
 'a strong man'
- (c) ein stark-es Mädchen
 det.neut strong-neut girl.neut
 'a strong girl'

Like relative clauses, adjectives form complex predicates with the nouns they modify. Predicate conjunction is reflected by the agreement between the adjectival and the nominal predicate. Similarly, there is agreement between the conjoined predicates in Zulu relative clauses formed by Strategy 2. Since one of these predicates is a full clause, these agreement properties must be expressed by means of a phrasal affix.⁹

In the light of Anderson's (1992) theory, the phrasal affix of Strategy 2 must be analysed as a clitic, and the examples provided in section 3 confirm this conclusion. Like all clitics, the relative marker is phonologically dependent on a host. It cannot stand alone, but must form a phonological unit with the following word, and it cannot be displaced by syntactic movement rules. This creates the illusion that the relative marker in Strategy 2 is a relative concord affixed to a noun stem. However, in contrast to genuine word-level affixes, clitics do not depend on particular hosts, but "exhibit a low degree of selection with respect to their hosts" (Zwicky-Pullum 1983, 503). The relative marker in Zulu must combine with the first word of the phrase to which it is affixed, and usually, this first word is the subject of the relative clause. Therefore, the relativising clitic is most frequently found phonologically attached to the subject noun. However, if some other constituent appears in the first position of the relative clause, then it combines with the first word of that

⁹ In a similar spirit, Poulos (1982, 124) notes that "it appears as though there is a tendency in Zulu to bring the whole RC [= relative clause] into 'subjectival agreement' with the ANT [= the head noun]". However, Poulos does not elaborate on this observation.

constituent. For instance, if an object is fronted, as e.g., in the examples (4) and (7) above, the clitic and the subject noun are no longer adjacent. Since the relative marker attaches to whatever element appears immediately to its right, it combines with a non-subject noun in these contexts. Furthermore, in contexts in which the relative clause predicate is the first element of the relative clause (as is the case, for example, in direct relatives), the relative marker combines with a verb or adjective (I return to this point in section 5.2). This selectional freedom of the relative marker strongly supports the view that it is a clitic, i.e., a phrasal affix attached to the relative clause.

Possibly, another property of Strategy 2 discussed in section 3 also follows from this analysis. The difference between the morphological form of the predicates in Strategy 1 and Strategy 2 can now be accounted for by the assumption that the dependency of a relative clause in Zulu must be marked in one of two possible ways. The first option is to mark the relative clause as a predicate by means of a phrasal affix which agrees with the head noun. In that case, the relative clause itself can occur in the indicative, as is possible in Strategy 2. Alternatively, if no phrasal affix is present, the dependent status of the relative clause must be expressed via subordination. Therefore, the relative clause must occur in the participial mood in Strategy 1. An elaboration of this idea would require a more careful study of the semantics of relative constructions in Strategy 1 and Strategy 2 than I can provide here, but it is certainly an interesting hypothesis which might stimulate future work.

5. Relative pronouns, relative clitics and relative concords in Zulu

5.1. Strategy 2 and relative pronouns

In Anderson's (1992) theory, the rules of phrase-level morphology operate on the phonological form of a phrase and its morphosyntactic feature specification, mapping it onto the morphophonological form of the inflected phrase. According to this view, a phrasal affix is just a phonological reflex of the application of a particular morphological (phrase-level) rule. This means that one would not have to postulate a specific syntactic position for the relative marker in Strategy 2 in Zulu; its status would be purely phonological. However, although I indeed assume, following Anderson, that the clitic which is prefixed to Zulu relative clauses is not associated with a particular structural position, I suggest that it has been derived historically from a syntactically

independent element. The assumption that I want to defend here is that the relative marker in Strategy 2 is derived from a **relative pronoun**.

Relative pronouns typically agree with their head nouns in languages like German or English:

- (17) (a) der Mann [den ich gesehen habe]
 the man-sg rp-sg I seen have
 'the man whom I have seen'
 (b) die Männer [die ich gesehen habe]
 the men-pl rp-pl I seen have
 'the men whom I have seen'
- (18) (a) the man [whom I have seen]
 [+human] rp-[+human]
 (b) the dog [which I have seen]
 [-human] rp-[-human]

Following standard assumptions, I assume that relative pronouns are located in SpecCP of the relative clause (cf. e.g., Chomsky 1986; Heim-Kratzer 1998; Alexiadou et al. 2000). From this position, they can express agreement with the head noun (cf. Kayne 1994 for a proposal which captures this agreement relation through the assumption that the head noun and the relative pronoun form one constituent). I now suggest that the relativising clitics found in Strategy 2 in Zulu are the result of a grammaticalisation process that turned relative pronouns into phrasal affixes. As relative pronouns, the relative markers were independent elements that occupied SpecCP and agreed with the head noun, but because of their adjacency to the relative clause IP, they became reanalysed as phrasal affixes. As such, they still express agreement with the head noun, but no longer because of their structural position, but because they reflect the output of a morphological rule.

The idea that the phrasal affixes in Zulu are based on relative pronouns is supported by typological evidence. Recall that the Zulu relative concords, which are identical in form to the phrase-level affixes of Strategy 2, bear a striking resemblance to the demonstrative pronouns in Zulu (cf. Table 1 in section 2). Importantly, demonstrative pronouns are used as relative pronouns in many Bantu languages, cf. the following examples:¹⁰

¹⁰ The original examples do not always give glosses. I have added them as far as I could determine the basic morphological structure. Notice that example (23) from Nkemba shows that the demonstrative pronoun is in fact a relative pronoun in SpecCP (and not a relative complementiser in C⁰), since the demonstrative co-occurs with the relative complementiser *bah*.

- (19) tihomu [leti ti-dya-ka]
 ox10 dem10 sp10-eat-rel
 'cattle which eat' (Tsonga; Doke 1954, 191)
- (20) ngwana [eo nkgono a mo fepa-ng]
 child1a dem1a grandmother1a part1 ocl1a feed-rs
 'the child whom the grandmother feeds' (Southern Sotho; Mischke 1998, 108)
- (21) dijo [tse bana ba di jel-e-ng]
 food8 dem8 child2 sp2 oc8 eat-past-rs
 'the food which the children ate' (Tswana)
- (22) ulume [una ufeko a-mola] wa-yongola okulya
 man dem girl1 sp1-saw sp1-wanted to.eat
 'The man whom the girl saw wanted to eat.' (Umbundu; Wald 1970, 143)
- (23) nyung [wá bah a-keshung-ne mung wa la] a-kung atsang
 man dem rel sp+tns-beat-rs child det def sp-enter into.prison
 'The man who beat the child went to prison.' (Ngenba; Chumbow 1977, 290)

I assume that the basic syntactic structure of relative clauses in early Zulu was the same as the structure of the relative clauses in (19)–(23). A demonstrative pronoun was used as a relative pronoun and therefore located in SpecCP from where it expressed agreement with the head noun. This relative pronoun was then reanalysed as an inflectional clitic which functions as a phrasal affix attached to the relative clause-IP.

Further support for this assumption is provided by one of my Zulu informants. She did not accept the Strategy 2-example in (11) (repeated in (24) for convenience), but instead suggested the construction in (25):

- (24) intombi [e-nina a-zi-hlupha nga-yo]
 girl9 rc9-mother1a spla-refl-worry with-pc9
 'the young woman whose mother worries about her'
- (25) intombi [le unina a-zi-hlupha nga-yo]
 girl9 dem9 mother1a spla-refl-worry with-pc9
 'the young woman whose mother worries about her'

The initial element in (25) is a demonstrative pronoun, not the relative marker, as illustrated by the fact that its form is *le*, not *e-*. As such, it precedes the subject of the relative clause and agrees with the head noun, like the demonstrative pronouns in the examples in (19)–(23). According to my analysis, (25) reflects the relative pronoun-stage of early Zulu; the demonstra-

tive pronoun *le* is located in SpecCP and therefore is adjacent to the IP. This adjacency has led speakers to reanalyse the pronoun as a phrasal affix.

The following observation creates room for some speculations about the factors that triggered the reanalysis of constructions like (25). Recall that in Strategy 2, the augment of the initial noun of the relative clause is deleted. Interestingly, the initial vowel of a noun is also deleted if a demonstrative pronoun in Zulu precedes the noun:

- (26) (a) lo mfana
 dem1 boy1
 'this boy'
 (b) laba bafana
 dem2 boy2
 'these boys'

- (27) lo mfana (= (26a)) < lo + unfana
 laba bafana (= (26b)) < laba + abafana

The deletion of the augment in (26) is probably related to the fact that this vowel has properties of a definite determiner (and therefore would be incompatible with a preceding demonstrative). As a result of prevowel deletion, the demonstratives in (26) cliticise to their following nouns; a noun and a preceding demonstrative form a phonological word (cf. Cope 1984; van der Spuy 2001). Now suppose that Strategy 2 is the result of an overgeneralisation of the rule that deletes the noun's initial vowel after a demonstrative. Some speakers would have applied the rule that triggers the deletion of the prevowels in (26) to examples like (25) and delete the augment of the first noun of the relative clause IP (because this noun is also preceded by a demonstrative (= relative) pronoun). Since nouns in Zulu usually need a prevowel, the relative pronoun was then forced to cliticise to the noun, as if to "take over" the place previously occupied by the augment. This phonological process was then functionally interpreted as the affixation of an agreement marker to the whole relative clause IP.

5.2. Strategy 2 and relative concords

Let me now turn to the question of how the relative markers of Strategy 2 in Zulu are related to the relative concords that function as genuine inflectional prefixes in Strategy 1. After all, the form of these elements is identical in all noun classes. It would certainly be inadequate to assume that this is a mere accident.

I have assumed that Strategy 2 is the result of a reanalysis process that turned relative pronouns in Zulu into relativising clitics. I now suggest that Strategy 2 itself reflects an earlier historical stage in Zulu from which the relative concord strategy (Strategy 1) of modern Zulu has been derived via reanalysis. I assume that at some stage, Zulu, like many other Bantu languages (cf. the examples in (19)–(23)), used demonstratives as relative pronouns in relative clauses. These relative pronouns then became clitics and hence phonologically bound to the first word of the IP. In indirect relatives, this word would typically be the subject noun of the relative clause, as is illustrated by the examples from Strategy 2 presented above. However, in certain syntactic contexts, like e.g., in direct relatives (where the subject position is not filled with phonological material), the phrasal affix would end up adjacent to the **predicate** of the relative clause. As a clitic, it still needs a phonological host, a function that would then be fulfilled by a verb or an adjective. Crucially, I assume that in these contexts, speakers started to reanalyse the structure with the adjacent relativising clitic and the subject prefix of the relative clause predicate and merged the two into one single element. As such, the former phrase-level affix turned into a genuine word-level affix. This change consequently triggered a change in the agreement properties of the relative marker. Reanalysed as being affixed to a word inside the relative clause, the relative marker no longer expresses a morphosyntactic property of the relative clause (= agreement with the head noun), but a morphosyntactic property of the predicate (= agreement with the subject of the relative clause)—it has become a relative concord.

One advantage of this proposal is that it provides a possible solution to the problem raised by the controversial character of Strategy 2. Strategy 2 is no longer fully productive in modern Zulu. Its rare occurrences can be analysed as relics of an older form which has been pushed aside by the emergence of Strategy 1 in present-day Zulu. In the light of this assumption, dialectal, geographical and generational variation with respect to the acceptability of Strategy 2 is expected—it is not surprising that in some contexts, regions and speaker groups, the older form has been preserved longer than in others.

6. Conclusion

The two strategies of relative clause formation in Zulu investigated in this paper show that the same set of relative markers can occur in two different positions. As a relative concord, the relative marker is an inflectional word-

level prefix; it combines with the predicate of the relative clause and expresses relativisation and agreement between this predicate and the subject. As a phrase-level affix, the same relative marker is attached to the whole relative clause and expresses agreement with the head noun. Since phrasal affixes are clitics, the relative marker needs to attach phonologically to the initial noun of the relative clause, which makes it appear as if the (word-level) relative concord was somehow “misplaced” and attached to a nominal stem. However, I have proposed that the adjacency of relative markers and relative clause initial nouns is in fact a result of a morphological phrase-level rule. If my analysis proves to be correct, then the properties of Zulu relative clauses can be interpreted as evidence for the theory suggested in Anderson (1992). Both clitics and inflectional affixes are phonological reflexes of morphological rules; they differ only with respect to the properties of the host to which they attach.

References

- Alexiadou, Artemis – Paul Law – André Meinunger – Chris Wilder (eds) 2000. The syntax of relative clauses. John Benjamins, Amsterdam & Philadelphia.
- Anderson, Stephen R. 1992. A-morphous morphology. Cambridge University Press, Cambridge.
- Chomsky, Noam 1986. Barriers. MIT Press, Cambridge MA.
- Chumbow, Beban 1977. Relatives as determiners: a case from Ngemba. In: Paul Kotey – Haig Der-Houssikian (eds) Language and linguistic problems in Africa (Proceedings of the Seventh Conference on African Linguistics), 283–302. Hornbeam Press, Columbia.
- Colenso, John William 1859. An elementary grammar of the Zulu-Kafir language. Church of England Missions, Ekukanyeni.
- Cope, Anthony Trevor 1984. A comprehensive course in the Zulu language. Department of Zulu Language and Literature, University of Natal, Durban.
- Doke, Clement Martyn 1954. The southern Bantu languages. Oxford University Press, Oxford.
- Du Plessis, Jacobus Albertus – Marianne Visser in prep. Zulu syntax. Unpublished book manuscript. University of Stellenbosch.
- Halpern, Aaron 1995. On the placement and morphology of clitics. CSLI Publications, Stanford CA.
- Heim, Irene – Angelika Kratzer 1998. Semantics in generative grammar. Blackwell, Cambridge MA & Oxford.
- Kayne, Richard S. 1994. The antisymmetry of syntax. MIT Press, Cambridge MA.
- Khumalo, James Steven Mzilikazi 1992. The morphology of the direct relative in Zulu. In: Derek F. Gowlett (ed.) African linguistic contributions, 210–26. Via Afrika Limited, Hatfield.

- Lieber, Rochelle 1992. Deconstructing morphology. Word formation in syntactic theory. The University of Chicago Press, Chicago.
- Marantz, Alec 1988. Clitics, morphological merger, and the mapping to phonological structure. In: Mark Hammond – Michael Noonan (eds) *Theoretical morphology: approaches in modern linguistics*, 253–70. Academic Press, San Diego.
- Meinhof, Carl 1906. *Grundzüge einer vergleichenden Grammatik der Bantusprachen*. Dietrich Reimer, Berlin.
- Mischke, Gerda 1998. Southern Sotho verbal relative constructions. In: *South African Journal of African Languages* 18: 106–11.
- Pahl, Herbert Walter 1983. *IsiXhosa*. Educum Publishers, Johannesburg.
- Partee, Barbara 1975. Montague Grammar and Transformational Grammar. In: *Linguistic Inquiry* 6: 203–300.
- Poulos, George 1982. *Issues in Zulu relativization*. Ph.D. dissertation, Department of African Languages, Rhodes University, Grahamstown, South Africa.
- Poulos, George – Christian T. Msimang 1998. *A linguistic analysis of Zulu*. Via Afrika, Cape Town.
- Quine, Willard Van Orman 1960. *Word and object*. Oxford University Press, Oxford.
- Rebuschi, Georges 2002. *Generalizing the antisymmetric analysis of coordination to nominal modification*. Ms. Paris.
- Spuy, Andrew van der 2001. *Grammatical structure and Zulu morphology*. Ph.D. dissertation, University of the Witwatersrand, Johannesburg.
- uNemo no date; 19th century. *Igrama lesi ngisi ukuti nje inncwadi yokufundisa abantu ulimi lwabelungu: Innchwadi yokuqala*. Durban.
- Wald, Benji 1970. *Relativization in Umbundu*. In: *Studies in African Linguistics* 1: 131–256.
- Ziervogel, Dirk – Jacobus A. Louw – Petrus C. Taljaard 1985. *A handbook of the Zulu language*. J.L. van Schaik, Pretoria.
- Zwicky, Arnold M. 1977. *On clitics*. Indiana University Linguistics Club, Bloomington.
- Zwicky, Arnold M. – Geoffrey K. Pullum 1983. Cliticization vs. inflection: English *n't*. In: *Language* 59: 502–13.

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BOOK REVIEWS

Eugen Helimski–Anna Wildmer (eds): *Wúša wúša – Sei gegrüßt! Beiträge zur Finnougristik zu Ehren von Gert Sauer dargebracht zu seinem siebzigsten Geburtstag. Veröffentlichungen der Societas Uralo-Altaica. Band 57.* Harrassowitz Verlag, Wiesbaden, 2002, 385 pp.

The latest issue of the long-established journal pays tribute to Dr. Gert Sauer. The front page is illustrated with a portrait of the scholar celebrating his jubilee. He wears the usual friendly smile that he gives all of his colleagues and friends whether they contributed to this book or not. The scholar of Finno-Ugristics graduated at Humboldt University and has become an internationally recognized researcher of Ob-Ugric languages in the research workshop of Wolfgang Steinitz. He completed his doctoral thesis on nominal suffixes in Eastern Ostyak and took part in compiling Steinitz's *Ostyak Dialectal and Etymological Dictionary*. After the death of the editor-in-chief he took the leading role in the work and gained imperishable credits to have this great undertaking published in 15 booklets (*Lieferungen*) including a word index in 1993. Gert Sauer also engaged in the publication of Steinitz's works on Ostyakology. While his own studies mostly cover this area of research, he also carried out thorough investigations concerning the contacts of Finno-Ugric languages with one another and with Russian (see a list of his publications on pages XVII–XXII). Our colleague is a determined researcher who works with clocklike regularity and whose writings have become essential handbooks in everyday use in Finno-Ugric research.

Colleagues and friends published 23 studies in honour of Gert Sauer. Although the articles cover several areas of complex Finno-Ugristics, here I mainly review and comment on papers on linguistic issues. I only indicate the language of the article if it is other than German. Articles are thematically organised here under four headings.

1. Ob-Ugric languages

Márta Csepregi contributes to the book with two new Agan Ostyak texts (pp. 85–93) about the Ostyak house and on the custom of breadbaking. The author briefly touches on some characteristic features of the dialect as well as on its place among other Ostyak dialects. Vuokko Eiras considers the meaning formulations of word entries in the dictionaries of Ob-Ugric languages (pp. 95–102). He discusses an actual example of the fact that some of the difficulties result from cultural differences between the learned collector and the native informant. István Futaky explores the etymologies of Russian mythological terms (pp. 103–10). He highlights the origins of the following two Ob-Ugric words and the way they rooted in Ostyak: (1) 'Erscheinung, Ungeheuer; phenomenon, ghost' (2) 'Botschafter Gottes; Ambassador of God'. Eugen Helimski studies Ostyak phonotactics (pp. 111–16) when he surveys the combinations of word-initial and word-medial dental consonants (plosive/affricate and nasal). He shows that the four consonants constitute two groups that are unable to combine with each other. This regularity provides an explanation for the lack of other combinations as well. Paula Jääsalmi-Krüger analyses volitive sentences in standard Ostyak (pp. 155–85). She examines expressions of volition and intention in a current linguistic context and she describes pragmatic tools and the use

of ten verbs of volition. Ariadna I. Kuznecova considers word formation in Eastern Ostyak, an area also covered by Sauer (pp. 209–28 in Russian) and she also examines affixes from a semantic point of view. She studies names of plants, animals and body parts occurring in Mogutaev's Khanti–Russian dictionary according to their affix structure and meaning and also pays attention to compound words. Irina Nikolaeva considers the possessive constructions of Uralic languages (pp. 239–250 in English). She starts with Ob-Ugric structures and draws up conclusions regarding Proto-Uralic. The author doubts the existence of a marked and an unmarked possessive construction in Proto-Uralic as “the two constructions are clearly distinct in function and structure”. Rosemarie Radomski, Steinitz's former colleague examines Ostyak ghost names (pp. 252–70) that belong to the category of personal names. She divides these two-constituent constructions into a primary word (Grundwort) and a determining word (Bestimmungswort) and sets up a typology according to their meaning. Károly Rédei examines the development of definite (transitive) conjugation in Ostyak (pp. 271–78). Stress (stressed thematic vowels in 1st and 2nd person singular), and the 3sg personal pronoun **se*, as well as the demonstrative pronouns **tä*, **ta*, all contributed to the extension of the Ostyak definite paradigm. Timothy Riese considers consonant-consonant combinations in Northern Vogul (pp. 279–86). He only examines thematic combinations in the lexicon and fails to pay attention to polymorphemic combinations. Eszter Ruttkay-Miklári reveals the ethnographic background of Steinitz's Sinja texts (pp. 287–314). As the study is abundant in names, it is a useful source for those interested in onomastic research. Elena Skribnik surveys participial constructions of reason and purpose in Northern Vogul where postpositions are used to express adverbial relations of reason and purpose (pp. 323–39). Regarding the use of personal possessive endings these structures resemble shortened sentences in Finnish but postpositions are used instead of case endings to express adverbial relations. Anna Widmer discusses the meaning of a seemingly meaningless and fully opaque compound while exploring the mythological background of the word (pp. 369–78).

2. Other Uralic languages

Gerson Klumpp carries out an etymological analysis on Kamas Samoyed month names and concludes that they are all internal creations except for one of Turkish origin. The names are related to the so-called lunisolar year of 13 months. Peter Sherwood studies the suffixability of Hungarian ethnonyms (pp. 315–22). Examining the use of the suffix *-ság/-ség* he shows that *magyar* ‘Hungarian’ has a special status in this respect. Haik Wenzel contributes a contrastive study of aspectuality and actionality in Hungarian and Finnish (pp. 351–67). Although both languages have several mechanisms of aspectuality and actionality, their rate of grammaticalisation is higher in Hungarian than in Finnish. Both languages use analytic and syntetic tools. Eberhard Winkler considers the Russian loan words of the Livonian lexicon (pp. 379–85). Layers are specified bearing the background of Latvian loans in mind.

3. Finno-Ugric/Uralic history of science

Raija Bartens gives a detailed portrait of H. C. v.d. Gabelenz (1807–1874) (pp. 65–84). Besides studying law and economy, the German v.d. Gabelenz was a self-educated linguist who was extremely interested in languages. His unparalleled achievement was his study (1861) on passive constructions, examining 208 (!) languages. He was one of the first scholars to give a detailed description of the grammatical phenomena of several Uralic languages. It is amazing how thorough a survey he offered on Erzya Mordvin on the basis of gospel translations without any preliminary studies and background knowledge about Finno-Ugristics. Later he compiled the grammar summaries of Zyrian, Cheremis, Votyak and Samoyed. His work secures his name

in Finno-Ugristics even within a distance of 150 years as he displayed a taste for combining comparative and synchronic methods. László Honti (pp. 117–53) brings recent “revolutionary” ideas in Uralistics under critical examination. He highlights the historical roots of the “new” hypotheses and outlines his views on Proto-Uralic, the family tree and on the theories of the ancient homeland of the Finno-Ugric peoples. One by one he proves how insupportable the “revolutionist’s” ideas are. He also emphasises the pitfalls of human genetics. As a conclusion of his polemical study supported by rich logical arguments he claims (for the first time in the German literature) that the “revolutionist’s” hypotheses take readers and believers to the world of science fiction. Lars-Gunnar Larsson describes the work of Fredrik Martin, a young ethnographer, who visited the Surgut Ostyak in 1891. Although his accounts of his journeys were published in the following years, summaries on the history of science have failed so far to report on his activities.

4. *Other*

Apart from linguistic issues the book touches on folklore and ethnography. It includes an article on the Sami joika (Hans-Hermann Bartens pp. 1–63), on the shaman rituals of the Surgut Ostyak (Ágnes Kerezi pp. 187–99 in Russian) and on the folkloristic aspects of idiom research (Ujváry Zoltán pp. 341–49). To sum up, we can claim that Dr. Gert Sauer was presented with a rich and colourful professional gift by his friends on his 70th birthday. Having been a linguist of Ob-Ugric languages in times past let me follow the Ostyak greeting in the title of the book and wish Dr. Gert Sauer good health, i.e., sound hands and feet in Vogul: *pus kät, pus läyæl!*

László Keresztes

Uli Lutz – Gereon Müller – Arnim von Stechow (eds): Wh-Scope Marking. (Linguistik Aktuell/Linguistics Today, vol. 37). John Benjamins, Amsterdam & Philadelphia, 2000, vi + 483 pp.

The book contains the harvest of a few years’ work of the authors, initiated by a workshop on the same topic, held at the University of Tübingen, Germany, in 1995. Its predecessor is the volume of proceedings of that workshop (Lutz–Müller 1996), but most of the papers have since been revised or rewritten, with an eye, in many cases, on the others’ contributions so that some sense of overall coherence has developed, and the authors have mostly (though obviously not always) paid attention to possible support or objection to their proposals coming from the research carried out by the other contributors. But the papers are perfectly self-contained and independent of each other, reflecting the often incompatible views of the different authors.

Introduction

The introductory chapter, written by the editors, sets up the scene for the discussion by sketching the context within which the individual papers explore the subject in the focus of this volume: the multiclausal wh-scope marking constructions. The general background includes the parametric variability of wh-movement across languages (in situ, single movement, multiple movement), and its widespread accounts within the principles and parameters tradition of syntactic theory, e.g., the wh-criterion, or minimalist feature-based analyses. Then an illustrative sample of wh-scope marking is presented, from various languages, such as German (1a), Hindi (1b), or Hungarian (1c), with a brief history of relevant research carried out in the past, and its major findings.

- (1) (a) [CP₁ Was denkt sie [CP₂ wen_x Fritz t_x eingeladen hat]]?
 what thinks she who_{acc} F. invited has
 ‘Whom does she think Fritz invited?’
- (b) [CP₁ Siitaa-ne kyaa socaa [CP₂ ki Ravii-ne kis-ko dekhaa]]?
 S._{erg} what thought that R._{erg} who saw
 ‘Who did Sita think that Ravi saw?’
- (c) [CP₁ Mit gondolsz [CP₂ hogy ki látta Marit]]?
 what_{acc} think-2sg that who_{nom} saw-3sg Mary_{acc}
 ‘Who do you think saw Mary?’

Finally, the three main types of analysis proposed so far are surveyed: (i) the **direct dependency** approach, establishing both a syntactic and a semantic link between the scope marking element (SM), and some contentful wh-phrase in an embedded domain; (ii) the **indirect dependency** approach, which associates the SM, semantically as well as syntactically, with a whole embedded clause (CP₂) containing at least one contentful wh-phrase, assuming SM to be a genuine wh-phrase, quantifying over propositions, with CP₂ spelling out the restriction of the quantification; (iii) **mixed** approaches, which link up SM and CP₂ in syntax, but postulate a semantic relationship between SM and the contentful wh-phrase in CP₂. (2) provides a schematic representation of the construction:

- (2) [CP₁ SM ... V ... [CP₂ ... XP_{wh} ...]]

The conclusion given by the editors is that no unified approach seems to be feasible and adequate for the full spectrum of wh-scope marking languages—which turns out to be the majority view among the contributors, too.

Sigrid Beck - Stephen Berman: Wh-Scope Marking: Direct vs. Indirect Dependency

Although this paper has been assigned the first slot (right after the editors' introduction) in the volume simply because its first author's name begins with a letter very early in the alphabet, it happens to be a rather fortunate and appropriate choice for this place, as it makes an exposition of the two major competing approaches to the wh-scope marking construction: the so-called **direct** and **indirect dependency** accounts. Direct dependency analyses share the property that they consider the construction a variant of (or at least related to) the long-distance wh-dependencies, and the scope-marking item an expletive, chain-/movement-linked to some contentful wh-item in some embedded clause (call it CP₂), whose scope is indicated by the position of the scope-marker (SM). On the other hand, proponents of the indirect dependency analyses focus on the differences between the scope-marking and the long-distance movement constructions, and assume a link between SM and the whole CP₂, in such a way that the matrix clause constitutes a full-fledged question on its own, with the SM interpreted as a wh-quantifier over propositions, restricted by the content of CP₂, and the scope of the wh-items inside CP₂ is established only indirectly, in the semantic representation. Beck – Berman compare these two approaches with respect to both empirical and theoretical adequacy, to conclude that German and Hindi instantiate two different strategies of scope-marking, with coincidental interpretive functions, and while Hindi displays a clear case of indirect dependency, German data are only compatible with a direct dependency account, i.e., it is meaningless to seek a unified account for the two types.

In the course of developing a proper direct dependency account in terms of LF-movement of an embedded wh-item to the position of the SM, the authors also present, evaluate, and

augment McDaniel's (1989) original account implemented as a chain-relation between the SM and a locally moved wh-item in CP₂. They then incorporate certain insights of this analysis into their own version.

The presentation is exceptionally well-articulated and clear, introducing the arguments in a neat stepwise fashion, covering both the syntactic and the semantic aspects, with special attention paid to explicitness in the latter domain.

Ellen Brandner: Scope Marking and Clausal Typing

Brandner sets up an analysis of the 'partial movement' construction in terms of clausal typing (following Cheng's (1991) hypothesis): in her view the insertion of expletive wh-items in German and Hindi serves precisely this end—to type the matrix clause as interrogative. In other languages, as well as in certain other constructions in scope-marking languages, this is done, by overt movement of a wh-item to the appropriate C-domain. Furthermore, another relation termed 'interrogative concord' is evoked to account for the potential of the typing relation to arch over several intermediate clauses, between the root clause, and the one containing a genuine wh-phrase. Concord ensures the identical typing of the intermediate clauses, and establishes an interpretive link (much like a chain) between the matrix typer expletive and the embedded contentful wh-item. German displays direct dependency in this respect, while in Hindi the link is between an argumental wh-phrase, and a CP associated with it, in accordance with the *in situ* nature of wh-phrases in this language, i.e., that they do not move to A'-positions at all. This difference between German and Hindi is further attributed to the different make-up of wh-items: in German they are composed of a wh- and an indefinite constituent (cf. Cheng's paper, introduced below), of which the typing item *was* is just the wh-part. In Hindi, on the other hand, the wh-pronouns are inherently [+wh], which enables them to type the clause directly from an A-position.

Brandner's paper also contains an interesting discussion of the distinction between typing a clause as interrogative, and interpreting it as a question, and the claim that contentful wh-phrases (whether via pure typers, like *was*, or by undergoing syntactic movement) can be interpreted (i.e., take scope) from their base positions, and their 'displacement' relations merely serve syntactic purposes.

Lisa Lai-Shen Cheng: Moving Just the Feature

Cheng's contribution is one of the clearest cases of the direct dependency approach—but applicable only to the German type of wh-scope marking, and not, e.g., the Hindi type. Concomitantly, she rejects the view (advocated by Dayal) that wh-scope marking is a uniform phenomenon across languages, in need of a common explanation.

The core assumption in her analysis is that the scope-marking *was* spells out a set of formal features moved independently of the rest of their category, i.e., that this is an instance of pure feature movement in Chomsky's (1995) sense. Wh-movement in general consists of two steps: movement of the [+wh] feature to an appropriate C⁰, followed by movement of the full category to the corresponding spec,CP, where a "repair strategy" unites the two independently moving parts again, to avoid scattered features. Languages like German appear to allow the repair strategy to be postponed until several clausal layers are built upon one another, so the [+wh] feature can move (in overt syntax) on its own to C⁰ of a higher clause than where its category remnant occurs. This yields partial movement structures, which may bridge several serially embedded clause domains, with the full category still in the lowest spec,CP, or, optionally, in the specifier of any of the higher CPs having been visited by the loose feature. In sum: partial movement is an option just in case the given language parametrically tolerates

scattered features at spell-out. Full category movement is obligatory in the clause of the tail of the wh-chain to ensure that the repair may take place in a spec-head ('checking') configuration. The question arises, though (and is left unanswered by the paper), why the repair configuration must emerge at all if the language allows scattered features anyway.

The possibility of splitting the [wh] feature from the full category at spell-out is argued by Cheng to be contingent on the availability of an appropriate vocabulary item (*was* in German), which, in turn, is related to the composition of pronouns. In German, like in Japanese, wh-words have an indefinite usage, indicative of the complex nature of these pronouns: they are composed of a "core", and a specifying affix, such as a wh-affix—a null-prefix in the particular case of German. It is this dissociable wh-affix that embodies the wh-feature moving independently and gets spelled out as *was*.

Hindi (and also Hungarian), Cheng claims, constitutes a different case: in such languages there is an **expletive + CP-associate** structure, rather than partial movement. In fact, there is no overt movement to any spec,CP at all, and the scope-marking expletive is in an object position, too, though its wh-feature covertly moves to the matrix C^0 . Hence there is no direct dependency between the expletive (or the [wh]-feature of the matrix C^0) and the wh-item in the embedded domain. Therefore, as expected, and as opposed to German, the embedded clause can be a yes/no question, too, provided the expletive itself has a more general [+Q] feature, rather than a specific [+wh] one. The different patterns of wh-scope marking in the German-type and the Hindi-type languages are supposed to follow from the different nature of the dependency in question.

Peter Cole – Gabriella Hermon: Partial Wh-Movement: Evidence from Malay

Cole and Hermon investigate partial wh-movement in Malay, a language whose data have largely been ignored by linguists working on the wh-scope marking phenomena. This, in itself, lends importance to the paper. On the other hand, they say very little about other languages, whereby their contribution to the project behind the volume is rather hard to evaluate or locate in the full context. They couch their analysis in the direct dependency approach, without discussing its superiority or inferiority to the indirect dependency hypothesis.

The most obvious specialty of the Malay partial movement construction is that it has no overt scope marker in the matrix clause:

- (3) *Kamu fikir [ke mana (yang) Mary pergi]?*
 you think to where that M. go
 'Where do you think that Mary went?'

However, if one compares this with full wh-movement and wh-in-situ constructions of Malay, it turns out that partial wh-movement induces the same kind of island effects, both below and above the partially moved wh-phrase, that characterizes full wh-movement, while at the same time morphological indications of overt movement are only perceived in the domain below it. This strongly suggests that there is covert movement from the intermediate spec,CP to the scopal spec,CP. The authors find arguments for this derivation, as opposed to another theoretical possibility: overt wh-movement all the way up, followed by the phonological spell-out of the intermediate position, rather than the topmost, scopal one. Likewise, they argue that Hungarian, with an overt scope marker in the matrix domain, constitutes a case against the latter analysis, since in this language the SM must be attracted by a strong feature, which is incompatible with spelling out an intermediate chain link.

Finally, the paper points out a typological distinction of what drives partial wh-movement. In languages like Hungarian, and even in certain cases in Malay, it is an instance of focus movement, triggered by a strong focus feature, while in other cases (Malay adjuncts, possibly also German) it is the greed of the wh-item that drives it to some spec,CP. Other languages, like English, lack partial movement altogether because they have no wh-expletive lexical items, either overt, as in German or Hungarian, or pro, as in Malay.

Franz Josef d'Avis: On the Wh-Expletive Was in German

D'Avis' paper addresses a side issue of the book's main theme: it looks at three constructions in German which make use of *was* as a wh-expletive. Besides the "classic" partial movement construction, there is one type in which *was* questions the reason of an event (4a), and another one where it functions as a degree-marking exclamative (4b):

- (4) (a) Was schlägst du schon wieder den Hund?
 what beat you prt again the dog
 'Why are you beating the dog again?'
 (b) Was (der) Otto seine Frau liebt!
 what (the) O. his wife loves
 'How Otto loves his wife!'

These uses of *was* are compared to its use as a proper wh-pronoun, to find that these three uses behave rather differently from contentful wh-pronouns. The common properties are attributed to the expletive, semantically contentless nature of this type of *was*. The expletive *was* is assumed to be base generated in spec,CP. The further divide between the partial movement structure on the one hand, and the reason-questioning and exclamative use of *was* on the other, is due to their different syntactic and LF relations: while the partial-wh *was* is in a chain with a contentful wh-phrase, and for interpretive reasons must be replaced by it in the LF-representation, the other two types of *was* are not chain-linked to any other item (hence their total inability to license any wh-in-situ), and as expletives, they must be eliminated at LF, after licensing a [+wh] feature on C⁰. This yields an interrogative sentence without any element in spec,CP, an "empty" interrogative, or proto-question, which acquires its specific meanings (causal question or exclamation) via pragmatic factors, and intonation is used to distinguish the two subcases.

The paper investigates interesting data, but offers no novel analysis for the constructions which the whole book focuses on, and leaves it for the reader to work out the pragmatic solution called for in interpreting the empty questions.

Veneeta Dayal: Scope Marking: Cross-Linguistic Variation in Indirect Dependency

Dayal's paper is probably the pivotal piece in the volume, aiming to show that the direct and indirect dependency approaches must be distinguished in semantic terms, rather than syntactic ones, and once so done, it becomes clear that all the major variants of the wh-scope marking constructions found in such diverse languages as German, Hindi, Iraqi Arabic, etc. (with the possible exception of Hungarian), uniformly fall into the indirect dependency type, and the cross-linguistic diversity displayed by these languages appears just at the level of syntax, representable by various grades of the embedding of the non-question clause containing the lexical wh-phrases. Besides refuting the validity of the (semantic) direct dependency approach, she also shows that accounts that might at first sight appear as exponents of a third kind

of approach (such as in Mahajan's, Fanselow - Mahajan's, and Horvath's contributions in the volume) are in fact reducible to either the indirect or the direct dependency approach, i.e., at the level of semantics there is no third way.

In presenting her analysis, Dayal first reiterates the essential ingredients of her earlier, indirect dependency, accounts (1994, 1996), originally developed for the Hindi wh-scope marking construction: the scope marking wh-phrase (SM) is a genuine wh-quantifier, not a semantically void expletive, questioning about propositions, the range of which is restricted by the embedded clause (CP₂), while syntactically there is a chain-like relation (coindexation) between SM and CP₂. Wh-phrases in CP₂ are thus never directly related to the matrix spec,CP. She then shows that the direct dependency approach cannot properly account for the Hindi facts (esp. that the SM is not an expletive, as it is generated in an argument position, and gets interpreted semantically; and that CP₂ can be a yes/no question, whose operator cannot be directly linked to the matrix wh-operator). Next she presents apparent evidence against the applicability of the indirect dependency approach to German, arguments that have been mustered against her earlier analyses (e.g., the availability of yes/no-questions in CP₂; superiority effects between the SM and other wh-phrases in the matrix clause). In order to nevertheless reconcile these facts with the indirect dependency approach, Dayal sets up a typological paradigm of syntactic configurations for wh-scope marking, with a conjectured diachronic grounding: degrees of grammaticalization. Supporting evidence is sought from languages not classified as wh-scope marking languages (e.g., English), which still possess a peculiar construction used for the same purpose: sequential questions, as in (5a).

- (5) (a) What did Tom say? Who will Mary see?
 (b) He said Mary will see Joe.
 (c) #He said he's fine. She will see Joe.

(5b) is a possible answer to such a sequence, while (5c) is not, so the two sentences must be interpreted together, as a single question. This suprasentential construction shares many properties of the "standard" wh-scope marking construction: it can span over several clauses (6a), it accepts yes/no-questions in CP₂ (6b), the V of the first sentence must not be of the type that strictly selects [+wh] complements (6c), the first sentence cannot be negated (6d), and CP₂ can be a multiple question (6e):

- (6) (a) What do you think? What will he say? Who should go?
 (b) What did she say? Will Tom come?
 (c) What did she ask? Who is coming?
 (d) *What don't you think? Who is coming?
 (e) *What did she say? Who will go where?

Now, this construction is only amenable to an indirect dependency account, since no direct dependency can be established cross-sententially. It constitutes one edge of the spectrum of wh-scope marking constructions, on the verge of not being subject to syntactic analysis at all, as a non-subordinating conjunction of the two sentences. A second grade of embedding is exemplified by Hindi: in that type, CP₂ is adjoined to the matrix IP or VP, coindexed by an empty element in the restrictor part of the wh-XP in the matrix clause, to whose position CP₂ may move at LF. This is already a case of syntactic subordination. The third, and strongest, subordinative structure, on the other hand, places CP₂ in the complement position of the

matrix V, while the SM is still in the same relationship with CP₂ as in the intermediate type. German may then instantiate either the intermediate or the strong subordinative type, while semantically it shares with Hindi the indirect dependency. That is, all cross-linguistic variation falls within the scope of syntax, while there is significant uniformity in the way of semantically interpreting the wh-scope marking constructions.

Eventually, to lend impetus to this new conception, Dayal presents evidence against the correctness of direct dependency analyses for German, both theoretical (the problem of SM linked with two coordinated CP₂'s; the stipulative explanation of "anti-locality", i.e., the fact that SMs cannot be paired with clausemate wh-phrases), and empirical (from the interrelation between wh-phrases and parasitic gaps). She also points out that intervention effects are neatly captured by her analysis, while the fact that the ban on negation in the first clause is observed in sequential questions, as well, undermines the credibility of accounting for such intervention effects relying on alleged ⟨SM, wh-XP⟩ chains—the key device of direct dependency.

In a final section Dayal speculates that if Horvath's data from Hungarian are valid, then this language has proceeded farthest on the scale of grammaticalization, towards turning into a direct-dependency language, but here further study is necessary to settle the issue.

Gisbert Fanselow – Anoop Mahajan: Towards a Minimalist Theory of Wh-Expletives, Wh-Copying, and Successive Cyclicity

Fanselow and Mahajan's contribution is a theoretically oriented one, whose main goal is to reconcile the basics of their earlier analysis with the spirit of the latest minimalist developments, and by doing so, also to shed light on the problem of expletives occurring in spec,CPs as fits Chomsky's 2000 model, since in that system expletives cannot be legitimately inserted directly into such positions. The authors' approach to the relation between SM and CP₂ is essentially of the indirect dependency type (as pointed out by Dayal), though they are explicit in distancing themselves from Dayal's analysis. And they also share the insight with Dayal that the wh-scope marking constructions of German and Hindi are essentially similar, surface variance being derivable from fundamental differences between the two languages, such as overt wh-movement in German, vs. wh-in-situ in Hindi. Apart from these two languages, they occasionally remark on Latin and Hungarian, which seem to them to behave genuinely differently in some respects, but they do not offer comprehensive accounts for them.

They treat SMs (German *was*, Hindi *kyaa*) as sentential wh-object expletives, in complementary distribution with other, non-wh, sentential expletives (German *es*, Hindi *yah*). The sentential nature of SMs is evidenced by their resistance to Case-marking, and the so-called pseudoparasitic gap construction, which is analysed here as a German-specific type of conjunction reduction. SMs are regarded as semantically void, which helps explain why raising them to Comp is cheaper, hence preferred, over raising contentful wh-XPs.

The paper makes a point of treating in detail an alternative construction of German, called the "copy construction", in which the phonological like of the contentful wh-word appears in the superordinate spec,CPs, where otherwise the SM would occur:

- (7) **Wen** denkst Du, **wen** sie meint, **wen** Harald liebt?
 who think you who she believes who H. loves
 'Who do you think that she believes that Harald loves?'

As regards its syntactic behavior, this construction patterns with the scope marking construction, rather than with the long wh-movement one, with the peculiarity that only monomorphemic wh-phrases are allowed. Nevertheless, the authors propose to treat the copy construc-

tion as a variant of long wh-movement *à la* copy-and-deletion, where monomorphemic items in spec,CPs may cliticize on C⁰, and thus survive the deletion of all of the lower copies. The similar behavior of the scope marking and the copy constructions, as opposed to long wh-movement, is a result of their empty intermediate C⁰s, contrasted with the obligatorily filled [-wh] C⁰ (*daß*) of the long wh-movement structures.

As to the question of how the wh-phrase(s) in CP₂ assume matrix scope, the analysis assumes that CP₂ is covertly pied-piped to the matrix spec,CP (this is comparable to overt CP pied-piping in Basque, and in the case of infinitival clauses in German), where the wh-XP is entitled to take matrix scope as “specifier of a specifier”:

(8) [CP₁ [CP₂ *wh*- C₂ ...] C₁ ...

The covert movement of CP₂ is a case of expletive replacement obeying the principle of Full Interpretation in government-binding terms, or analysed as pied-piping on attraction of the contentful wh-XP in spec,CP₂ in classic minimalism (Chomsky 1995), but in terms of later minimalism (Chomsky 2000), matrix C⁰ directly agrees with the wh-XP inside CP₂, and since CP₂ cannot cross the vP phase boundary of the matrix clause, the SM *was/kyaa* is inserted as an object expletive to serve as a mediator between matrix C⁰ and CP₂.

Finally, the authors address the question why wh-phrases move to [-wh] spec,CPs at all, in an attraction-based system. They propose that wh-movement is driven by categorial feature attraction (in particular, D- or P-feature), while [+wh] is just a possible subfeature of the attractor, C⁰. This way, they conflate wh-movement with all other cases of movement to (matrix) spec,CP in German, and accommodate partial and cyclic (wh-)movement. This, they claim, also paves the way for an account of certain cases of CP-islandhood.

The paper, on the whole, is highly technical in nature, abounding in detailed engineering work deriving the structures involved. On the other hand, however, the authors often sketch different alternative solutions to problems, without conclusively deciding on any one of them.

Hubert Haider: Towards a Superior Account of Superiority

Haider investigates the parametric differences in wh-superiority effects between German and English, with a glimpse on Dutch, as well. This bears only tangentially on the main issues of the book, but provides the discussion of the wh-scope marking constructions with a background on wh-interaction, and wh-in-situ licensing.

After reviewing the basic patterns of interaction between moved and in situ wh-items in English and German, Haider concludes that no single condition on superiority can be capable of accounting for the variation, all the more so since it does not involve only cross-linguistic variation, but also language-internal, cross-constructural variation, of extreme complexity. Therefore he begins working out his own multifactorial analysis by establishing four fundamental generalizations about wh-interaction, which serve as a basis for finding the correct replacement of mono-causal explanations of superiority. Two of these split apart individual-denoting and higher-order adverbials, claiming that the latter must c-command the event-denoting projection, i.e., the VP, and cannot license each other's staying in situ. A third generalization proscribes in situ wh-subjects when some other wh-phrase has crossed over them, while the fourth one applies to interactions between complement wh-phrases, prohibiting configurations where a wh-in-situ c-commands a wh-trace with non-distinct categorial and case features.

Haider shows that the standard accounts (the superiority condition, economy considerations preferring shorter and covert movement, as well as the reduction of superiority to weak crossover) all fail empirically, and proposes that the grammaticality status of the relevant con-

figurations results from the interplay of principles underlying the above generalizations and other, independent parameters (like the well-known OV/VO parameter, or the existence vs. lack of a designated VP-external subject position in Dutch vs. German). What remains to be done is to sharpen the explanations for the proposed generalizations, and to examine how they fare in other languages.

Tilman N. Höhle: The W- ... W- Construction: Appositive or Scope Indicating?

Höhle's paper allows a glimpse into the origins of discussion concerning the German *was...w*-construction, and sets out to assess two 'classic' accounts for it in the face of a wide array of data from various related constructions. The two accounts are: the scope marking/direct dependency account, and the apposition account, which holds that the two clauses of the *was...w*-construction are syntactically independent of each other, being in an apposition relationship—this view obviously relates the construction to the case of sequential questions, discussed in detail by Dayal.

As a first step, he draws some key generalizations from the relevant data (such as: the matrix clause is a self-contained sentential *wh*-question, the embedded one is just like an ordinary *wh*-question, but the matrix predicate must be able to select a [-*wh*] complement), then examines how the two accounts under scrutiny can handle them, noting that the scope marking account, albeit more suitable to cover the basic data empirically, carries a number of inherent theoretical difficulties. (In this section, there is a notable remark made in passing, condemning the "abuse of coindexation", i.e., the unconstrained use of what used to be indices of reference in a narrow sense, ubiquitous in current theorizing.)

The next part of the paper is devoted to comparing the *was...w*-construction with the copy construction, to help decide between the alternative analyses. Höhle concludes that the two constructions are essentially similar, hence must be subject to closely related analyses (a view that Fanselow–Mahajan explicitly reject), which is possible only in the scope marking account. Further evidence in favor of this account is adduced by *wh*-in-situ phenomena, and properties of the LF-raising of the embedded-clause *wh*-phrase necessarily assumed by the scope-marking hypothesis. On the other hand, the author suggests that proper analyses of the exclamative use of *wh*-phrases, as well as the behavior of the *wh*-XPs inside the embedded [+*wh*] clauses support the apposition account.

The paper provides interesting observations, and presents data from Frisian, Romani, and even Afrikaans, apart from German, but ends in a rather abrupt way, without any final conclusion regarding the comparison of the two accounts—Höhle seems to be content with simply enumerating potential advantages and drawbacks of both. As regards the examples, it is somewhat impolite to readers unfamiliar with the languages examined to just give glosses, but not translations, for the examples. Also, the author appears to be rather unaware of the contents of certain other papers in the volume, and keeps referring to much earlier versions of those analyses.

Julia Horvath: On the Syntax of "Wh-Scope Marker" Constructions: Some Comparative Evidence

Horvath's discussion of *wh*-scope marking is based primarily on Hungarian data (which assigns to it a special place in the present review), following the lead of her earlier papers on the subject, defending a 'mixed' analysis, built on indirect syntactic dependency, but rejecting the adequacy of a Dayal-style indirect semantic dependency for the relevant Hungarian construction. Horvath also rejects Dayal's theoretical preference for a unified account to cover cross-linguistic variation in *wh*-scope marking, on empirical grounds: she shows that this vari-

ation is such that none of the major existing analyses can cater for all known options: there exist clear cases of direct syntactic dependency (e.g., Malay), as well as of indirect semantic dependency (e.g., the sequential question construction, which necessitates a suprasentential approach), therefore different accounts are needed anyway.

In her discussion, Horvath introduces a tripartite system of approaches: beside Dayal's indirect semantic dependency approach, and the classic syntactic direct dependency approach, she recognizes a third option—indirect syntactic dependency, combined with direct semantic linking of the scope marking item with some embedded wh-phrase. Hungarian instantiates this last option, but German and Hindi are not subject to a similar, mixed analysis, she claims, contra Fanselow – Mahajan's view.

Horvath then goes on to reiterate the basic points of her analysis put forth earlier: *mit* 'what' is an expletive scope marker in Hungarian, associated with CP₂, which is in a complement position, and is related to another clausal expletive, *az* 'it', which links up with non-interrogative clauses. CP₂ is assumed to undergo covert movement to adjoin to the expletive (driven by the principle of full interpretation), leaving behind a full copy, part of which must be reconstructed there, including the trace of the contentful wh-phrase inside CP₂. This wh-phrase, in some C-space specifier of CP₂, must furthermore transmit its [wh]-feature to CP₂—the situation thus parallels the overt raising of CP₂ to scope position in Basque.

The next section examines how Dayal's account and its predictions fare with Hungarian facts. Three predictions are tested: (i) that all kinds of interrogative clauses can function as CP₂, (ii) that no otherwise ill-formed interrogative can occur as CP₂, and (iii) in a CP₂ with multiple wh-items all wh's must be uniform with respect to scope. These all fail in the face of Hungarian data: (i) simple yes/no-questions cannot serve as CP₂; (ii) yes/no-questions combined with wh-items are ill-formed outside the context of the wh-scope marking construction, but are good as CP₂; (iii) multiple wh-items in CP₂ can (in fact, must) have split scope, with one of them taking scope in the matrix, and another one within the embedded clause. The latter two cases also falsify the widely-held generalization that only those matrix predicates can participate in the scope-marking construction which may select [-wh] complements (cf. Höhle), since in these cases CP₂ is obviously typed as a question, and must thus be compatible even with predicates exclusively selecting for [+wh]. This is the most powerful part of the argumentation.

As a next step, Horvath examines the scope-marking element itself, and presents evidence for its status as an expletive originating in a non-theta A-position. She purports to use the alleged lack of an appropriate counterpart for it in answers to such questions, and its inability to license parasitic gaps, as arguments against analysing it as a genuine wh-quantifier *à la* Dayal. However, the judgments she assigns to the data are, in my opinion, questionable, or even invalid.

Finally, Horvath discusses the cross-linguistic applicability of Dayal's uniform indirect semantic dependency account, and the indirect syntactic dependency account. While the former is untenable for both German and Hungarian (for partly different reasons), and suffers from theoretical problems from a minimalist syntactic perspective, the latter seems inappropriate for Hindi, for which Dayal's analysis appears to be well-grounded, and its extension is problematic for German (contra Fanselow – Mahajan), especially in respect of the variable behavior of matrix predicate classes. So facts point in the direction of the semantic and syntactic non-uniformity of wh-scope marking in various languages, although they might have common diachronic roots, in sequential questions. But Dayal's attempt to perceive the variation as grades of diachronic grammaticalization is on the wrong track.

Horvath's paper is tightly argued, maybe the best-written one in the volume, with careful, detailed analyses of the facts, frequently presenting and evaluating alternatives—its main problem being the questionability of some data.

Anoop Mahajan: Towards a Unified Treatment of Wh-Expletives in Hindi and German

Mahajan's paper can be conceived as a "support article" to Fanselow–Mahajan's joint work (or vice versa). Its objective is to show how a unified analysis can be developed for the German and Hindi scope-marking construction. A crucial hypothesis underlying the proposal, though not discussed in detail, is that this construction is coexistent with a long movement construction in both languages (long wh-movement in German, long-distance scrambling in Hindi), but is derived from a distinct underlying structure, so the question of economy-based preference for one or the other does not emerge.

The paper is neatly organized: first it enumerates the most important properties of the Hindi scope-marking construction (noting, in particular, the clitic nature of *kyaa* whereby it is always adjacent to the verb, unlike its use as a contentful wh-phrase, and its complementary distribution with the non-interrogative clausal expletive *yah*). Then the major differences between Hindi *kyaa* and German *was* are presented (the in situ nature of both *kyaa* and the contentful wh-XP within CP₂ in Hindi, vs. the local movement of both *was* and the full wh-XP in German; the presence/absence of scope markers in intermediate clauses, and the possibility of the copy construction in German).

An analysis is proposed, first for Hindi, in terms of covert clausal pied-piping. In this indirect dependency account, closely related to that of Fanselow–Mahajan, there is LF-movement of both the scope-marking clausal expletive *kyaa*, and the contentful wh-phrase inside CP₂, to the local spec,CP, followed by the covert raising of CP₂ to the expletive (presumably a copy-operation), triggered by feature-matching between the expletive and CP₂, from whose spec the full wh-item can take scope. Intermediate clauses involve sequential cyclic application of this, and in the emerging configuration, scope-taking must be possible from the "spec of a spec of . . . of a spec" (which, by the way, is in compliance with Kayne's (1994) conception of c-command, and his analysis of bound pronominals – not noted by any of the authors assuming this way of scope-taking).

Mahajan then goes on to derive from his proposal all the major properties presented in the first part, as well as the systematicity of differences between Hindi and German, and certain other assumptions (some widely recognized, others obviously only alleged) about the parametric variance between the two languages. Mahajan notes in passing that the issues of yes/no questions in CP₂, and of the factivity of the selecting predicates are left unexplained here. In the final section, readers find some (not very convincing) arguments for regarding *was* as an object expletive on a par with *kyaa*, and a minor argument against the direct dependency approach.

Jürgen Pafel: Absolute and Relative. On Scope in German Wh-Sentences, W- . . . W-Constructions Included

The main concern of Pafel's semantically oriented paper is the determination of absolute and relative scope, primarily between a wh-item and a (universal/distributive) quantifier, but also between non-wh quantifiers, and between multiple wh-items, and with an eye on the wh-scope marking construction. Relative scope is assumed to rely on three factors: c-command, subjecthood, and inherent distributivity, in such a way that the weight of c-command equals the combined weight of the other two.

Pafel investigates the interaction of universal quantifiers (UQ) and *wh*-items in four constructions: partial movement (*was ... w*), long *wh*-movement, the copy construction, and *wh*-imperatives, such as (9a), which is interpreted as (9b), i.e., the *wh*-phrase behaves as if it was “reconstructed” into the embedded clause:

- (9) (a) Wo schätz mal, daß die besten Weine wachsen!
 where guess one-time that the best wines grow
 ‘Guess where the best wines grow.’
 (b) Schätz mal, wo die besten Weine wachsen!

When there is an additional UQ in the embedded clause of these constructions, the sentences are ambiguous in each case. However, if the UQ is in the matrix, only the long *wh*-movement and the copy constructions display ambiguity, while the *was ... w* construction, and the *wh*-imperatives do not: they only have the UQ > *wh* scope reading. This is taken as evidence that the (*was*, *wh*) chain cannot take scope in the position of its head, so *was* is not a scope-marker in the strict sense, contrary to common belief, therefore positing LF-movement of either the contentful *wh*-phrase or the whole of CP₂ to its position leads to incorrect predictions. The scope-computing algorithm proposed by Pafel (the essential idea of which is that absolute scope may be dependent on relative scope, and only overt chain-links are involved) “sees” the higher chain link, but it cannot outscope the matrix subject UQ, by virtue of the latter being an inherently distributive subject, *c*-commanding the relevant lower link of the *wh*-chain. Long *wh*-movement, on the other hand, results in a configuration where the only overt link of the *wh*-chain is in the matrix domain, *c*-commanding the UQ, whereby their scopal weight is equal, yielding ambiguity. Facts about the copy construction show the same effect, although the question of the precise way of computing it is left open, while in the case of *wh*-imperatives, taking the matrix-clause position of the *wh*-phrase into account leads to a semantically invalid *wh* > IMP scope-order, so repair is forced, in the form of quantifier-lowering.

Pafel’s paper places the central issue of the volume in a different perspective, arguing against the scope-marking nature of the German *wh*-expletive from a semantic point of view. On the other hand, it only offers some speculations as to the proper analysis of Hindi *kyaa*, and related items in other languages.

Marga Reis: On the Parenthetical Features of German Was ... W-Constructions and How to Account for Them

Reis’ contribution, although dealing exclusively with German, adds new dimensions to the topic, both datawise, and analytically. First, she introduces a subtype of parenthetical constructions (*was*-parentheticals, (10b)) whose surface form resembles, in many ways, the scope-marking *was ... w* construction (10a), then she attempts to build an account covering both, in terms of diachronic change, which she hopes can be ‘translated’ into a synchronic analysis.

- (10) (a) Was glaubst du, wo er jetzt wohnt? *was ... w*
 what believe you where he now lives
 ‘Where do you believe he now lives?’
 (b) Was glaubst du, wo wohnt er jetzt? / *was*-parenthetical
 Wo wohnt er jetzt, was glaubst du?
 ‘Where do you think he lives now?’

After distinguishing between unintegrated *was*-parentheticals, which are appositive in nature, akin to sequential questions, and integrated ones (as in (10b)), in which the two clauses are not separated either prosodically, or in focus/background articulation, Reis establishes that only the latter are really relevant to the discussion of *was ... w* sentences. In these integrated *was*-parentheticals (*was*-IP), only the clause corresponding to CP₂ of the scope-marking construction counts as a question pragmatically, and unlike in *was ... w* sentences, this is the dominant clause of the two. *Was*-IPs share all the important properties with integrated parentheticals in general.

Reis then compares the *was ... w* construction to *was*-IPs, and the *wh*-extraction construction, in turn, showing that it resembles both to a significant extent. What she finds most remarkable is the overlap between *was ... w* and *was*-IPs in the predicates they admit in the *was*-clause. Moreover, as regards their interpretation, though these three constructions are quite similar, there is a closer match between *was ... w* and *was*-IPs. Thus the parallelism between them cannot be accidental.

Reis explores a number of possible diachronic processes for developing the *was ... w* construction from *was*-IPs, which all share the basic insight that the former arose “cross-bred” by the interference between the latter and the *wh*-extraction construction. However, the recorded historical data available is insufficient for evaluating the proposals, and the diachronic explanation is dispreferred on general theoretical grounds *vis à vis* a proper synchronic account. Therefore the author sets out to transfer the achievements of her diachronic account (besides the obvious derivation of the wholesale similarity between *was ... w* sentences and *was*-IPs, the absence of yes/no questions from the *was ... w* construction, the anti-locality effect, and the partial *wh*-movement in the [-*wh*] CP₂ all gain a natural explanation) into a synchronic analysis. Here the discussion centers around the predicate classes that may or may not occur in the *was*-clause in the different constructions examined. After assessing and rejecting two proposals set in “orthodox” theoretical contexts, she outlines a viable account, the leading idea of which is that the *was ... w* construction is assimilated to the parentheticals, and analysed in such terms—the ‘scope-marking’ construction is regarded as sufficiently “paratactic” for such an account to go through. Analogy and constructional factors play an important role in her proposal, but she argues in favor of such “unorthodox” devices showing that more standard generative theories are simply incapable of providing a unifying account for the dual parallelism of the *was ... w* construction with parentheticals on one side, and *wh*-extraction, on the other. Many details of the precise analysis remain to be worked out, though.

Joachim Sabel: Partial Wh-Movement and the Typology of Wh-Questions

Sabel presents a minimalist, feature-based analysis of partial *wh*-movement in the context of a general typology of *wh*-movement – the divergence of the *wh*-in-situ and *wh*-ex-situ strategies, in particular. Besides well-known languages like English or German, he also investigates the *wh*-constructions of much less known languages, like Kikuyu and Duala, to set up a typology covering all possible options. He assumes that the *wh*-scope marking construction is similar in crucial respects to *wh*-extraction, thus a direct dependency approach is taken, but on the basis of overt chain formation, rather than LF-movement, as suggested by most other contributors—these assumptions are furnished with evidence from German data displaying “anti-crossover” effects, and CP-fronting inside CP₂. Moreover, he claims that the multiclausal *was ... was ... w* construction is a variant of the copy-construction, itself a spell-out variant of long *wh*-dependency chains.

The medial part of the paper is devoted to the comparison of *wh*-question forming in two African languages: Kikuyu and Duala. Both are optional *wh*-in-situ languages, but while

Kikuyu has partial wh-movement, with a phonologically null SM, whose chain relation to the embedded question is indicated by accompanying interpretive and prosodic features characteristic of wh-extraction, Duala lacks any such construction. The comparison of such languages with the likes of English and German suggests that the availability of partial wh-movement is independent of the wh-in-situ vs. wh-ex-situ distinction.

The third part is devoted to the proposed account, the key insight of which is that wh-movement is closely related to focus-movement. This is based on previous semantic analyses treating wh-questions as a subcase of focus, and on observations such as the complementary distribution between wh-question and focus in a single clause, attested in several languages, and the occurrence of focus features in intermediate clauses of long wh-movement in Kikuyu and Bahasa Indonesia/Malaysia. Attributing the surfacing of wh-chain links in these domains to focus effects solves the long-standing problem of why/how [+wh] items mark the left-periphery of semantically [-wh] domains. On the standard minimalist assumption that strong features trigger overt movement, while weak interpretable features trigger no movement at all, the segments of the typological spectrum can be analysed as follows: scope-bound strong [+wh] features induce (potentially long) wh-movement, while strong [+focus] features induce local movement. Moreover, [+focus] always accompanies [+wh], but the former, unlike the latter, trickles down to embedded clause-domains, too. The partial wh-construction emerges when [+focus] is strong, and [+wh] is weak (as in German or Hungarian). Numerations containing a pure SM (*was/mi*) yield the scope-marking construction, otherwise long wh-movement occurs, so economy does not apply to the two alternatives. In languages like English, strength values are just the opposite, giving rise to long wh-movement, but no overt focus-movement ever. In Kikuyu, [+focus] is optionally strong, while [+wh] is weak, so wh-in-situ and wh-movement coexist, and partial wh-movement is found, albeit with a null SM. In Duala, the strength properties are again the opposite, leading to optional wh-in-situ, but no partial movement.

The analysis is well-engineered, and the Kikuyu/Duala data are very relevant—with further data from multiple- and partial-wh-moving languages treated in numerous footnotes. The main objection that can be made concerns the general problem of minimalist theory applying feature-strength. It is non-explanatory, just another descriptive technique to capture certain generalizations, refreshingly different though these may be from those arrived at by other descriptive devices.

Arnim von Stechow: Partial Wh-Movement, Scope Marking, and Transparent Logical Form
Stechow reiterates Stechow - Sternefeld's (1988) analysis of partial wh-movement, fleshed out with a semantics of questions in the mood of Hamblin (1973) and Karttunen (1977), to argue for the appropriacy of the direct dependency approach. The syntactic representation, Transparent Logical Form (TLF), which unambiguously determines semantic interpretation, plays a crucial role in the analysis, which is built on the insight that the wh-scope marking construction is similar, in essential respects, to full wh-extraction. Detailed, compositional semantic translations are provided throughout the paper, even for those competing accounts (refuted here) whose authors have not worked these out at all, in order to reveal their inadequacies. Covert movement of a contentful wh-phrase to the locus of SM is assumed, so that it can c-command, at TLF, the interrogativizer located in C^0 . The reason why yes/no questions never occur as CP_2 in German scope-marking constructions is that their wh-operator, *ob* 'whether', is not an existential quantifier, thus it cannot combine with the SM-construction to yield a coherent interpretation.

The analysis, imported from Stechow - Sternefeld (1988), is admittedly non-explanatory, but is obviously capable of covering the wide range of relevant German data, relying on its

classification of *wh*-elements, and (partly language-specific) scope binding principles. The obligatory *wh*-movement inside CP₂, for instance, is forced by the requirement that some *wh*-element, other than SM, scope-bind every *wh*-in-situ, plus the lexical property of German that it lacks an empty *wh*-COMP, comparable to those in, e.g., Japanese or Korean.

With respect to the applicability of the indirect dependency approach to Hindi, Stechow observes that it seems correct, but also that it assigns basically the same semantics to the corresponding sentences as the proposed direct dependency analysis in German, provided everything is correctly computed. He then points out that the Hindi SM *kyaa* is not an expletive in the technical sense, but a *wh*-determiner, and is thus not a scope-marker *per se*.

The paper considers, but rejects, the indirect dependency analysis for German, primarily because it cannot rule out (unless stipulatively) the absence of *yes/no*-type CP₂. Further, less powerful counterevidence is provided from the negative- and factive-island data, the copy construction, and *wh*-UQ scope interaction. In defense of the direct dependency approach, Stechow refutes the validity of certain data cited by Dayal and Fanselow–Mahajan as problematic for this approach. Finally, he addresses some issues raised by Horvath's paper, and its Hungarian data, but his dismissal of Horvath's analysis rests on the empirical misjudgment of the well-formedness of a certain Hungarian sentence-type.

In sum: this paper presents a very well worked-out analysis for German, but as Stechow himself notes, it is a descriptively adequate account, in need of principled explanations. As was the case with some of the previous contributions, the translations of the German examples are often missing, to the readers' annoyance.

Conclusion

The majority of the papers argue for either (i) the primacy of the direct dependency approach, or (ii) the futility of seeking a unified solution, because different languages necessitate radically different accounts—but then this overall picture might be due to the fact that most of the contributors are German. Moreover, a remark is in order here about a recent article by Utpal Lahiri (2002) on the topic: this paper argues rather convincingly for the accuracy of the indirect dependency analysis for Hindi, as well as the inadequacy of the direct dependency approach for German and Hungarian, on the basis of cross-linguistically uniform data displaying “scope-freezing” effects, involving cases related to the split-scope phenomenon treated by Horvath. So the issue is far from being settled.

As a general assessment of this book, I wish to point out that the order of the articles might have been better arranged, had it been done by some thematic consideration. (As it stands, they appear in alphabetical order, arranged by the (first) authors' last names obviously a neutral solution from the editors.) For example, Stechow's and Höhle's papers could serve their purposes better somewhere at the beginning, and so could Dayal's, I believe, being the “keynote address”, so far as theoretical issues are concerned. Also, the papers by Mahajan and Fanselow–Mahajan are so closely linked that they should have been placed next to each other. As for the contents, readers may find occasional “blindness” to problematic and counterevidential data, as well as to clear theoretical objections, in some of the papers. Nevertheless, this volume is a ‘must read’ for anyone interested in aspects of the *wh*-scope marking phenomenon, giving a multi-dimensional, cross-linguistic perspective on the topic.

Huba Bartos

References

- Cheng, Lisa Lai-Shen 1991. On the typology of wh-questions. Ph.D. dissertation, MIT.
- Chomsky, Noam 1995. The Minimalist Program. MIT Press, Cambridge MA.
- Chomsky, Noam 2000. Minimalist inquiries: the framework. In: Roger Martin – David Michaels – Juan Uriagereka (eds) *Step by step: essays in honor of Howard Lasnik*, 89–155. MIT Press, Cambridge MA.
- Dayal, Veneeta 1994. Scope marking as indirect wh-dependency. In: *Natural Language Semantics* 2: 137–70.
- Dayal, Veneeta 1996. Locality in wh quantification: questions and relative clauses in Hindi. Kluwer, Dordrecht.
- Hamblin, C.L. 1973. Questions in Montague English. In: *Foundations of Language* 10: 41–53.
- Karttunen, Lauri 1977. Syntax and semantics of questions. In: *Linguistics and Philosophy* 1: 3–44.
- Kayne, Richard S. 1994. *The antisymmetry of syntax*. MIT Press, Cambridge MA.
- Lahiri, Utpal 2002. On the proper treatment of ‘expletive wh’ in Hindi. In: *Lingua* 112: 501–40.
- Lutz, Uli – Gereon Müller (eds) 1996. *Papers on wh-scope marking*. Arbeitspapiere des Sonderforschungsbereichs 340, Nr. 76. Stuttgart & Tübingen.
- McDaniel, Dana 1989. Partial and multiple wh-movement. In: *Natural Language and Linguistic Theory* 7: 565–604.
- Stechow, Arnim von – Wolfgang Sternefeld 1988. *Bausteine syntaktischen Wissens*. Westdeutscher Verlag, Opladen.

HUNGARIAN BOOKS ON LINGUISTICS

László Hunyadi (ed.): *Kísérleti fonetika, laboratóriumi fonológia* [Experimental phonetics, laboratory phonology]. Debreceni Egyetem Kossuth Egyetemi Kiadója, Debrecen, 2002. 146 pp.

Considering the subject matter of phonetics, it seems to be clear that it essentially relies upon experimentation. To find out the substantial characteristics of a certain speech sound or acoustic patterning we have to examine oral speech and generalise over the data gained from carrying out several recordings under the same circumstances. Experiments are also necessary if we want to investigate whether a given sound property forms an individual characteristic or not, and in case of a positive answer experiments help us to determine to what extent the given property is individual. The results of such experiments not only widen our general phonetic knowledge, they are also used in numerous empirical domains, among others in psycholinguistics, in speech correction, in language teaching, in speech technology, and in forensic linguistics.

While phonetic problems can be examined through direct observation and accordingly may be studied carrying out experiments, the subject matter of phonology is more abstract, thus, it cannot be investigated in a direct way. However, since there is mutual dependence between phonetics and phonology, it is possible to obtain knowledge about phonology in an indirect way, through the analysis of speech. Such experiments contribute a lot to the justification of theoretical findings about the phonological structure of language, and to the development of scientific theories.

The conference Experimental Phonetics – Laboratory Phonology held in April, 2002, in Debrecen, invited phoneticians and phonologists to explore and compare their mutual research methods, providing an opportunity to present their results based on the direct study of speech.

The present volume contains nine papers which were written on the occasion of this conference and touch upon three main topics:

a. Fundamental questions regarding the relation between phonetics and phonology are studied in the polemic article *Phonetics and phonology '2002': The Garden of Forking Paths* (Tamás Szende). Two exciting, and to some extent related, issues of the realisation of phonetic structure are dealt with in the following essays: the paper entitled *Hiatus* (Péter Siptár) discusses the possibilities of the elimination of hiatus in Hungarian, while the paper entitled *Dividing lines in the inventory of Hungarian speech sounds* (Judit Szépe) describes the substitution of segments in aphasic speech.

b. Three papers examine the temporal characteristics of speech, their measurement and their interpretation in the language system: vowels are studied in *The change of vowels as a function of time* (Mária Gósy), affricates are examined in *On the time structure of affricates* (Magdolna Kovács), and the temporal structure of speech in general is the topic of *The temporal characteristics of speech in mono- and bilingual children* (Krisztina Menyhárt).

c. The field of sentence prosody is also explored in three articles. One of them examines the question comprising the title of the article *Is there a prosodic competence?* on the basis of experimental results (László Hunyadi), the next one is about a so far experimentally unexamined topic of Hungarian sentence prosody (*The intonation of monosyllabic yes-no questions*

in Hungarian, László Varga), and finally the paper entitled *The relation of fundamental frequency and stress in Hungarian* (Gábor Olaszy) gives an account of a research field whose results can be directly applied in speech technology.

The wide range of topics indicates that using experimental methods in various basic fields of phonetics and phonology helps answering both theoretical and empirical questions to a large extent. The results and ideas presented in the papers are recommended to the reader hereby.

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- (1) (a) A sólymaid elszálltak
 the falcon-gen-pl-2sg away-flew-3pl
 'Your falcons have flown away.'

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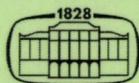


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ON THE SYNTAX OF COORDINATE CONSTRUCTIONS

ZOLTÁN BÁNRÉTI

Abstract

This paper discusses the way general syntactic principles concerning coordinate constructions prevail in a set of Hungarian data. It contains empirical analyses and an interpretation of the results in the framework of generative syntax. Thus, we will examine whether the Hungarian data support some general pattern of coordinate structures and whether that pattern involves symmetrical or asymmetrical relations. We will survey the various types of conjunctions and argue that they have structure building functions. We demonstrate that these functions depend on the categorial features of the coordinated items and on the syntactic context as well. There are conjunctions that require an agreement of relevant features of the coordinated noun phrases and the result shows up in the selection of the verbal agreement morphemes. Other conjunctions attribute features to the predicative categories coordinated and the result of this does not affect the agreement morphemes of verbs. Following an analysis of the data, we will make suggestions on how to express symmetrical and asymmetrical relations in coordinate constructions and how to represent the structural functions of these types of conjunctions.

1. Empirical classes of conjunctions

Coordinating conjunctions occurring initially in a compound sentence make it ungrammatical,¹ whereas subordinating conjunctions, that are constituents of the subordinate clause, are grammatical even if they occur initially in a preposed clause:²

¹ Disregarding cases, irrelevant here, in which coordinating conjunctions refer back to a clause that is outside the sentence, in the preceding context. Such conjunctions are also known as pragmatic conjunctions (Németh T. 1991).

² Kenesei (1992, 539) used the positional differences between coordinating and subordinating conjunctions as a test for the structural differences of coordination vs. subordination, i.e., compound vs. complex sentences.

- (1) Péter otthon van, $\left. \begin{array}{l} \text{és} \\ \text{tehát} \\ \text{de} \\ \text{pedig} \\ \text{vagy} \\ \text{ezért} \\ \text{ugyanis} \end{array} \right\}$ János szorgalmasan dolgozik a munkahelyén.

‘Peter is at home, and/hence/but/yet/or/therefore/for John is diligently working in his office.’

- (2) $\left. \begin{array}{l} *És \\ *Tehát \\ *De \\ *Pedig \\ *Vagy \\ *Ezért \\ *Ugyanis \end{array} \right\}$ Péter otthon van, János szorgalmasan dolgozik a munkahelyén.

‘And/hence/but/yet/or/therefore/for Peter is at home, John is diligently working in his office.’

- (3) János szorgalmasan dolgozik a munkahelyén, $\left. \begin{array}{l} \text{mivel} \\ \text{ha} \\ \text{amikor} \\ \text{bár} \\ \text{mert} \\ \text{míg} \end{array} \right\}$ Péter otthon van.

‘John is diligently working in his office since/if/when/though/because/while Peter is at home.’

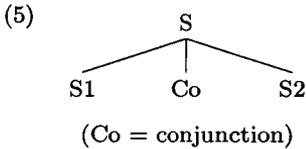
- (4) $\left. \begin{array}{l} \text{Mivel} \\ \text{Ha} \\ \text{Amikor} \\ \text{Bár} \\ \text{Mert} \\ \text{Míg} \end{array} \right\}$ Péter otthon van, János szorgalmasan dolgozik a munkahelyén.

‘Since/if/when/though/because/while Peter is at home, John is diligently working in his office.’

Grammaticality differences in (1)–(4) show that, within the boundaries of a compound sentence, coordinating conjunctions cannot be sentence initial. The same position, by contrast, is grammatical for subordinators in a complex sentence. Therefore it is all and only conjunctions that are ungrammatical before the first clause that we take to be coordinating conjunctions.

The conclusion we can draw from the differences of (1)–(4) is that coordinating conjunctions cannot be “moved” together with the second

clause because they are not constituents of either clause: they are located between the two. If this is true, the structure of sentence coordination is as follows:



We will return to the symmetrical structure shown in (5) in what follows, discuss the problems it presents and make suggestions concerning the representation of various structures of coordination.

1.1. Evidence for symmetry

In the relevant literature, the term ‘symmetrical structure’ is among those used for the structure shown in (5) (see, e.g., Dik 1968; Goodall 1987; Grootveld 1992; Moltmann 1992; Wesche 1995; te Velde 1997). The structure assumed here expresses the observation, valid for a wide range of data, that the whole of a coordinate construction is of the same category as the individual constituents that are coordinated in it. A symmetrical coordinate construction projects its members to a structural category that is identical to their maximal projection. Such coordinate constructions are endocentric ones but contain two or more heads. The structure requires that the coordinated members are in the **same type of relation** with the conjunction.

The assumption of a symmetrical structure is in harmony with the requirement that the conjuncts be of the same syntactic category in terms of coordinatability. Diverse syntactic categories are normally not coordinatable:

- (6) (a) *(a kissé pocakos és arról az emberről, aki megjavította
 the slightly corpulent and that-del the man-del who repair-past-3sg
 a tévét)
 the telly-acc
 ‘about the slightly corpulent man who repaired the telly’
- (b) *(lassan és járkál)
 slowly and walk-3sg
 ‘he slowly and walks’

- (c) *(lókötőnek és az asztal mögött) tartotta Pétert
 rogue-dat and the table behind hold-past-3sg Peter-acc
 'he held Peter to be a rogue and behind the table'
- (d) *(ma vagy azokat) a könyveket tedd a polcra
 today or those-acc the books-acc put-imp the shelf-subl
 'put the books on the shelf, today or those'

The coordinated items have to agree in certain fundamental grammatical features.³ Such features for them to agree in may be, e.g., (class of) syntactic category, definiteness, thematic role, argument frame, or finiteness—depending on what categories are coordinated.

Another requirement is identity of structural projection: determinerless NPs can only be coordinated with determinerless NPs (e.g., in a contrastive topic or focus position); determined (full) NPs only with determined (full) NPs. Definiteness need not agree if the coordinated construction is a subject:

- (7) (a) *((Szőke nő) és (a magas férfi)) elkésett/elkéstek a koncertről.
 blond woman and the tall man prev-be.late-past-3sg/3pl the concert-del
 'Blond woman and the tall man were late for the concert.'
- (b) *((Egy szőke nő) és (a magas férfi)) elkésett/elkéstek
 a blond woman and the tall man prev-be.late-past-3sg/3pl
 a koncertről.
 the concert-del
 'A blond woman and the tall man were late for the concert.'
- (c) ((Szőke nő) és (magas férfi)) késett el koncertről.
 blond woman and tall man be.late-past-3sg prev concert-del
 'Talking of blond women and tall men, such people have already been late for concerts.'

Coordinated NPs have to have identical thematic roles. As (8) shows, identity of inflectional ending is not sufficient if the actual thematic roles are different. The first member of the coordinate construction in this example is a patient (or co-agent), whereas the second is an instrument.

- (8) *Jenő verekedett (a szomszédval és a bottal).
 Gene fight-past-3sg the neighbour-ins and the stick-ins
 'Gene had a fight with his neighbour and with a stick.'

In addition to the identity of thematic roles, syntactic function (here: direct object) and morphological case (here: accusative) also both have

³ What follows here is an extended discussion of observations presented earlier in Bánréti (1992; 2001a;b).

to be identical. In (9), although both NPs are direct object, only one of them exhibits overt accusative case:

- (9) *Az esernyőmet és a kalapom elvesztettem.
 the umbrella-1sg-acc and the hat-1sg prev-lose-past-1sg
 'I lost my umbrella and my hat.'

Nominative NPs can also be coordinated as long as their thematic roles are identical:

- (10) (a) (A restaurátor és az ellopott festmény) Görögországban volt.
 the restorer and the stolen painting Greece-iness be-past-3sg
 'The restorer and the stolen painting were in Greece.'
- (b) *Pétert megsebezte (egy kard és egy őr).
 Peter-acc prev-wound-past-3sg a sword and a guard
 'Peter was wounded by a sword and a guard.'
- (c) Pétert megsebezte (egy kard és egy üvegcsérép).
 Peter-acc prev-wound-past-3sg a sword and a sliver
 'Peter was wounded by a sword and a sliver.'

In (10a) the coordinated items are both themes, in (10b) one is an instrument and the other one is an agent, whereas in (10c) both subjects are instruments.

Within a VP, the coordination of several verbs is only grammatical if they all have identical argument frames which are filled by the same lexical item. Identity of argument frames entails identity of the thematic roles of the arguments:

- (11) (a) *János (bámul és hasonlít) Jenőre.
 John stare-3sg and resemble-3sg Gene-subl
 'John stares at and resembles Gene.'
- (b) *A gyerekek a macskát (elnevezték és odaadták) Bélának.
 the children the cat-acc prev-name and prev-give Bill-dat
 'The children named the cat Bill and gave it to him.'

The verb *bámul* 'stare' requires an agent and a theme, whereas *hasonlít* 'resemble' requires a pair of experiencers (although both take sublative case for the second argument). Similarly, the dative argument of *elnevezték* 'was named' is a theme, whereas that of *odaadták* 'was given' is a "receiver" or goal.

The tensedness of verbs is also a condition: tensed (finite) verbs cannot be directly coordinated with infinitives in a single construction:

- (12) *Józsi (megírta a levelet és feladni a postán).
 Joe prev-write-past-3sg the letter-acc and prev-give-inf the post.office-sup
 'Joe wrote the letter and to post it.'

The members to be coordinated must be real syntactic constituents:

- (13) *Péter írta (fel a neveket) és (le az adatokat).
 Peter write-past-3sg up the names-acc and down the data-acc
 'It was Peter who put up a list of names and down the data.'

As (7) above demonstrated, identity of structural projection of the members is required; this also applies to the coordination of constituents of phrases:

- (14) (a) Mari (lókötőnek és szerencselovagnak) tartotta Jánost.
 Mary rogue-dat and fortune.hunter-dat consider-past-3sg John-acc
 'Mary considered John to be a rogue and a fortune hunter.'
- (b) (Ezeket meg azokat) a könyveket tedd a polcra.
 these-acc and those-acc the books-acc put-imp the shelf-subl
 'Put these and those books on the shelf.'
- (c) Az asztal (előtt, alatt és mögött) ajándékok voltak.
 the table before under and behind presents be-past 3pl
 'There were presents in front of, under, and behind the table.'
- (d) Péter egész nap (ki és be és föl és le) rohángált.
 Peter whole day out and in and up and down rush-past-3sg
 'Peter kept rushing in and out and up and down the whole day long.'

In (6)–(14), all the ungrammatical examples violated some requirement that increases symmetry in the construction. Symmetry means that the coordinated items have to belong to the same class of syntactic categories, and have to agree, where relevant, in definiteness, thematic role, and case features. The coordinatability of verbs requires identity of argument frames. For a coordination of VPs, the verbs in them have to be tensed (i.e., possess some actual value of the agreement features of tense and person/number).

1.2. Situation-based ellipsis

If a coordinate construction involves some kind of situation-bound ellipsis, the condition of identity of overt categories does not necessarily hold. For instance, in the examples in (15), the first conjunct includes an NP and

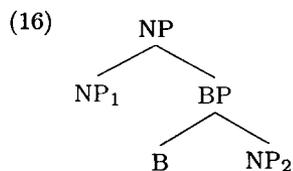
situational ellipsis with a non-linguistic antecedent, whereas the second one is a finite clause:

- (15) (a) Egy rossz mozdulat és mindjárt lesz a cápáknak vacsorája!
 a bad movement and soon will.be the sharks-dat dinner-3sg
 ‘Don’t move or the sharks will soon have something for dinner!’
- (b) Lábnyomok az üvegházban: tehát itt voltak a Pál utcai fiúk.
 footprints the glasshouse-iness hence here be-past-3pl the Paul street boys
 ‘Footprints in the glasshouse: the Paul Street boys must have been here.’
- (c) Csak egy üveg sör és rögtön elalszik.
 only a bottle beer and immediately prev.sleep-3sg
 ‘Just a bottle of beer and he goes to sleep at once.’

2. Coordinate constructions and agreement

2.1. The double nature of conjunctive heads

In order to characterise the function of coordinating conjunctions and to represent the government/binding relationships between conjuncts, Munn (1993) proposes to assume an asymmetrical structure. In his view, the function of the coordinator is the same as that of a set-forming operator in a Boolean algebra as it provides the classes of entities referred to by the conjuncts with a property of “**plurality**”, in a “quantifier-like manner”. The conjunction-operator indicated by B in (16) is the head of the Boolean phrase indicated by BP. In Munn’s model, this BP is right-adjoined to the first conjunct (NP_1). Thus, NP_1 is **not** a specifier of BP:



Due to the configuration of edges and nodes, this structure is an asymmetrical one. At the same time, it does not strictly follow the linear order specifier–head–complement posited as universal by Kayne (1994). Here, BP is the projection of the coordinanting operator B as head, and it is then right-adjoined to the first conjunct, NP_1 .

The structure in (16) is compatible with the data of the binding of pronouns. It is assumed in that respect that the binding antecedent precedes and c-commands the bound pronoun. This relation obtains between NP₁ as the conjunct containing the antecedent and as NP₂ that contains the bound item. Binding in the reverse direction is impossible in this asymmetrical structure. The structure assumed in (16) correctly predicts the pronoun binding data shown in (17):

- (17) (a) Minden kutya_i és a(z ő_i) gazdája felvonult.
 all dog and the its owner prev-march-past-3sg
 'All the dogs and their owners marched up.'
- (b) *A(z ő_i) gazdája és minden kutya_i felvonult.
 the its owner and all dog prev-march-past-3sg
 'Their owners and all the dogs marched up.'

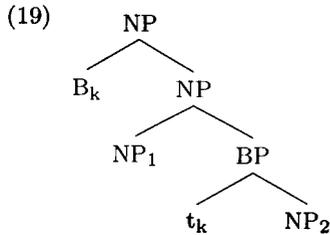
In (17a), the quantified NP c-commands the pronoun and therefore binds it. In (17b), there is no c-command relation between the quantified NP and the pronoun (given (16)), hence there is no binding.

In the case of coordinated clauses, the quantified expression in the first clause licenses a covert third person plural possessive pronoun in the second. In the grammatical version, the possessed noun and the verb of the second clause both agree in plurality with that pronoun:

- (18) (a) Minden kutya_i felvonult és a [pro_{plur}] gazdáik
 all dog march-past-3sg and the owner-poss-3pl
 nagyon drukkkoltak.
 very be.excited-past-3pl
 'All the dogs marched up and their owners kept their fingers crossed.'
- (b) *Minden kutya_i felvonult és a [pro_{sing}] gazdája
 all dog march-past-3sg and the owner-poss-3pl
 nagyon drukkkolt.
 very be.excited-past-3pl
 'All the dogs marched up and its owner kept his fingers crossed.'

In Munn (1993)'s proposal, the quantifier-like function of coordinating conjunctions, their contribution of a feature of plurality, is reflected in Logical Form, the interpretive component of the grammar. Thus, in the structure as mapped in Logical Form quantifier-like operators are adjoined to the "topmost" position of the structure in their domain for scope assignment. Munn assumes that this is true with respect to the conjunction-operator, too. Having B stand for the conjunction-operator and BP for the Boolean phrase as before, the conjunction as a quantifier-like operator is adjoined in Logical Form to the topmost conjunct, NP₁.

In Munn's terms, then, the interpretation in Logical Form of the asymmetrical structure in (16) is as given in (19). The index t_k stands for the position from which LF "covert raising" starts out.



Munn furthermore assumes that the B head adjoined to the top conjunct has a double function. In addition to its function referred to above, it also unifies diverse number/person or other features of the conjuncts. He adds that this is like the function of a "collective" pronoun. The relation he has in mind is something like that between the initial pronoun and the coordinate construction in (20). In that example, the plural pronoun *ők* 'they' unites the person/number features of the conjuncts and carries the thematic role that it receives from the verb. With the mediation of an identifying predicative relation (*they = NP₁, NP₂, NP₃ together*), it licenses the thematic role of the coordinated NPs:

- (20) (a) $\check{O}_{k_{ijk}}$, [Béla_i, Mari_j és Erzsik_k] boldogok voltak.
 they Bill Mary and Liz happy-pl be-past-3pl
 'Bill, Mary, and Liz were all happy.'
- (b) $\check{O}_{k_{ijk}}$, [Béla_i, Mari_j és Erzsik_k] megvették az ajándékokat.
 they Bill Mary and Liz prev-buy-3pl the present-pl-acc
 'Bill, Mary, and Liz bought the presents (together).'

In Munn's proposal, then, the B head has a double nature because it is quantifier-like on the one hand, and has a collective agreement function, on the other.

2.2. Agreement between the coordinate construction and the verb: the person/number features

In Hungarian, coordinate constructions involving conjuncts with diverse person features call forth the appearance of a plural agreement suffix on

the verb that corresponds to the “top” person feature of the conjuncts (first person if involved, else second if involved, else third). This is so even if all conjuncts are singular. In the following (d–f) examples we exclude an alternative interpretation with verb elision:⁴

- (21) (a) Te meg én sétáltunk.
 you and I walk-past-1pl
 ‘You and I were walking.’
- (b) Te meg ő sétáltak.
 you and he walk-past-2pl
 ‘You were walking with him.’
- (c) Én meg ő sétáltunk.
 I and he walk-past-1pl
 ‘I was walking with him.’
- (d) *Te meg én sétáltam.
 you and I walk-past-1sg
- (e) *Én meg ő sétált
 I and he walk-past-3sg

It is important to note that the presence of the conjunction is a condition of grammaticality here; its omission results in ungrammatical strings:⁵

- (22) (a) *Te, én sétáltunk.
 you I walk-past-1pl
- (b) *Te, ő sétáltak.
 you he walk-past-2pl
- (c) *Én, ő sétáltunk.
 I he walk-past-1pl

Thus, the plurality of the verbal agreement suffix is a consequence of this unification of diverse person/number features, therefore the conjunction is indispensable for the structure to be grammatical.

We saw a similar unification pattern in quantifiers used with coordinate constructions. Quantifiers can fulfil feature agreement functions. In

⁴ In focus-bounded verb ellipsis cases, agreement can only be local since two clauses are involved: **Te [kelés-korán] meg *én kelek korán.* ‘You [get up early] and I get up early’. **Te [utasítottál vissza minden kölcsönt], meg *ő utasított vissza minden kölcsönt.* ‘You [refused all loans] and he refused all loans’. This is motivated in detail in Bánréti (2001a;b).

⁵ Conditions of the omissibility of conjunctions will be discussed below in section 5.1.

Hungarian, nouns modified by numerals like *kettő* 'two', *három* 'three', etc. disallow plural agreement on the verb, whereas with *kett-en* 'a group of two; the two of us/you/them', *hárm-an* 'a group of three; the three of us/you/them', plural verbal morphology is obligatory since the latter may be bound by an NP marked for the feature of plurality. Quantifiers suffixed with nominal (possessive) agreement morphemes (*hárm-unk* 'the three of us', *kettő-tök* 'the two of you', *négy-ük* 'the four of them') clearly show person/number feature agreement.

If, in a structure like (20), the pronoun is replaced by a quantified expression referring to a coordinate construction, we get the following agreement alternation. Where the quantified expression contains an ending referring to plurality⁶ (*mind a hárm-an* 'the whole of a group of three; all three of us/you/them'), the complex person/number agreement suffix occurs on the verb (see (23a,c,e)); where the quantified expression itself contains a person/number agreement morpheme (*mind a hármunk* 'all the three of us', *mind a hármótok* 'all the three of you', *mind a hármuk* 'all the three of them') then **that** morpheme, and not the verbal inflexion, agrees with features of the coordinate construction (see (23b,d,f)). The verb in the latter cases bears a **third person singular** ending, that is, it must not agree with the coordinate construction (see (23g,h,i)):

- (23) (a) *Mind a hárm_{jk}l, te_j, én_k meg ő_i hazaértünk időben.*
 all the three you I and he get.home-past-1pl in.time
 'You, I, and him: we got home in time all three of us.'
- (b) *Mind a hárm_{jk}l, te_j, én_k meg ő_i hazaért időben.*
 all the three-1pl you I and he get.home-past-3sg in.time
 'You, I, and him: all three of us got home in time.'
- (c) *Mind a hárm_{jk}l, te_j, Mari_k meg ő_i hazaértetek időben.*
 all the three you Mary and he get.home-past-2pl in.time
 'You, Mary, and him: you got home in time all three of you.'
- (d) *Mind a hármó_{tk}l, te_j, Mari_k meg ő_i hazaért időben.*
 all the three-2pl you Mary and he get.home-past-3sg in.time
 'You, Mary, and him: all three of you got home in time.'
- (e) *Mind a hárm_{jk}l, János_j, Péter_k és Mari_i hazaérték időben.*
 all the three John Peter and Mary get.home-past-3pl in.time
 'John, Peter and Mary: they got home in time all three of them.'

⁶ Here and in what follows, we discuss the feature of plurality with respect to morphosyntactic agreement and structural well-formedness, as well as other syntactic and morphological aspects only. Issues in the semantics of plurality (like semantic/logical structures of groups/sets, or the semantics of conjunctive relations forming sets of events, points of time, or properties) will be ignored here.

- (f) Mind a hármuk_{jkl}, János_j, Péter_k és Mari_l hazaért időben.
 all the three-3pl John Peter and Mary get.home-past-3pl in.time
 'John, Peter, and Mary: all three of them got home in time.'
- (g) *Mind a hármunk_{jkl}, te_j, én_k meg ő_l hazaértünk időben.
 all the three-1pl you I and he get.home-past-1pl in.time
- (h) *Mind a hármótök_{jkl}, te_j Mari_l meg ő_l hazaértetek időben.
 all the three-2pl you Mary and he get.home-past-2pl in.time
- (i) *Mind a hármuk_{jkl}, János_j, Péter_k és Mari_l hazaérték időben.
 all the three-3pl John Peter and Mary get.home-past-3pl in.time

In quantified expressions that are interpreted as group forming ones, the morpheme of number/person agreement with the coordinate construction appears according to the same principles as it does, in other cases, on the verb, cf. (23b,d,f). But it is either only on the verb or only on the quantified expression that the "top" person plural ending appears, not simultaneously on both, cf. (23g,i,h). The person/number ending within the quantified expression alternates in accordance with the person features of the conjuncts, while the verbal ending remains third person singular, irrespective of the person feature of the coordinated NPs.

The above examples are based on the intuition that the person/number-marked quantifier is "preposed" into the position before the coordinate construction. It is important that the coordinate construction is not simply wedged in or inserted. The person/number feature of the quantified expression has to agree with that of the coordinate construction: the former has to bear the person/number ending required by the relevant features of the latter. The quantified expressions in (24) below yield a well-formed structure with the verb on their own. If the appearance of the coordinate construction were a matter of mere insertion, it would not be expected to turn otherwise well-formed sentences into ill-formed ones. Yet what happens is exactly that: the sentences in (25) are ill-formed:

- (24) (a) Mind a hármuk hazaért időben.
 all the three-3pl get.home-past-3sg in.time
 'All three of them got home in time.'
- (b) Mind a hármunk hazaért időben.
 all the three-1pl get.home-past-3sg in.time
 'All three of us got home in time.'
- (25) (a) *Mind a hármuk_{jkl}: te_j, én_k meg ő_l hazaért időben.
 all the three-3pl you I and him get.home-past-3sg in.time
 'All three of them, you, I and him, got home in time.'

- (b) Mind a hármunk_{jkl}: a szerelő_j, a festő_k és a sofőr_l
 hazaért időben.
 get.home-past-3sg in.time
 'All three of us, the fitter, the painter and the driver, got home in time.'

Quantified expressions that do not involve person agreement, "just" plurality marking (*mind a hárm+an* 'all three of us/you/them', *mind a négy+en* 'all four of us/you/them'), do not affect the agreement between the person features of the coordinate construction and the verb:

- (26) (a) Mind a hárman_{jkl}, te_j, én_k meg ő_l hazaértünk időben.
 all the three you I and him get.home-past-1pl in.time
 'You, I and him: we got home in time all three of us.'
- (b) Mind a hárman_{jkl}, János_j, Péter_k és Mari_l hazaértek időben.
 all the three John Peter and Mary get.home-past-3pl in.time
 'John, Peter and Mary: they got home in time all three of them.'

Interestingly, these quantified expressions require morphologically marked plurality of "stand-alone" nouns, whereas in a coordinate construction they permit each conjunct being singular (# stands for a pause):

- (27) (a) Mind a hárman # a diákok kapnak egy közös számítógépet.
 all the three the students get-3pl a common computer
 'All three of the students get a computer to share.'
- (b) *Mind a hárman # a diák kap egy közös számítógépet.
 all the three the student get-3sg a common computer
 'The student gets a computer to share all three of them.'
- (c) Mind a hárman_{jkl}, # János_j, Péter_k és Mari_l kapnak egy
 all the three John Peter and Mary get-3pl a
 közös számítógépet.
 common computer
 'All three of them, John, Peter and Mary, get a computer to share.'

2.3. An explanation of the agreement effects

The differences observed in (23) can be explained if we assume that there are two distinct types of quantified expressions and two distinct relations that they can have to coordination.

In nominal expressions, we have to assume at least two domains having to do with quantity marking and quantification: the NUMP projection, containing indefinite articles and (other) numerals, as well as the QUANTP projection, containing quantifiers:

- (28) [QUANTP minden [NUMP három [NP diák]]] kap egy közös számítógépet
 all three student get-3sg a common computer
 'Each group of three of the students gets a computer to share (within the group).'

The quantified expression containing *mind*, a definite article, and a numeral can occur appositively, too. In that construction, the NP precedes the structure containing the quantifier and the numeral. If, in an appositive construction, *-en/-an* is added to the numeral, the noun will obligatorily be plural (either morphologically marked or inherently) and the verbal agreement ending has to be plural, too:

- (29) (a) A fiúk, # mind a hárman, # előkerültek.
 the boys all the three turn.up-past-3pl
 'The boys, all the three, were found.'
- (b) *A fiú, # mind a hárman, # előkerült-0.
 the boys all the three turn.up-past-3sg
 'The boy, all the three, was found.'

2.3.1. Verbal agreement

The ending *-en/-an* refers back to a noun that is [+animate] and is 1st–3rd person plural.⁷ In these cases, the verbal ending can only be plural, that is, agree with the antecedent of *-en/an*:

- | | | |
|------------------------|---------------|---------------|
| (30) (Mi) | mind a hárman | énekeltünk. |
| we | all the three | sing-past-1pl |
| (Ti) | mind a hárman | énekeltetek. |
| you-pl | | sing-past-2pl |
| (Ők) | mind a hárman | énekeltek. |
| they | | sing-past-3pl |
| A gyerekek | mind a hárman | énekeltek. |
| the children | | sing-past-3pl |
| Péter, Ibi meg én | mind a hárman | énekeltünk. |
| Peter, Violet, and I | | sing-past-1pl |
| Péter, Mari meg te | mind a hárman | énekeltetek. |
| Peter, Mary and you-sg | | sing-past-2pl |
| Péter, Mari és Ibi | mind a hárman | énekeltek. |
| Peter, Mary and Violet | | sing-past-3pl |

⁷ The 3rd person of (–animate) nouns is irrelevant, not interpretable. Cf.: *A cigaretták, # mind a hárman, # leestek az asztalról 'The cigarettes, all three of them, fell off the table.'

2.3.2. The article in the quantified expression

In a possessive nominal construction, the quantified expression with no article or numeral in it is within the [N+I]P kernel (cf. (31a,b)). On the other hand, a quantified expression involving an article requires a DP-shell, hence (31c) is ungrammatical but (31d,e) are grammatical:

- (31) (a) [[N+I]P Péter [NUMP két [N+I könyve]]] elveszett.
 Peter two book-poss get.lost-past-3sg
 'Peter's two books got lost.'
- (b) [[N+I]P Péter {QUANTP mindkét [N+I könyve]]] elveszett.
 Peter both book-poss get.lost-past-3sg
 'Peter's both books got lost.'
- (c) *[[N+I]P Péter [QUANTP mind a két [N+I könyve]]] elveszett.
 Peter all the two book-poss get.lost-past-3sg
- (d) [Péternek [DP [SPEC mind [D a [NUMP két [[N+I]P könyve]]]]]] elveszett.
 Peter-dat all the two book-poss get.lost-past-3sg
 'Both of Peter's books got lost.'
- (e) [TopP [Spec Péternek_i] elveszett [t_i [DP [SPEC mind [D a [NUMP két
 Peter-dat get.lost-past-3sg all the two
 [[N+I]P könyve]]]]].
 book-poss
 'Peter lost both of his books.'

In (31d), the quantified expression with the article raises into the DP-shell. The string *mind a két* 'both', containing a D (i.e., a definite article), requires that the D head be filled; therefore a D-projection comes into being whose Specifier gets filled by the quantifier *mind*. The [Spec,DP] position becomes available when the dative possessor moves out of the DP and gets adjoined to it from the outside, cf. (31d), or when the DP moves into another syntactic position—say, into the topic, as in (31e). In the latter case it establishes an anaphorical relationship with its trace.⁸

For the string *mind a hárman* 'all the three' we assume the structure in (31d), with *mind* in [Spec,DP], and *hárman* in [Spec,NumP]. Thus instead of a single DP with quantification in it, we end up with two DPs. This is shown by the fact that the quantified DP may precede the

⁸ Bartos (1999, 105–107) argues in favour of quantifiers raising into D and therefore the creation of a DP-shell on the basis of the behaviour of nominative possessive constructions. An example of the structure arising after quantifiers raise to D is [DP [D egy/öt/minden/kevés]_x [AgrP [t_x fiú] [NumP három lova]]] 'three horses of a boy/of five/all/few boys'.

quantifier-numeral construction. The example in (32b) below is taken to involve an appositive construction:

- (32) (a) Mind a hárman # a diákok kapnak egy közös számítógépet.
 all the three the students get-3pl a common computer
 'All three of the students get a computer to share.'
- (b) A diákok # mind a hárman kapnak egy közös számítógépet.
 the students all the three get-3pl a common computer
 'The students, all three of them, get a computer to share.'

In (32a) and (32b), the quantifier (*mind a hárman*) points forward, respectively back, to the DP (*a diákok*). The target of coreference, the DP, has to be definite:

- (33) (a) *Diákok, # mind a hárman énekeltek.
 students all the three sing-past-3pl
 'As for students, they sang all the three.'
- (b) *Szakállas diákok, # mind a hárman énekeltek.
 bearded students all the three sing-past-3pl
 'As for bearded students, they sang all the three.'

The appositive construction in (32b) neutralises the conflict between singular after the universal quantifier plus numeral (the fact that the head of Num is unfilled when a quantifier/numeral is present) and the plural that nevertheless occurs in the present case:

- (34) [DP[D[QuantP[NumP[Spec[Num[NP] [DP[Spec[D[QuantP[NumP[Spec[Num[NP]
 a — — plur.diákok mind_ja t_j hárman

The structure assumed here expresses the claim that the quantifier-numeral string containing a D (i.e., a definite article), raises into D; thereby requiring that a DP-shell be built.

Of the personal pronouns, those that are either morphologically marked for plural (*ők* 'they') or are inherently plural (*mi*, *ti* 'we, you-pl') are grammatical in this construction, just like coordinated sequences of singular conjuncts:

- (35) [DP[D [QuantP[NumP[Spec[Num[NP] [DP[Spec [D [QuantP [NumP[Spec [Num [NP
 mi<1.pl> — — <1.pl> mind_j a t_j hárman
 ti<2.pl> — — <2.pl> mind_j a t_j hárman
 ők<3.pl> — — <3.pl> mind_j a t_j hárman
 [DP[D [QuantP[NumP[Spec[Num[NP], [DP[Spec [D [QuantP [NumP[Spec[Num[NP
 [Péter, Mari és Ibi] — — <3.pl> mind_j a t_j hárman

However, a quantified coordinate construction can only consist of morphologically singular conjuncts:⁹

- (36) (a) A diák, a tanársegéd és a professzor, # mind
 the student the assistant and the professor all
 a hárman hallgattak.
 the three be.silent-past-3pl
 'The student, the assistant and the professor, all three of them, were silent.'
- (b) *A diákok, a tanársegédek és a professzorok, # mind
 the students the assistants and the professors all
 a hárman hallgattak.
 the three be.silent-past-3pl
 'The students, the assistants and the professors, all three (groups) of them, were silent.'

2.4. The possessive pattern

The other type of collective quantifier-numeral structures follows the pattern of possessive DPs. In these, the possessed noun is provided with a plural possessive ending, whereas the "possessor" has to be [+animate] and of bound reference. In (37c), the referential value of *ők* can be interpreted as 'introduced previously':

- (37) (a) mi, mind a négyünk... 'we, all the four of us'
 (b) ti, mind a négyetek... 'you, all the four of you'
 (c) ők, mind a négyük... 'they, all the four of them'
 (d) Péter, Mari, Ibi és Vali, mind a négyük...
 'Peter, Mary, Violet, and Valerie, all four of them'

For the relevant portions of each example in (37), we assume the following structure:

- (38) [DP[D (mi)
 (ti)
 [Péter, Mari, Ibi és Vali]_m
 (ők)_m [QuantP [NumP [Spec[Num[NP],
 { [DP [SPEC [D [NUMP [[N+I]P]]]]]
 (nekünk) mind a négy [pro]-ünk
 (nektek) mind a négy [pro]-etek
 (nekik_m) mind a négy [pro]-ük
 (nekik_m) mind a négy [pro]-ük

⁹ We will come back to that point later below.

With the coordinate construction, two word orders are possible: “pre-quantification” and “post-quantification”. The second is the appositive construction (39b) in which the DP (*Péter, Mari, Ibi és Vali*) is **followed** by its quantification (*mind a négyük*), and there is also agreement between them.

- (39) (a) *Mind a négyük # (Péter, Mari, Ibi és Vali) megijedt.*
 all the four-3pl Peter Mary Violet and Valerie get.frightened-past-3sg
 ‘All the four: Peter, Mary, Violet, and Valerie got frightened.’
- (b) *(Péter, Mari, Ibi és Vali) #, mind a négyük megijedt.*
 Peter Mary Violet and Valerie, all the four-3pl get.frightened-past-3sg
 ‘Peter, Mary, Violet, and Valerie, all four of them got frightened.’

An argument supporting the claim that the covert pronouns *nekünk, nektek, nekik* ‘we-dat, you-dat, they-dat’ are adjoined to the DP from the outside is as follows. As we saw in (31d) (= *Péternek mind a két könyve* ‘both of Peter’s books’), the fact that the category D is filled requires that the quantifier *mind* be raised into Spec,DP. In order for that position to become available, the dative possessor has to move out of the DP. The above structure differs from (31d) in that the function of dative possessor is carried by case-marked personal pronouns (*nekünk* etc.). The parentheses indicate that the pronouns may be covert on the basis of being deictically or anaphorically bound (cf. *mind a négyünk* ‘all the four of us’). The possessed item is a covert pronoun (*pro*) whose agreement features are carried by endings that are attached to the preceding numeral, phonologically harmonised to it (*négyünk* ‘four of us’, *húszunk* ‘twenty of us’).

In support of the above structure, and against the alternative assumption that the “possessor” constituent is not *nekünk, nektek, nekik* but rather *mi + nekünk, ti + nektek, ő + nekik*, several empirical arguments can be adduced. One of these is the behaviour of the overt coordinate construction in (40b). This cannot be the “possessor” constituent itself since the number features of its individual conjuncts do not agree with that of the possessed item (the former each being singular, while the latter is plural). Covert pronouns are indicated in smaller print in the examples that follow.

- (40) (a) *(Péter, Mari, Ibi és Vali), # (nekik) mind a négyük nyaral.*
 Peter Mary Violet and Valerie they-dat all the four-3pl be.on.holiday-3sg
 ‘Peter, Mary, Violet, and Valerie, all four of them are on holiday.’

- (b) *(Péternek, Marinak, Ibinek és Valinak) mind a
Peter-dat Mary-dat Violet-dat and Valerie-dat all the
négyük nyaral.
four-3pl be.on.holiday-3sg

The aggregate value of the person/number features of the conjuncts is taken over by the covert pronoun in the position of possessor (e.g. *nekik*), and the possessed item following the numeral agrees with that (*mind a négy-pro-ük* ‘all the four *pro* of them’). The diverse person features of the conjuncts will be unified in the “top” value and the number will be plural, as seen above:

- (41) (Péter, Mari, te meg én) (nekünk) mind a négyünk nyaral.
Peter Mary you and I we-dat all the four-1pl be.on.holiday-3sg
‘Peter, Mary, you and me, all four of us are on holiday.’

The verb always agrees with the features of the “possessed item”, never with those of the the moved “possessor”. This observation provides another argument supporting the claim that this construction follows the possessive pattern:

- | | | |
|------------------------------------|------------------------|----------------------|
| (42) (mi) (nekünk) | mind a négy [pro]-ünk | hazaérkezett időben. |
| (ti) (nektek) | mind a négy [pro]-etek | hazaérkezett időben. |
| [Péter, Mari, Ibi és Vali] (nekik) | mind a négy [pro]-ük | hazaérkezett időben. |
| (ők) (nekik) | mind a négy [pro]-ük | hazaérkezett időben. |
| [Péter, Mari, te meg én] (nekünk) | mind a négy [pro]-ünk | hazaérkezett időben. |
- ‘We/You/Peter etc./They/Peter etc. all the four of us/you/them got home on time.’

The quantifier-numeral construction determines the features of the (pro-) nominal category that it cooccurs with to the extent that the latter must be in the plural.

2.5. The double function of the conjunction and the quantified expression

When we referred to the double function of coordinative conjunctions above, what we meant was that they have a “quantifier-like” (plurality-producing) and a “pronominal” (person agreement inducing) aspect. We have shown that the overt presence (at least once) of the conjunction in the coordinate construction is a condition of grammaticality in the

case of conjunctions of the *és/meg/vagy* ‘and/or’ type. Complete lack of conjunction results in ungrammaticality:

- (43) (a) *Te, én sétáltunk.
 you I walk-past-1pl
 (b) *Te, ő sétáltak.
 you he walk-past-2pl
 (c) *Én, ő sétáltunk.
 I he walk-past-1pl

That ill-formedness is caused by the fact that the conjunctive head has the function of unifying the diverse person/number features of the conjuncts. The lack of a conjunction fails to result in ungrammaticality only if that function can be fulfilled without it, too. This happens whenever the person/number features of the conjuncts, in an aggregate form, appear on the numeral or the “possessed” item of the collective quantifier-numeral construction:

- (44) (a) (A postás, a házmester, te, én), # mind a négyen
 the postman the porter you I all the four
 megijedtünk.
 get.frightened-past-1pl
 ‘The postman, the porter, you and me, we got frightened all four of us.’
 (b) (A postás, a házmester, te, én), # mind a négyünk
 the postman the porter you I all the four-1pl
 megijedt.
 get.frightened-past-3sg
 ‘The postman, the porter, you and me, all four of us got frightened.’
 (c) (Terólad, énrólam a postásról, a házmesterről), # mind a
 you-del I-del the postman-del the porter-del all the
 négyünkről pletykálnak.
 four-1pl-del gossip-3pl
 ‘You, me, the postman, the porter, all four of us are being gossiped about.’
 (d) *(A postás, a házmester, te, én) megijedtünk.
 the postman the porter you I get.frightened-past-1pl
 ‘The postman, the porter, you and me, we got frightened.’
 (e) *(A postás, a házmester, te, én) megijedt.
 the postman the porter you I get.frightened-past-3sg
 ‘The postman, the porter, you and I got frightened.’
 (f) *(Terólad, énrólam, a postásról, a házmesterről) pletykálnak.
 you-del I-del the postman-del the porter-del gossip-3pl
 ‘You, me, the postman, the porter are being gossiped about.’

In (44a–c), the collective quantified expression stands proxy, as it were, for the unificatory function of the coordinative conjunctive head. The collective quantified expression refers back to the interpretable person/number features of the quantified noun (animate, 1st–3rd person; cf. 2.3.1). The quantifier-numeral construction in (44a) (*mind a négy-en*) can refer to a **nominative** and **plural** nominal antecedent/postcedent. The antecedent can be a coordinate construction of singular nouns that has the property of plurality as a whole. The collective quantified construction in (44b) (*négy-pro-ünk*) contains both plurality and the “top” person value of the conjuncts by virtue of the nominal agreement marker attached to it. The verb agrees with the “possessed” item. In (44c), the quantified expression even copies the **case marker** of the coordinate construction. What is common in the three examples is that the plurality feature of the coordinate construction whose individual members are all singular, as well as its case feature, appears in an overt form in the collective quantifier-numeral construction either in the *-en/-an* ending or in the plural agreement marker and case marker of the “possessed” item. It can be assumed that the lack of a conjunction in these cases fails to result in ungrammaticality just because its unificatory functions are **jointly** fulfilled by the **collective part** of the quantifier-numeral construction (*mind + a...*) and the **overt agreement markers** following the numeral (*... a négy-en, ... a négy-pro-ünk, ... a négy-pro-ünkről*). Of the two faces of the coordinating conjunction, the “quantifier-like” face is represented by the constituent *mind*, whereas the “pronominal” face is represented by the constituents *négy-en, négy-pro-ünk, négy-pro-ünkről*. Therefore, these constructions reflect the double function of (and, if necessary, may thereby functionally substitute for) the conjunction.

2.6. Optional plural agreement

The requirement that **diverse person features** of the individual conjuncts in the coordinate construction be reconciled activates the feature of plurality in an especially strong form. If the coordinated nouns do not differ in their person features, all of them being third person singular, the verbal marker of plurality is optional.¹⁰ This means that the verb may

¹⁰ Kálmán-Trón (2000) draw our attention to the oddity of the possibility of singular agreement. They define definiteness and number agreement so as to subsume agreement with coordinated NPs as a special case. In their view, agreement

bear either a singular or a plural agreement marker. The plural ending preferentially supports a collective reading, whereas the singular ending preferentially supports a distributive one:¹¹

- (45) (a) A nagymama és a postás a járda szélén ült.
the grandmother and the postman the pavement edge-sup sit-past-3sg
'The grandmother and the postman were sitting on the kerb.'
(preferred reading: *separately*)
- (b) A nagymama és a postás a járda szélén ültek.
the grandmother and the postman the pavement edge-sup sit-past-3pl
'The grandmother and the postman were sitting on the kerb.'
(preferred reading: *together*)
- (c) Te meg te szerzel ennivalót.
you and you get-2sg food-acc
'You and you get some food.' (preferred reading: *separately*)
- (d) Te meg te szereztek ennivalót.
you and you get-2pl food-acc
'You and you get some food.' (preferred reading: *together*)

obtains between a verb form and a set of coordinated NPs if the agreement relation is (also) satisfied between the verb form and the individual conjuncts. More complex agreement relations are traced back to simpler cases (Kálmán-Trón 2000, 49–55).

¹¹ There are quantifiers that only permit singular noun–verb agreement in cases of coordination. These are typically distributively interpreted quantifiers. But, when referring to a coordinate construction, even these have to involve the plural “top” person feature of the conjuncts within the quantified expression:

- (a) Mindegyik**ünk**, te, én, meg ő hazaért időben.
'Each of us: you, me, and him, got home in time.' (*separately*)
- (b) *Mindegyik (vendég): te, én, meg ő hazaért**ünk** időben.
'Each (guest): you, me, and him, we got home in time.'
- (c) Mindegyik (vendég): te, én, meg ő hazaért időben.
'Each (guest): you, me, and him, got home in time.' (*separately*)
- (d) Mindegyik**ük**, [Péter, Mari, Ibi és Vali] hazaért időben.
'Each of them: Peter, Mary, Violet, and Valerie got home in time.'
(*separately*)
- (e) *Mindegyik – [Péter, Mari, Ibi és Vali] hazaért időben.
'Each of Peter, Mary, Violet, and Valerie got home in time.'

We assume that if a quantified expression contains some agreement marker (only in number or both in person and number) then the quantified construction cannot refer to a coordinate construction unless the plural marker appears either on the quantifier or on the verb, whereas the individual conjuncts may all be singular. Plurality is a fundamental property of the coordinate **construction**, rather than of the individual conjuncts.

Morphosyntactically unmarked, semantic plurality does not bring about plural agreement on the verb. In Hungarian, nouns modified by numerals are inflected in the singular and the verb, too, takes singular endings; this also applies to a coordinate construction made up by such items (as long as their person features are identical). If the person features are not identical, verbal agreement switches to plural (ellipsis of the verb excluded for (46d)):¹²

- (46) (a) (Három gyerek meg négy felnőtt) elbújt a vihar elől.
 three child and four adult prev-hide-past-3sg the storm away.from
 'Three children and four adults hid away from the storm.'
- (b) *(Három gyerek meg négy felnőtt) elbújtak a vihar elől.
 three child and four adult prev-hide-past-3pl the storm away.from
- (c) (Három gyerek meg én) elbújtunk a vihar elől
 three child and I prev-hide-past-1pl the storm away.from
 'Three children and I hid away from the storm.'
- (d) *(Három gyerek meg én) elbújtam a vihar elől
 three child and I prev-hide-past-1sg the storm away.from

2.7. Agreement between the person features of coordinated direct objects and verbal endings

In Hungarian, coordinate constructions behave differentially in terms of plurality effects and person feature agreement depending on whether they are subjects or direct objects. With accusative NPs coordinated, agreement between the person features and the verbal inflections is strictly local (in that the person feature of the object closest to the verb is taken into consideration). Otherwise, the construction is ungrammatical. Given that there is no verbal plural ending to agree with the object, it is impossible to have one that is "collectively" plural in the case of diverse person features of objects. (47a) and (47c) exhibit locally grammatical agreement that does not extend to the second conjunct, marked by ??? in the examples. On the other hand, (47b) and (47d) involve locally ungrammatical agreement patterns, marked by *, as usual:

¹² Focus-bound verb ellipsis makes singular endings possible since agreement is strictly local within each clause: *Csak "három gyerek [bújt el a vihar elől], meg "én bújtam el a vihar elől* 'Only three children [hid away from the storm] and I hid away from the storm' (Bánréti 2001a).

- (47) (a) Én látlak téged és ??? magunkat.
 I see-1sg.subj-2sg.obj you-acc and ourselves-acc
 'I can see you and ourselves.'
- (b) *Én látlak magunkat és téged.
 I see-1sg.subj-2sg.obj ourselves-acc and you-acc
- (c) Én látom magunkat és ??? téged.
 I see-1sg.def ourselves-acc and you-acc
 'I can see ourselves and you.'
- (d) *Én látom téged és magunkat.
 I see-1sg.def you-acc and ourselves-acc

The existence/lack of a "collective" inflectional ending could be a morphosyntactic "accident" in itself. However, it is a rule of Hungarian that wherever there is a verbal inflection agreeing with the grammatical person of the direct object (*-lak/-lek*), the verbal suffix invariably agrees with the object immediately adjacent to the verb—if there are several direct objects of diverse persons—and it cannot be made to agree with the other conjunct. (In principle, there could be a rule of grammar that would give us collective agreement covering the dissimilar person of the other object.) Since collective agreement is impossible, (47a) and (47c) are bound to involve an elliptical structure as in (48a,b):¹³

- (48) (a) Én látlak téged és [látom] magunkat.
 I see-1sg.subj-2sg.obj you-acc and see-1sg.def ourselves-acc
 'I can see you and ourselves.'
- (b) Én látom magunkat és [látlak] téged.
 I see-1sg.def ourselves-acc and see-1sg.subj-2sg.obj you-acc
 'I can see ourselves and you.'

Coordinated accusative NPs of dissimilar **definiteness** values can only yield a grammatical structure if the verbal agreement marker is **neutral** with respect to definiteness, e.g., *láttam* 'see-1sg-def/indef'. In that case, a definite and an indefinite NP (in either order) can be coordinated in the topic position, as Kálmán and Trón (2000, 44) show on the example of (49a) below. We can add that the same holds with respect to postverbal positions, provided the verbal suffix is neutral for definiteness (see (49b)):

¹³ The conjunct falling outside local person agreement in a grammatical sentence usually points at the probable presence of elliptical structure. For instance: *JANCSI ## [adott ajándékot Juliskának], meg ÉN adtam ajándékot Juliskának* 'JACK [gave a present to Jill], and I gave a present to Jill' (two separate presentation acts).

- (49) (a) (A fát és egy madarat) bezzeg láttam.
 the tree-acc and a bird-acc on.the.contrary see-past-1sg
 'I did see the tree and a bird.'
- (b) Láttam (a fát és egy madarat).
 see-past-1sg the tree-acc and a bird-acc
 'I saw the tree and a bird.'

Where the verbal ending is nonneutral with respect to definiteness, an object construction in which a definite and an indefinite NP are coordinated (in either order) is ungrammatical or of doubtful acceptability. In (50a) and (50c) the verbal suffix agrees with the definiteness feature of the NP object "further away" and the result is totally ungrammatical. In (50b) and (50d), on the other hand, the verb agrees with the NP object closest to it, and the result (excluding, as usual, an interpretation with verb ellipsis) is highly but not totally unacceptable:

- (50) (a) *(Egy verset és a novellát) olvasok.
 a poem-acc and the short.story-acc read-1sg.indef
- (b) ?*(A novellát és egy verset) olvasok.
 the short.story-acc and a poem-acc read-1sg.indef
- (c) *Olvasom (egy verset és a novellát).
 read-1sg.def a poem-acc and the short.story-acc
- (d) ?*Olvasom (a novellát és egy verset).¹⁴
 read-1sg.def the short.story-acc and a poem-acc

¹⁴ The reason why (50b, d) appear to be slightly less ungrammatical than (50a, c) is as follows. If one of the conjuncts of diverse definiteness locally agrees with the verb, then the representation is grammatical provided it contains an ellipsis of the verb after the **non-locally** agreeing constituent. If the verb is preceded by the objects, the order definite plus indefinite is preferred for well-formed verb ellipsis, and the ellipsis site must be preceded by a focus-stressed object, cf. (a), (b), (c), and (d) below. If in the antecedent sentence the verb is followed by the objects, such effect is not found, the order of the two objects is free, cf. sentences (e) and (f) below. The structure invariably contains verb ellipsis next to the locally **non-agreeing** object:

- (a) Csak egy "VERSET [~~olvasok~~] és a "NOVELLÁT olvasom.
 'It's only a POEM and the SHORT STORY that I read.'
- (b) Csak egy "VERSET olvasok és a "NOVELLÁT [~~olvasom~~].
 'It's only a POEM that I read, and the SHORT STORY.'
- (c) ?*Csak a "NOVELLÁT [~~olvasom~~], és egy "VERSET olvasok.
 'It's only the SHORT STORY and a POEM that I read.'

2.8. Feature unification and syntactic context

The functioning of conjunctive heads, at least in Hungarian, depends on morphosyntactic paradigms, too. The unification of person/number/definiteness etc. features and the addition of plurality in case of a coordinate construction is only feasible if there is a “collective” verbal inflectional ending that is able to represent these. If such a “collective” verbal suffix is not available, the suffixed verb itself has to be repeated conjunct by conjunct (at least in an ellipted form) in order to render local agreement with the relevant features of the conjuncts possible. This option produces sentence coordination instead of a coordinate construction involving phrases. Hence, the choice of the relevant solution depends on the available morphosyntactic rules, too.

The unification of the grammatical features of the conjuncts interacts with the syntactic environment of the coordinate construction and depends on its case features as well. If the construction is a subject, the person/number features are relevant along with the nominative feature; if it is a direct object, the values of the definiteness feature are relevant along with the accusative feature; and if it is a case-marked adverbial, the case features are relevant. Of course, a single constituent to be coordinated with another one may have person/number features, a definiteness feature, and a case feature simultaneously. But it is always just one class of features that participates in unification, depending on the syntactic function of the construction. In a coordinate **subject**, apart from nominative case, the unification of person/number features is relevant. In this case, agreement in definiteness is not involved.

- (51) (a) (A magas férfi és egy szőke nő) elkéstek a koncertről.
 the tall man and a blond woman prev-be.late-past-3pl the concert-del
 ‘The tall man and a blond woman were late for the concert.’
- (b) (Egy néni meg én) egyedül voltunk a házban, amikor a földrengés megkezdődött.
 an old.lady and I alone be-past-1pl the house-ine when the earthquake prev-begin-past-3sg
 ‘An old lady and I were alone in the house when the earthquake began.’

-
- (d) Csak a "NOVELLÁT olvasom, és egy "VERSET [olvasok].
 ‘It’s only the SHORT STORY that I read, and a POEM.’
- (e) Olvasok egy verset és a "NOVELLÁT is [olvasom].
 ‘I am reading a poem, and the SHORT STORY, too.’
- (f) Olvasom a novellát és egy "VERSET is [olvasok].
 ‘I am reading the short story, and a POEM, too.’

In a coordinate **object**, it is the definiteness value of the conjuncts that has to be identical. The features definite vs. indefinite constitute an opposition, hence either all conjuncts are definite or all of them are indefinite. Person/number features are irrelevant here.

- (52) (a) *Látom* (magamat, a gyereket és a házat).
 see-1sg.def myself-acc the child-acc and the house-acc
 'I can see myself, the child and the house.'
- (b) *Látok* (egy gyereket és egy házat).
 see-1sg.indef a child-acc and a house-acc
 'I can see a child and a house.'

Barring the possibility of verb ellipsis in the second conjunct, the following examples are ungrammatical:¹⁵

- (53) (a) **Látok* (egy házat és a gyereket).
 see-1sg.indef a house-acc and the child-acc
 'I can see a house and the child.'
- (b) **Látom* (a gyereket és egy házat).
 see-1sg.def the child-acc and a house-acc
 'I can see the child and a house.'

The person/number features are relevant, however, if they determine the value of the definiteness feature. First and second person pronominal objects (*engem* 'me', *téged* 'you-sg-acc', *minket* 'us', *titeket* 'you-pl-acc') require the verb to be in what is known as indefinite conjugation. Although these categories are DPs (have a D feature), they participate in feature unification as if they were indefinite objects, due to their person features.¹⁶ First and second person objects can only be coordinated with indefinite third person objects. The property they contribute to coordination, then, is the **absence** of definiteness. Excluding again cases involving elision of the verb in the second conjunct:

¹⁵ The examples are grammatical with forward ellipsis that "separates" the conjuncts from one another:

- (a) *Látok egy "házat és [~~látom~~] a "gyereket.*
 'I can see a house and [~~I can see~~] the child.'
- (b) *Látom a "gyereket és [~~látok~~] egy "házat.*
 'I can see the child and [~~I can see~~] a house.'

¹⁶ An explanation of this phenomenon is offered by Bartos (2000), cf. also footnote 6.

- (54) (a) Látsz (engem és egy gyereket).
 see-2sg.indef I-acc and a child-acc
 'You can see me and a child.'
- (b) *Látsz (engem és a gyereket).
 see-2sg.indef I-acc and the child-acc
 'You can see me and the child.'
- (c) Látod (magadat és a gyereket).
 see-2sg.def yourself-acc and the child-acc
 'You can see yourself and the child.'
- (d) Látod (magatokat és a gyereket).
 see-2sg.def yourselves-acc and the child-acc
 'You can see yourselves and the child.'
- (e) *Látod (magadat és egy gyereket).
 see-2sg.def yourself-acc and a child-acc
 'You can see yourself and a child.'
- (f) *Látod (magatokat és egy gyereket).
 see-2sg.def yourselves-acc and a child-acc
 'You can see yourselves and a child.'

The verbal suffix *-lak/-lek* '1sg.subj-2sg.obj' is exceptional with respect to the definite vs. indefinite paradigms. This suffix agrees with the person feature rather than with the feature of definiteness: only (55a) is grammatical where second person objects are coordinated, whereas both (55b) in which one of the conjuncts is a definite object and (55c) in which one of the conjuncts is an indefinite object are ungrammatical. The preference for person feature unification can be explained by the well-known fact that the suffix *-lak/-lek* also requires a first person subject, hence it makes agreement necessary both in terms of subject and object—this fact is reflected in the well-formedness conditions of coordination:

- (55) (a) *Látlak (téged és titeket).
 see-1sg.subj-2sg.obj you.sg-acc and you.pl-acc
 'I can see you and you guys.'
- (b) *Látlak (téged és a gyereket).
 see-1sg.subj-2sg.obj you.sg-acc and the child-acc
 'I can see you and the child.'
- (c) *Látlak (téged és egy gyereket).
 see-1sg.subj-2sg.obj you.sg-acc and a child-acc
 'I can see you and a child.'

Finally, if the coordinate construction is an **adverbial**, the coordination of identically case-marked members is possible irrespective of differences in person/number or definiteness:

- (56) (a) Hittem (egy szép mesében és az igazság győzelmében).
believe-past-1sg a beautiful tale-ine and the justice victory-poss-ine
'I believed in a beautiful tale and in the victory of justice.'
- (b) (Hivatalnokokkal, teveled, énvelem, és egy ismeretlen emberrel)
officials-ins you-ins I-ins and an unknown man-ins
tanácskozott a dékán.
consult-past-3sg the dean
'The dean consulted officials, you, me, and an unknown person.'
- (c) (Tengeren meg egy folyón) zajlott a csata.
sea-super and a river-super go.on-past-3sg the battle
'The battle took place at sea and on a river.'

Summarising our observations, we can see that it is the case feature of the coordinate construction (nominative, accusative, oblique/adverbial, etc.) that determines which grammatical features are relevant for unification/agreement.¹⁷

¹⁷ According to the intuition of a number of native speakers, the unificatory function of the conjunction *meg* 'and' differs from that of *és* 'and'. *Meg* is taken to be grammatical where it joins categories that differ over some feature but can nevertheless be coordinated, whereas *és* serves to join categories whose features are identical. *Meg* is preferred in coordinating NPs of dissimilar person or number and *és* is preferred in cases where third person singular categories are to be coordinated:

- (i) Te *meg* Ödön elolvastátok a cikket 'You and Ed have read the article.'
(ii) ??Te *és* Ödön elolvastátok a cikket 'You and Ed have read the article.'

Where both conjuncts are third person singular, *meg* preferentially cooccurs with plural verbal inflection and *és* with singular agreement:

- (iii) Ödön *meg* Ibi elolvasták a cikket 'Ed and Violet have read [pl] the article.'
(iv) Ödön *és* Ibi elolvasta a cikket 'Ed and Violet have read [sg] the article.'

The preference for *és* in cases of featural identity is corroborated by the fact that it occurs in "cumulative" constructions where *meg* does not:

- (v) egyre (több *és* több) ember... 'increasingly (more and more) people'
mindig (szebben *és* szebben)... 'always (better and better)'
csak (havazott *és* havazott)... 'it kept (snowing and snowing)'
mind (gyorsabban *és* gyorsabban)... 'increasingly (faster and faster)'
(vi) egyre (több **meg* több) ember... 'increasingly (more and more) people'
mindig (szebben **meg* szebben)... 'always (better and better)'
csak (havazott **meg* havazott)... 'it kept (snowing and snowing)'
mind (gyorsabban **meg* gyorsabban)... 'increasingly (faster and faster)'

The use of *és* with respect to "cumulative" events contrasts with that of *meg* in the case of "repeated" events:

- (vii) újra *és* újra írt 'he went on writing again and again' (cumulatively, serially)

3. Overt and “covert” conjunctive heads

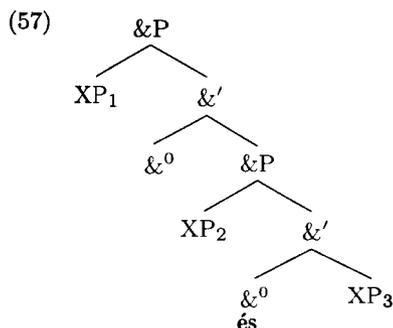
3.1. In terms of X-bar theory, coordinate constructions are asymmetrical: the head of an &P coordinate phrase is the conjunction (&) itself; in the case of two conjuncts, XP₁ is found in the specifier of the conjunctive head and XP₂ is found in its complement.

In Munn (1993)'s proposal mentioned earlier, BP—a projection of the conjunction-operator B that is the head of the Boolean algebraic expression indicated by BP—is **right**-adjoined to the left conjunct (NP₁). Kayne (1994) has shown, however, that such right-adjunction is an operation that is generally prohibited in languages. He has proposed a reformulation of Munn's insight in the framework of a model of anti-symmetrical structures (Kayne 1994, 57–68). Thus, on the basis of the assumption that the specifier–head–complement order is universal, in NP-coordination NP₁ is in fact the specifier of the structure determined by the &⁰ conjunctive head. In constructions with more than two conjuncts, XP₁ and XP₂ are both in a specifier position and XP₃ is a complement. XP₁ and XP₂ are both added by left-adjunction. The left-adjunction of a further specifier is licensed by a covert (phonetically unrealised) &⁰ head whose category is identical to that of the overt coordinating conjunctive head. The hypothesis according to which a coordinate construction is a projection of the conjunction in it can be expressed in a structure that contains the overt conjunctive head and its covert copies. In X-bar theory, then, we get asymmetrical structures of the specifier–head–complement type, see Zoerner (1996), for instance. The tree diagram in (57) shows a three-part coordinate construction in which the conjunction &⁰ appears in the lowest position in a phonetically overt form. To account for the coordinative relationship between XP₁ and XP₂, we assume that a copy of the conjunction is present in the upper position:

-
- (viii) *újra meg újra írt* ‘he went back to writing time and again’
(on and off, adding bits and pieces)

The syntax of arithmetics in Hungarian only accepts *meg* as the conjunction of addition; *és* is out:

- (ix) *három meg három* ‘three plus three’
 (x) *három *és három* ‘three and three’



The higher &P is the “shell” of the lower &P (Larson 1988; Zoerner 1996). All “higher” &Ps are licensed by the next lower &P. In terms of X-bar theory, if the conjunction is the head of the structure, the rightmost conjunct will be its complement and all conjuncts to the left will be its specifiers.

3.2. In a coordinate construction of more than two members, the conjunctive head may occur overtly more than once. This may motivate the hypothesis that, in multiple coordination, the category of the conjunction is there between each pair of conjuncts even if it is in a covert form. The obligatorily overt occurrence of the conjunction is either at the right periphery or at the left periphery of the string of XPs that constitute the coordinate construction. In languages of the OV type, as in Japanese for instance, the peripheral position concerned is the right edge of the leftmost XP; the conjunction (*con*) can be omitted in the other post-XP positions:

(58) A *con* B *con* C *con*

Zoerner (1996) claims that Japanese, Korean and Rumu are among the languages that follow this pattern:

- (59) (a) Japanese: Robin-to Kim-to
 (b) Rumu (Papua New Guinea): A- ti B-ti

In languages of the VO type like English, on the other hand, the peripheral position means the left edge of the rightmost XP (Lehmann 1981, 193–4). In Hungarian, repeated conjunctions can occur left of the individual conjuncts:

(60) con A con B con C

The conjunction may occur in an overt phonetic form in the relevant position, going right to left:

- (61) (a) A kutya, a kecske, a tehén meg a ló (szaladni kezdtek).
 the dog the goat the cow and the horse run-inf begin-past-3sg
 'The dog, the goat, the cow, and the horse (started to run).'
- (b) A kutya, a kecske, és a tehén meg a ló (szaladni kezdtek).
 the dog the goat and the cow and the horse run-inf begin-past-3sg
 'The dog, the goat, and the cow, and also the horse (started to run).'

The return of the same conjunctive head several times in an overt form can be elicited by the discourse context. Due to that, the left periphery of each conjunct can be filled by an overt conjunction. Zoerner 1996 claims that discourse conditions can overwrite the postponement of overt movement to LF, in which case the overt repetition of conjunctions can be ascribed to a PF-level raising, or else multiple generation of the conjunctive head is to be assumed. In that case, copies occur overtly in all positions. The conjunction found at the leftmost periphery may fulfil an expressly discourse organising function. Going on with the example in (61):

- (62) (a) A kutya és a kecske és a tehén meg a ló (szaladni kezdtek)
 the dog and the goat and the cow and the horse run-inf begin-past-3sg
 'The dog, and the goat, and the cow, and also the horse (started to run).'
- (b) [És (a kutya és a kecske és a tehén meg a ló)
 and the dog and the goat and the cow and the horse
 (szaladni kezdtek)
 run-inf begin-past-3sg
 'And the dog, and the goat, and the cow, and also the horse (started to run).'

In **nominal** coordinate constructions of more than two members, it is required for grammaticality that there is a conjunction before the rightmost conjunct.¹⁸ Conjunctionless constructions (63a) are ungrammatical; and so are ones like (63b) in which the single conjunction is not before the last conjunct. The grammatical version is shown in (63c):

¹⁸ Constructions in which the conjuncts are not NPs will be returned to further below, as well as special cases in which coreferent NPs are coordinated, as in (*Az uramat, a parancsolómat, a kenyéradó gazdám*) követem 'I follow my lord, my master, my bread-giver.'

- (63) (a) *(A 'hőfokot, a 'nyomást, az 'energiafelhasználást, a 'teljesítményt) mérték meg.
'They measured the temperature, the pressure, the intake, the performance.'
- (b) *(A 'hőfokot $\left\{ \begin{array}{c} \text{és} \\ \text{vagy} \end{array} \right\}$ a 'nyomást, az 'energiafelhasználást, a 'teljesítményt) mérték meg.
'They measured the temperature, and/or the pressure, the intake, the performance.'
- (c) (A 'hőfokot, a 'nyomást, az 'energiafelhasználást, $\left\{ \begin{array}{c} \text{és} \\ \text{vagy} \end{array} \right\}$ a 'teljesítményt) mérték meg.
'They measured the temperature, the pressure, the intake, and/or the performance.'

There is an additional condition: under standard, non-emphatic intonation, a pause has to occur before each conjunct. In the case of the last NP, the pause has to be **before** the conjunction, so that the conjunction and the last conjunct be delimited from the rest and constitute a single phonological phrase (pauses are indicated by #):

- (64) (a) (A 'hőfokot, # a 'nyomást, # az 'energiafelhasználást, # és a 'teljesítményt) mérték meg.
'They measured the temperature, the pressure, the intake, and the performance.'
- (b) ??(A 'hőfokot, # a 'nyomást, # az 'energiafelhasználást, és # a 'teljesítményt) mérték meg.
'They measured the temperature, the pressure, the intake, and the performance.'

As (64b) shows, **between** the conjunction and the last conjunct no pause can occur. Rather, they have to be separated from the preceding NPs as a unit.

The data below show that each position marked by a pause in the construction harbours a conjunction whose interpretation is the same as that of the overt conjunction before the last conjunct. For instance, if the last constituent is of the form '# or NP' and there is no other overt conjunction, then the **whole** construction, including the constituents not marked by an overt conjunction, is to be interpreted as a (multiple) disjunction as implied by *vagy* 'or':¹⁹

¹⁹ In what follows, we expand and reinterpret our observations presented in Bánréti (1992).

- (65) (A "hőmérsékletet, # a "nyomást, # az "energiafelhasználást # vagy a "teljesítményt) mérték meg, nem tudom pontosan, hogy melyiket, lehet, hogy többet is.
 'They measured the temperature, the pressure, the intake, or the performance, I don't know exactly which, maybe more than one of these.'

We get a construction of identical meaning if we insert a disjunctive *vagy* between **all pauses** and their respective NPs:

- (66) (A "hőmérsékletet # vagy a "nyomást, # vagy az "energiafelhasználást # vagy a "teljesítményt) mérték meg, nem tudom pontosan, hogy melyiket, lehet, hogy többet is.
 'They measured the temperature, or the pressure, or the intake, or the performance, I don't know exactly which, maybe more than one of these.'

Thus, the pauses carry an instruction of interpretation that is identical with that of the rightmost conjunction, here that of 'disjunction'.

If a coordinate construction contains several different conjunctions and a given conjunction in it is preceded by a pause whereas another conjunction is not (or other conjunctions are not), the conjunction **marked by a pause** is structurally dominant and the constituent it introduces will involve all other constructions that are introduced by a conjunction **not** marked by a pause as its subconstituents:

- (67) (a) Péterről, # Mariról, # és (Jánosról vagy Annáról) hallottam.
 Peter-del Mary-del and John-del or Anna-del hear-past-1sg
 'I heard of Peter, Mary, and (one of) John or Anna.'
- (b) (Péterről és Mariról) # és (Jánosról vagy Annáról) hallottam
 Peter-del and Mary-del and John-del or Anna-del hear-past-1sg
 'I heard of Peter and Mary, and (one of) John or Anna.'
- (c) A székeket # a polcokat # vagy (az asztalokat és a szőnyeget) fogják lerakni.
 the chairs-acc the shelves-acc or the tables-acc and the carpets-acc
 will-3pl unload-inf
 'They will unload the chairs, the shelves, or the tables and the carpets.'
- (d) (A székeket vagy a polcokat) # vagy (az asztalokat és a szőnyeget) fogják lerakni.
 the chairs-acc or the shelves-acc or the tables-acc and the carpets-acc
 will-3pl unload-inf
 'They will unload the chairs or the shelves, or the tables and the carpets.'
- (e) ?/*(Péterről és Mariról) # (Jánosról vagy Annáról) hallottam.
 Peter-del Mary-del and John-del or Anna-del hear-past-1sg
 'I heard of Peter and Mary, John or Anna.'

- (f) ?/*(A székeket vagy a polcokat) # (az asztalokat és a szőnyeget)
 the chairs-acc or the shelves-acc the tables-acc and the carpets-acc
 fogják lerakni.
 will-3pl unload-inf
 'They will unload the chairs or the shelves, the tables and the carpets.'

(67a) and (67b) are conjunctions whose third members consist of a disjunction. (67c) and (67d) are disjunctions whose third members consist of a conjunction. In each of (67a–d), the operator that determines the interpretation of the sentence is the one with the pause before it, the one that constitutes a phonological phrase with the NP on its right. The rightmost NP is a coordinate construction itself but, “outwardly”, it behaves as a single constituent, a conjunct in a larger coordinate construction. This is because its “internal” conjunction is dominated by the conjunction that is before it, flanked by a pause on the other side. Therefore, we can maintain the claim that the conjunction that determines the whole construction is that which forms a constituent with the **last** NP.

With respect to (67e,f), the native speakers I consulted were divided in their judgements. Some said they were sentences of doubtful acceptability; others said they were downright wrong. What is common in these sentences is that they lack an overt conjunction preceded by a pause. The only pause that occurs precedes a conjunct **without** an overt conjunction. However, pauses sandwiched between coordinated constituents can only function as covert conjunctions if there is a “rightmost” overt conjunction that also has a pause before it. In that case, that overt conjunction determines the type of the coordinate construction or subconstruction and the covert conjunctions will be interpreted as carrying the same type of coordination. The set of these identically-interpreted covert conjunctions ranges as far to the left as possible before reaching the domain of the next overt conjunction introduced by a pause.

Grammaticality judgements concerning (67e,f) had one thing in common: if we insert a pause before either of the overt conjunctions in these sentences, we end up with a well-formed construction. For instance, we can get a two-part disjunction whose second constituent is a three-part conjunction:

- (68) A székeket # vagy (a polcokat, az asztalokat és a szőnyeget)
 the chairs-acc or the shelves-acc the tables-acc and the carpets-acc
 fogják lerakni.
 will-3pl unload-inf
 'They will unload either the chairs; or the shelves, the tables and the carpets.'

We can summarise the foregoing as follows:

- (i) In Hungarian coordinate constructions of more than two members, the overt conjunction occurs at the left periphery of the rightmost constituent (i.e., before the last XP). It is only when this condition is satisfied that covert copies of that conjunction can be posited or that overt conjunctions of other types can occur. The overt conjunction forms a phonological phrase with the constituent to its right.
- (ii) When several different conjunctions are present, the construction will be dominated by the one that is separated by a pause from what precedes it. The constituent to the right of this conjunction will be the last member of the interpretationally dominant coordination, irrespective of its internal complexity. The coordinate construction is headed by its conjunction.
- (iii) Covert conjunctions carry the interpretation of the overt conjunction that dominates them.

3.3. The above observations are in harmony with the proposals of Larson (1988), Kayne (1994), and Zoerner (1996) sketched above concerning the overt and covert occurrences of conjunctive heads. Thus, a coordinate phrase of n conjuncts may contain a maximum of $n - 1$ conjunctive heads of which a maximum of $n - 2$ can be covert. The conjuncts are projections of the conjunctive heads (&):

(69) [$\&P$ XP₁ [$\&'$ &⁰ [$\&P$ XP₂ ... [$\&'$ &⁰ [$\&P$ XP _{$n-1$} [$\&'$ &⁰ XP _{n}]]] ...]]]

Then the coordinating conjunction **first** forms a constituent with the XP on its right, then the constituent they form together comes to be structurally related to the XP on its left. The features of the conjuncts are unified by the head. For instance, a four-part DP coordination can be as follows, provided that the coordinating conjunction only occurs once in an overt form, before the last conjunct (&⁰ = covert (phonetically empty) conjunctive head):

(70) [$\&P$ Mari [$\&'$ &⁰ [$\&P$ Péter [$\&'$ &⁰ [$\&P$ Tibi [$\&'$ és Erzsi]]]]]
'Mary, Peter, Tibor, and Liz'

In case the insertion of phonological material does not stop at that point, the overt form of *és* 'and' is inserted, at the level of PF, into all head positions of the coordinate construction:

- (71) [$\&P$ Mari [$\&'és$ [$\&P$ Péter [$\&'és$ [$\&P$ Tibi [$\&'és$ Erzsi]]]]
 'Mary, and Peter, and Tibor, and Liz'

The above procedure has to satisfy two constraints. (i) In Hungarian, it is obligatory to have an overt conjunction in the lowest position, cf. (72a). (ii) The domain in which covert conjunctions occur has to be continuous, it cannot be broken and then resumed again, cf. (72b).

- (72) (a) * [$\&P$ Mari [$\&'és$ [Péter [$\&'$ $\&^0$ [Tibi [$\&'$ $\&^0$ Erzsi]]]]
 'Mary and Peter, Tibor, Liz'
 (b) * [$\&P$ Mari [$\&'$ $\&^0$ [Péter [$\&'és$ [Tibi [$\&'$ $\&^0$ Ica [$\&'és$ Erzsi]]]]
 'Mary, Peter, and Tibor, Violet, and Liz'

The structure in (73) below does not contradict the foregoing since all overt conjunctions are in the lowest position within the respective constituent coordinate constructions. The whole construction is to be interpreted as a conjunctive (as opposed to disjunctive) one; this is shown by the lowest *és* and its copy indexed by "c"—in other words, the interpretation of " $\&^0_c$ " is the same as that of *és*:

- (73) [$\&P$ [$\&P$ Mari *és* Péter] [$\#$ $\&'$ $\&^0_c$ [$\&P$ [$\&P$ Tibi *vagy* Ica] [$\#$ $\&'$ $\&^0_c$ Erzsi]]]]
 'Mary and Peter, Tibor or Violet, and Liz'

Within the leftmost coordination (*Mari és Péter*), the conjunction *és* is in the locally lowest position; similarly *vagy* 'or' within the second pair (*Tibi vagy Ica*). The whole construction is to be interpreted as a conjunctive one whose head is the rightmost *és*. This is the dominant conjunction, preceded by a pause ($\#$). The same interpretation is carried by $\&^0$, also preceded by a pause.

In sum, the construction is asymmetrical and the number of specifiers can be increased in it. Also, the construction can be "many-headed" as, in addition to the overt form of the conjunctive head, it can contain its copies in an unrestricted number.

3.4. Unlike in the case of coordinated NPs, coordinated clauses need not be separated by an overt conjunction (see section 5.1 for details). But if such a conjunction is present, it must precede the last clause. This can be clearly seen in sentences where there are more than two clauses containing ellipsis: the conjunction introduces the last clause both when it contains ellipsis (74) and when it is a full clause (75):

Forward ellipsis:

- (74) (a) Mi PÉTERÉKNEK vettünk ajándékot karácsonyra, a gyerekek a NAGY-MAMÁNAK [—], ti ERZSINEK [—], és én a NAGYNÉNÉMNEK [—].
 ‘We bought a Christmas present for PÉTER’s family, the children for GRANDMA, you for LIZ, and I for my AUNT.’
- (b) *Mi PÉTERÉKNEK vettünk ajándékot karácsonyra, a gyerekek a NAGY-MAMÁNAK [—], és ti ERZSINEK [—], én a NAGYNÉNÉMNEK [—].
 ‘We bought a Christmas present for PÉTER’s family, the children for GRANDMA, and you for LIZ, I for my AUNT.’

Backward ellipsis:

- (75) (a) Én a NAGYNÉNÉMNEK [—], ti ERZSINEK [—], a gyerekek a NAGY-MAMÁNAK [—], és mi PÉTERÉKNEK vettünk ajándékot karácsonyra.
 ‘I—for my AUNT, you—for LIZ, the children—for GRANDMA, and we bought a Christmas present for PÉTER’s family.’
- (b) *Én a NAGYNÉNÉMNEK [—], ti ERZSINEK [—], és a gyerekek a NAGY-MAMÁNAK [—], mi PÉTERÉKNEK vettünk ajándékot karácsonyra.
 ‘I—for my AUNT, you—for LIZ, and the children—for GRANDMA, we bought a Christmas present for PÉTER’s family’

4. An asymmetrical distribution of conjunctions: *n*-ary vs. binary conjunctions

4.1. We will make a distinction between two classes of coordinate conjunctions in what follows: *n*-ary vs. binary conjunctions. Their distribution is asymmetrical in the sense that, while binary conjunctions are only able to coordinate members of a well-defined set of syntactic categories, *n*-ary ones can be applied to any category that is coordinatable at all: those that the binary conjunctions do apply to, as well as those that they do not.

An *n*-ary conjunction can coordinate any number of items (in principle) and it can be applied to any coordinatable grammatical category. The categories coordinated can be full clauses or phrasal categories of constituent structure. The set of *n*-ary conjunctions includes *és* ‘and’, *meg* ‘and’, *vagy* ‘or’, *illetve* ‘respectively’. In (76a–k), coordinate constructions are included in parentheses:

- (76) (a) (Az oroszlánt és a farkast vagy a tigrist, meg a vaddisznót és
the lion-acc and the wolf-acc or the tiger-acc and the boar-acc and
a párducot) zárták be a ketreche.
the panther-acc lock-past-3pl in the cage-ine
'The lion and the wolf or the tiger, and the boar and the panther were
locked up in the cage.'
- (b) (A jó humorú nyelvészek, a sovány kémikusok és a nagyétkü
the good humoured linguists the lean chemists and the throaty
filozófusok) ritkák.
philosophers rare-pl
'Funny linguists, skinny chemists, and throaty philosophers are hard to find.'
- (c) Péter áradozott (az új portásról és arról az emberről,
Peter enthuse-past-3sg the new porter-del and that-del the man-del
aki megjavította a tévét).
who repair-past-3sg the telly-acc
'Peter enthused over the new porter and over the man who had repaired the
telly.'
- (d) A (kissé pocakos, halkan szuszogó és eléggé falánk) víziló
the slightly paunchy softly puffing and rather greedy hippo
megette a tavirózsát.
prev-eat-past-3sg the water-lily
'The slightly paunchy, softly puffing and rather greedy hippo ate up the
water-lily.'
- (e) Vali (halkan, lassan azaz óvatosan) nyitotta ki az ajtót.
Valerie softly slowly that.is carefully open-past-3sg prev the door
'Valerie opened the door softly, slowly, that is, carefully.'
- (f) Tibor milliomosként (járkál, szónokol és szórja a pénzt).
Tibor millionaire-form walk-3sg preach-3sg and squander-3sg the money
'Tibor walks about, makes speeches and squanders money as if he was a
millionaire.'
- (g) Mari (lókötőnek és szerencselovagnak) tartotta Jánost.
Mary rogue-dat and fortune.hunter-dat consider-past-3sg John-acc
'Mary considered John to be a rogue and a fortune hunter.'
- (h) A macska (az asztal alatt vagy a szekrény mögött) nyávogott.
the cat the table under or the cupboard behind mew-past-3sg
'The cat was mewling under the table or behind the cupboard.'
- (i) (Ma vagy holnap vagy holnapután) megtartjuk az esküvőt.
today or tomorrow or day.after.tomorrow prev-hold-1pl the wedding-acc
'We will have the wedding today, or tomorrow, or the day after tomorrow.'
- (j) Az asztal (előtt, alatt és mögött) ajándékok voltak.
the table before under and behind presents be-past 3pl
'There were presents in front of, under, and behind the table.'
- (k) Péter egész nap (ki és be és föl és le) rohangu.
Peter whole day out and in and up and down rush-past-3sg
'Peter kept rushing in and out and up and down the whole day long.'

4.2. Binary conjunctions are functors that invariably indicate a two-argument relation, hence they can only be applied to coordinate exactly two members (each of which can be of any internal complexity, however). The set of binary conjunctions includes *de* ‘but’, *azonban* ‘however’, *viszont* ‘in turn’, *ezért* ‘therefore’, *tehát* ‘hence’, *holott* ‘albeit’, *ugyanis* ‘given that’, *mégis* ‘nevertheless’.

The linguistic meanings of binary conjunctions are conventional implications that indicate the speaker’s intentions or expectations of well-defined types concerning the relation between the statements contained in the coordinated clauses.²⁰ Some binary conjunctions have a more or less transparent morphological structure (as a reflection of the way they arose historically). That morphological structure has become somewhat opaque but it can still be discerned. It consists of two parts: a pronominal/adverbial part and a case marker/postposition:

- (77) *ez + ért* ‘this + for’, *e + miatt* ‘this + because’, *ellen + ben* ‘counter + in [however]’, *azon + ban* ‘that + in [however]’, *hol + ott* ‘where + there [albeit]’, *ugyan + is* ‘thus + also [given that]’, *még + is* ‘still + also [nevertheless]’

Furthermore, there are compound conjunctive expressions that likewise contain two main parts: an inflected pronominal part plus an inflected relation-name. The latter is the lexical head:

- (78) *ennek + ellenére* ‘this-dat + opposite-poss-subl [despite this]’, *ezzel + szemben* ‘this-inst + eye-ine [as opposed to this]’, *ennek + a következőben* ‘this-dat + the consequence-ine [consequently]’, *ennek + eredményeként* ‘this-dat + result-poss-form [as a result of this]’

These compound expressions—partly depending on the current context—may be equivalents or paraphrases of the single conjunctions (the ones in (78)). In the compound conjunctive expressions the case-marked pronoun (*ennek*, *ezzel*, etc.) refers back to the immediately preceding syntactic category, its antecedent. Which “monomorphemic” conjunction a given expression will be equivalent to depends on the composition of the

²⁰ The linguistic meaning of binary conjunctions is some conventional implication. The latter is a consequence relation that does not affect the truth conditions of the sentence and is not identical with pragmatic presuppositions either, because it does not follow from the context. On the contrary, it belongs to the linguistic meaning of the lexical items that are present in the sentence, in this case, to the linguistic meaning of the conjunctions involved. These indicate the speaker’s opinion of the facts described in the clauses, cf. Grice (1975), Karttunen–Peters (1979).

pronoun bound by the antecedent with the meaning of the relation-name (... *ellenére*, ... *következtében*, ... *eredményeként*, etc.).

Binary conjunctions, then, can be employed to coordinate two items. The latter may be predicates, structural projections of predicates, or 'predicative' constituents.²¹ Binary conjunctions thus serve to coordinate full clauses, predicative arguments and predicative adjuncts,²² predicate adverbials, verb adverbials, as well as attributive modifiers (of nouns). Here are a few examples of binary conjunctions:

- (79) (a) A csimpánz (eszközöket használ, ugyanis intelligenciával rendelkezik).
the chimp tools-acc use-3sg since intelligence-inst possess-3sg
'The chimpanzee uses tools, given that it has intelligence.'
- (b) Tatjana (megírta a levelet, azonban eltette
Tatyana prev-write-past-3sg the letter-acc however prev-put-past-3sg
a fiókba).
the drawer-ill
'Tatyana wrote her letter, however, she put it away in the drawer.'
- (c) Ödön (halkan, viszont nagyon hatásosan) beszélt.
Ed softly yet very effectively speak-past-3sg
'Ed spoke softly, yet very effectively.'
- (d) A táblát (pirosra, tehát rikító színűre) festette.
the board-acc red-sub thus strong colour-sub paint-past-3sg
'He painted the board red, that is, a strong colour.'
- (e) Mari (alaposan, mégis boszorkányos gyorsasággal) dolgozott.
Mary thoroughly still witch-adj speed-inst work-past-3sg
'Mary worked thoroughly, still with a witch-like speed.'
- (f) A hajó (lassan, de biztosan) beért a kikötőbe.
the ship slowly but surely prev-arrive-past-3sg the port-ine
'The ship fetched into port slowly but surely.'
- (g) Pista (részegen, ezért akadozva) szólt hozzá.
Steve drunk-adv therefore haltingly speak-past-3sg to-poss
'Steve was drunk, so he spoke to the point haltingly.'
- (h) Az (alacsony, viszont jóképű) filmsztár sok rajongót vonzott.
the short but handsome movie.star many fan-acc attract.past.3sg
'The short but handsome movie star was attractive for a lot of fans.'

²¹ The coordination of coreferent NPs—e.g., (*A kenyéradó gazdám, tehát az uramat követem*) 'I am following my bread-giving master, hence my lord'—will be discussed below. Where nouns are used as predicative elements, their coordination by a binary conjunction is grammatical: *János tanár, tehát köztisztviselő* 'John is a teacher, hence a civil servant'. *Péter színész, viszont úriember* 'Peter is an actor, yet a gentleman'. This is in harmony with our proposal above.

²² On predicative arguments and predicative adjuncts, see Komlósy (1992, 445–70).

- (i) A (mesterségesen hizlalt, tehát túlsúlyos) sertéseket szállító
 the artificially fattened hence overweight pigs-acc transporting
 vagonokat megerősítették.
 carriages prev-strengthen-past-3pl
 'The carriages in which artificially fattened, hence overweight, pigs were to
 be transported were strengthened.'

In a construction containing more than two conjuncts (and no *n*-ary conjunctions), the occurrence of **more than one** binary conjunction is required. Each such conjunction will connect two items and their domains will overlap:

- (80) (a) Tatjana (megírta a levelét, de [eltette a
 Tatyana prev-write-past-3sg the letter-poss-acc but prev-put-past-3sg the
 fiókba), ugyanis megőrizte].
 drawer-ill given.that prev-keep-past-3sg
 'Tatyana wrote her letter, but she put it away in the drawer as she wanted
 to keep it.'
- (b) A hajó (lassan, de [biztosan], viszont (nagy késéssel), tehát nem a
 the ship slowly but surely in.turn big delay-inst hence not the
 menetrend szerint) ért be a kikötőbe.
 timetable according arrive-past-3sg in the port-ine
 'The ship fetched into port slowly but surely; in turn, it was a lot delayed,
 hence not on time.'
- (c) A (mesterségesen hizlalt, tehát [túlsúlyos], ezért eladhatatlan]
 the artificially fattened hence overweight therefore unmarketable
 sertések örökké élnek.
 pigs forever live-3pl
 'Artificially fattened, hence overweight, therefore unmarketable, pigs live for
 ever.'

Since only **predicative** expressions can be coordinated by binary conjunctions, a grammatical coordinate construction consisting of DPs cannot involve binary conjunctions. Assuming a **non-predicative** use of the relevant combinations, the expressions in (81) are ungrammatical:²³

²³ This proviso has to be made because bare nouns as **predicative elements** can be coordinated by binary conjunctions. A sentence like *Ez itt ceruza tehát óra* 'This is a pencil, hence a watch' is semantically anomalous; what we have in mind here are examples like *Ez itt ceruza, tehát írószerszám* 'This is a pencil, hence a writing utensil'. *Az ott óra, tehát érték* 'That is a watch, hence a valuable object'. On the other hand, the use of *n*-ary conjunctions is of a very doubtful acceptability where bare nouns are predicated of **the same subject**: ??*Ez itt (ceruza és írószerszám)* 'This is a pencil and a writing utensil'; ??*Az ott (óra és érték)* 'That is a watch and a valuable object'. As syntactic subjects, bare nouns can figure in a well-

- (81) (a) *Péter de Mari
Peter but Mary
- (b) *óra tehát ceruza
watch hence pencil
- (c) *Imre bácsi de a villanyszerelő
Imre uncle but the electrician
- (d) *a híres orvos tehát az ápolónő
the famous doctor hence the nurse
- (e) *a televízió programja ugyanis a rádióműsor
the television program-poss given.that the radio.program
- (f) *egy vitorlás hajó holott egy motorcsónak
a sailing ship albeit a speedboat

n-ary conjunctions (*és*, *meg*, *valamint*, *vagy*) can be applied to any coordinatable items, including NPs:

- (82) (a) Péter vagy Mari
'Peter or Mary'
- (b) óra és ceruza
'a watch and a pencil'
- (c) Imre bácsi meg a villanyszerelő
'Uncle Imre and the electrician'
- (d) a híres orvos és az ápolónő
'the famous doctor and the nurse'
- (e) a televízió programja meg a rádióműsor
'the television program and the radio program'
- (f) egy vitorlás hajó valamint egy motorcsónak
'a sailing ship as well as a speedboat'

Conjunctions serving discourse organising or pragmatic functions (like self-correction, or putting something more precisely) can occur between noun phrases. Examples include *vagyis* 'that is', *azaz* 'namely', *tudniillik* 'to wit'. But in such cases what come into being are not standard coordinate constructions, as demonstrated by a different type of agreement with the verbal inflection. Whereas the coordination, by *n*-ary conjunctions, of noun phrases of diverse person features induces plural verbal inflection agreeing with the relevant "top" person (83a), this rule is not in force in self-correction or reformulation (83b,c). Here, the leftmost NP

formed coordinate construction: (*Óra és ceruza*) volt az asztalon. 'There was a watch and a pencil on the table'.

is the modified head and the rightmost NP is its coreferent postmodifier. Verbal inflection is obligatorily singular (for a singular subject) and only the head NP's person feature can recur in the verbal agreement marker (83b,c):

- (83) (a) (Én meg a koronatanú) megjelentünk a bíróságon.
 I and the star.witness prev-appear-1pl the court-sup
 'Me and the star witness appeared in court.'
- (b) Én $\left\{ \begin{array}{l} \text{vagyis} \\ \text{azaz} \\ \text{tehát} \\ \text{tudniillik} \end{array} \right\}$ a koronatanú megjelentem a bíróságon.
 prev-appear-1sg
 'Me, that is/namely/meaning/to wit the star witness, appeared in court.'
- (c) *(Én $\left\{ \begin{array}{l} \text{vagyis} \\ \text{azaz} \\ \text{tehát} \\ \text{tudniillik} \end{array} \right\}$ a koronatanú) megjelentünk a bíróságon.

The pragmatic function of conjunctions indicating the interruption and subsequent restart of utterances is outside the scope of the present paper:²⁴

²⁴ The conjunction *tehát* 'that is' has a secondary function that may be akin to the role of *vagyis*, *azaz* in self-correction, confirmation, and other discourse organising functions. This can be seen in the "negated new focus" pattern of the type of elision known as "peeling":

- (i) János szilveszterkor MARINAK vett virágot, $\left\{ \begin{array}{l} \text{vagyis} \\ \text{azaz} \\ \text{tehát} \end{array} \right\}$ NEM Erzsinek
 [~~vett virágot szilveszterkor János~~].
 'John bought some flowers on New Year's Eve for MARY, that is, NOT for Erzsí.'

For *tehát*, this is a secondary function that differs considerably from its primary function. The basic meaning of *tehát* is a conventional implication: in the speaker's opinion, it is possible to infer the fact described in the second clause from the fact described in the first. If the meaning of the two clauses supports that inference relation, then *vagyis*, *azaz* are not grammatical, only *tehát* is. If we stick to the interpretation that, in the speaker's opinion, John's behaviour may lead to Mary's remaining silent as a consequence, then this makes the use of *vagyis*, *azaz* ungrammatical. This is shown in (ii):

- (ii) János SÉRTŐ módon viselkedett, $\left\{ \begin{array}{l} \text{tehát} \\ * \text{vagyis} \\ * \text{azaz} \end{array} \right\}$ tehát Mari HALLGATOTT.
 'John behaved in an OFFENSIVE manner, therefore Mary remained SILENT.'

- (84) Én ... öö ... hm, $\left\{ \begin{array}{l} \text{illetve} \\ \text{vagyis} \\ \text{??azaz} \\ \text{??tehát} \end{array} \right\}$ a koronatanú megjelent a bíróságon.
 prev-appear-3sg

'I... er... mm, I mean/or rather/that is the star witness appeared in court.'

5. Feature unification and the presence of overt conjunctive heads

5.1. Categories that can be coordinated by binary conjunctions can also be coordinated by n -ary ones. The reverse is not true: there are categories that can only be coordinated by n -ary conjunctions, in coordinating which, then, binary conjunctions are ungrammatical.

Coordinate constructions that are grammatical with a binary conjunction involve categories that are **not the source** of the grammatical feature agreement appearing in the verbal inflection but rather its "bearers" (coordinate constructions involving projections of predicates like clauses or finite verb forms), or—in Hungarian—have no relevant features of that sort (predicative arguments, predicative adjuncts, attributive modifiers of nouns, predicate adverbials). Categories that can be coordinated by a binary conjunction allow for the lack of an overt conjunction, as opposed to categories that can only be coordinated by n -ary conjunctions. Thus, in coordinating clauses (that can be joined by binary conjunctions), it is possible not to have an overt conjunction at all, even when the construction has only two conjuncts in it:

- (85) (a) A nagymama megjött, Ibi örült.
 'Grandma has arrived, Violet was glad.'
- (b) Egy vitorlás úszik a part felé, az öregúr gyanakszik.
 'A boat is sailing towards the shore, the old gentleman is suspicious.'

The above clauses could in principle be joined by any conjunction, binary or n -ary alike.

Coordinations of elliptical clauses can also lack an overt conjunction:

- (86) (a) Mindnyájan elutaztunk: én "Londonba [~~utaztam~~—el],
 all prev-travel-past-1pl I London-ine travel-past-1sg prev
 te "Párizsba [~~utaztál~~—el].
 you Paris-ine travel-past-2sg prev
 'We all departed: I [~~departed~~] for London, you [~~departed~~] for Paris.'

- (b) Ő kávét ivott, én kakaót [~~ittam~~]
 she coffee-acc drink-past-3sg I cocoa-acc drink-past-1sg
 'She had coffee, I [~~had~~] some hot chocolate.'

Our earlier examples involving binary conjunctions are repeated here without an overt conjunction:

- (87) (a) A csimpánz (eszközöket használ, intelligenciával rendelkezik).
 the chimp tools-acc use-3sg intelligence-inst possess-3sg
 'The chimpanzee uses tools, it has intelligence.'
- (b) Tatjana (megírta a levelet, eltette a fiókba).
 Tatyana prev-write-past-3sg the letter-acc prev-put-past-3sg the drawer-ill
 'Tatyana wrote her letter, she put it away in the drawer.'
- (c) Ödön (halkan, nagyon hatásosan) beszélt.
 Ed softly very effectively speak-past-3sg
 'Ed spoke softly, very effectively.'
- (d) A táblát (pirosra, rikító színűre) festette.
 the board-acc red-sub strong colour-sub paint-past-3sg
 'He painted the board red, a strong colour.'
- (e) Mari (alaposan, boszorkányos gyorsasággal) dolgozott.
 Mary thoroughly witch-adj speed-inst work-past-3sg
 'Mary worked thoroughly, with a witch-like speed.'
- (f) A hajó (lassan, biztosan) beért a kikötőbe.
 the ship slowly safely prev-arrive-past-3sg the port-ine
 'The ship fetched into port slowly, safely.'
- (g) Pista (részegen, akadozva) szólt hozzá.
 Steve drunk-adv haltingly speak-past-3sg to-poss
 'Steve spoke to the point drunkenly, haltingly.'
- (h) Az (alacsony, jóképű) filmsztár sok rajongót vonzott.
 the short handsome movie.star many fan-acc attract.past.3sg
 'The short, handsome movie star was attractive for a lot of fans.'
- (i) A (mesterségesen hízlalt, túlsúlyos) sertéseket szállító
 the artificially fattened overweight pigs-acc transporting
 vagonokat megerősítették.
 carriages prev-strengthen-past-3pl
 'The carriages in which artificially fattened overweight pigs were to be transported were strengthened.'

All of (87a–i) are grammatical without an overt binary (or *n*-ary) conjunction, although their interpretation may be different from the version containing a conjunction (cf. (79) above).

5.2. Noun phrases that carry person/number/definiteness features and have to agree with the verbal inflection do not permit a total lack of overt

conjunctions. They can only contain covert conjunctions if there is an overt *n*-ary conjunctive head in the “lowest” position of the structure:

- (88) (a) *A nagymama, Ibi nevettek.
 the grandma Violet laugh-past-3pl
 ‘Grandma, Violet were laughing.’
- (b) A nagymama és Ibi nevettek.
 the grandma and Violet laugh-past-3pl
 ‘Grandma and Violet were laughing.’
- (c) A nagymama, Ibi és Miklós nevettek.
 the grandma Violet and Nick laugh-past-3pl
 ‘Grandma, Violet, and Nick were laughing.’
- (d) *Te, én, nyaralunk.
 you I be.on.holiday-1pl
 ‘You, I, are on holiday.’
- (e) Te meg én nyaralunk.
 you and I be.on.holiday-1pl
 ‘You and I are on holiday.’
- (f) Te, én, meg a kutya nyaralunk.
 you I and the dog be.on.holiday-1pl
 ‘You, I, and the dog are on holiday.’
- (g) *Láttam a fát, egy madarat.
 see-past-1sg the tree-acc a bird-acc
 ‘I saw the tree, a bird.’
- (h) Láttam a fát és egy madarat.
 see-past-1sg the tree-acc and a bird-acc
 ‘I saw the tree and a bird.’
- (i) Láttam a fát, egy madarat és egy rohanó vizslát.
 see-past-1sg the tree-acc a bird-acc and a running setter-acc
 ‘I saw the tree, a bird, and a running setter.’
- (j) *Láttad magatokat, a gyereket.
 see-past-2sg yourselves-acc the child-acc
 ‘You saw yourselves, a child.’
- (k) Láttad magatokat meg a gyereket.
 see-past-2sg yourselves-acc and the child-acc
 ‘You saw yourselves and a child.’
- (l) Láttad magatokat, a gyereket, meg a világítótornyot.
 see-past-2sg yourselves-acc the child-acc and the lighthouse
 ‘You saw yourselves, the child, and the lighthouse.’

The categories exemplified in (88) can only be coordinated by *n*-ary conjunctions. The conjuncts contain unified person/number/definiteness features also appearing in the verbal inflection. In such constructions, at

least one overt coordinating conjunction has to appear for grammaticality to obtain.

If coreferent noun phrases are coordinated,²⁵ then the occurrence of plural verbal agreement markers—that are otherwise always possible in nominal coordination—is ungrammatical, and *n*-ary conjunctions lead to ill-formedness, too. On the other hand, conjunctionless versions and those involving binary conjunctions are both grammatical. Under an interpretation involving coreference:

- (89) (a) A kenyéradó gazdám, az uram, a parancsolóm érkezett.
the bread-giving master-1sg the lord-1sg the commander-1sg arrive-past-3sg
'My employer, my lord, my master has arrived.'
- (b) *A kenyéradó gazdám és az uram meg a parancsolóm
the bread-giving master-1sg and the lord-1sg and the commander-1sg
érkeztek.
arrive-past-3pl
'My employer, and my lord, and also my master have arrived.'
- (c) A kenyéradó gazdám, ezért az uram, tehát a parancsolóm
the bread-giving master-1sg therefore the lord-1sg hence the commander-1sg
érkezett.
arrive-past-3sg
'My employer, therefore my lord, and hence my master, has arrived.'

In (89a) and (89c), the coreferent possessed items (*a kenyéradó gazdám, az uram, a parancsolóm*) behave like predicative elements. If the same items are used as constituents of coordinated **predicates**, their person/number etc. features become irrelevant and the conjunctions that were ungrammatical in (89b) become grammatical:

- (90) (a) Te (a kenyéradó gazdám, az uram, a parancsolóm) vagy.
you the bread-giving master-1sg the lord-1sg the commander-1sg be-2sg
'You are my employer, my lord, my master.'
- (b) !Te (a kenyéradó gazdám és az uram meg a parancsolóm)
you the bread-giving master-1sg and the lord-1sg and the commander-1sg
vagy.
be-2sg
'You are my employer, and my lord, and also my master.'
- (c) Te (a kenyéradó gazdám, ezért az uram, tehát a
you the bread-giving master-1sg therefore the lord-1sg hence the
parancsolóm) vagy.
commander-1sg be-2sg
'You are my employer, therefore my lord, hence my master.'

²⁵ This phenomenon has been brought to my attention by Péter Siptár (p.c.).

The coordination of clauses based on predicative constructions with differing lexical heads is made possible by their shared predicative feature. Examples of clausal coordination adapted from Sag et al. (1985):²⁶

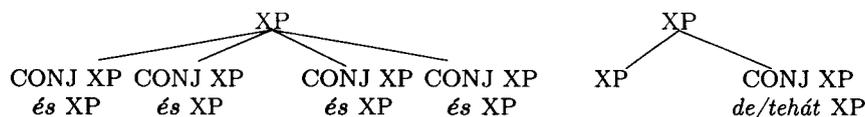
- (91) (a) Én (a középcsatár voltam, büszke vagyok rá).
 I the striker be-past-1sg proud be-1sg of.it
 'I used to be the striker, I am proud of it.'
- (b) Én (a középcsatár voltam és büszke vagyok rá).
 I the striker be-past-1sg and proud be-1sg of.it
 'I used to be the striker, and I am proud of it.'
- (c) Én (a középcsatár voltam, tehát büszke vagyok rá).
 I the striker be-past-1sg therefore proud be-1sg of.it
 'I used to be the striker, therefore I am proud of it.'

In sum, coordinate constructions made up by categories conjoinable by binary conjunctions may be grammatical without an overt conjunction, too.

5.3. A subclass of conjunctions is specifically constrained with respects to the **categories** its members can coordinate; it exhibits some properties of *n*-ary conjunctions and some properties of binary ones, but not all of their properties in either case. This subclass includes *valamint* 'as well as', *éspedig/mégpedig* 'in particular', and *illetve* 'respectively'.

Valamint can coordinate referential NPs of a grammatically unrestricted number.²⁷ The function of coordinating NPs is a feature of *n*-ary conjunctions that *valamint* shares with them.

²⁶ Sag et al. (1985) claim that the structural categories of the conjuncts constitute the heads of the coordinate constructions, whereas the conjunction itself is but an unspecified CONJ feature that may take on various values like 'and', 'but', 'hence', 'or', or 'empty'. *n*-ary conjunctions form coordinations of an unlimited number of members that may be many-headed; binary conjunctions produce two-member coordinate constructions that can only have a single head. *n*-ary conjunctions take on values for **nonfinal** members, too, either an overt conjunction or one whose value is 'phonologically empty', whereas binary conjunctions do not take on any value on the nonfinal conjunct, only on the **final** one:



²⁷ The conjunction *akárcsak* 'just like' may appear to be similar except that it is not a coordinating but a subordinating one. This is shown by the fact that it can occur initially in a complex sentence: *Akárcsak Péter, Mari is elkésett* 'Just like

- (92) (a) (Én, valamint a koronatanú) megjelentünk a bíróságon.
I as.well.as the star.witness prev-appear-past-1pl the court-sup
'I, as well as the star witness, appeared in court.'
- (b) A kerületi polgárokat, valamint a társasházak közös
the district-adj citizens-acc as.well.as the blocks.of.flats common
képviselőit, valamint a kerületi üzletek tulajdonosait
representatives-acc as.well.as the district-adj shops owners-acc
meghívta a polgármester az egyeztetésre.
invite-past-3sg the mayor the meeting-subl
'The citizens of the district, as well as the representatives of the blocks of
flats, as well as the shop owners of the district were invited by the mayor
to the meeting.'

Valamint differs from other *n*-ary conjunctions in that it cannot coordinate just any category. With clauses and VPs, it results in constructions of doubtful acceptability:

- (93) (a) ??Péter bejött, valamint mindenkinek köszönt.
Peter prev-come-past-3sg as.well.as everybody-dat greet-past-3sg
'Peter came in as well as greeted everybody.'
- (b) ??Tatjana megírta a levelet, valamint eltette
Tatyana prev-write-past-3sg the letter-acc as.well.as prev-put-past-3sg
a fiókba.
the drawer-ill
'Tatyana wrote her letter, as well as she put it away in the drawer.'
- (c) ??Egy vitorlás úszik a part felé, valamint az
a sailing.boat swim-3sg the shore towards as.well.as the
öregúr gyanakszik.
old.gentleman suspect-3sg
'A boat is sailing towards the shore, the old gentleman is suspicious.'
- (d) ??A nagymama megjött, valamint Ibi játszott.
the grandma prev-come-past-3sg as.well.as Violet play-past-3sg
'Grandma has arrived, as well as Violet was playing.'

Predicative verb modifiers, verb adverbials and attributive modifiers of nouns may be grammatically coordinated by *valamint*:

- (94) (a) A házakat (pirosra, sárgára, valamint kékre) festették.
the houses-acc red-sub yellow-sub as.well.as blue-sub paint-past-3pl
'The houses were painted red, yellow, as well as blue.'
- (b) Mari (eredményesen, valamint olcsón) dolgozik.
Mary effectively as.well.as cheaply work-3sg
'Mary works effectively, as well as cheaply.'

Peter, Mary was late'; *Mari is elkésett, akárcsak Péter* 'Mary was late, just like Peter'.

- (c) A sofőr (a közlekedés ritmusát, valamint az út
the driver the traffic rhythm-poss-acc as.well.as the road
állapotát) figyelembe véve vezetett.
condition-poss-acc consideration-ill taking drive-past-3sg
'The driver drove taking the rhythm of the traffic as well as the condition of
the road into consideration.'
- (d) Misi (felkészületlenül, valamint rosszindulatúan) szólt hozzá.
Mike unprepared-adv as.well.as maliciously speak-past-3sg to-poss
'Mike spoke to the point unprepared, as well as maliciously.'
- (e) A (jó alakú, valamint szépen sminkelt) színésznő sok
the good figured as.well.as nicely made.up actress many
rajongót vonzott.
fan-acc attract-past-3sg
'The actress, who had a fine figure as well as a nice make-up, attracted a lot
of fans.'

With respect to the grammaticality conditions of *illetve* when it is **not** used in a discourse function ('or rather') but merely to signal the relation of conjunction ('and') two kinds of native intuitions can be observed. One of them attributes conditions identical to those of *valamint* to the use of *illetve*, whereas the other exclusively accepts its hesitational, corrective function.

The "combinations" *és-pedig* and *még-pedig* (both: 'in particular') constitute a borderline case between the classes of *n*-ary and binary conjunctions. Their *n*-ary property is that they are grammatical in NP coordination, as opposed to binary ones, but they can only combine two conjuncts, see (95a–b) below. In coordinating singular nouns, in turn, they do not permit plural verbal agreement markers, as opposed to standard *n*-ary conjunctions; see (95c–e).

- (95) (a) *A tanú, mégpedig a vád tanúja mégpedig a
the witness in.particular the prosecution witness-poss in.particular the
koronatanú megjelent a bíróságon.
star.witness prev-appear-past-3sg the court-sup
'The witness, in particular the witness for the prosecution, in particular the
star witness, appeared in court.'
- (b) A tanú, mégpedig a vád tanúja
the witness in.particular the prosecution witness-poss
megjelent a bíróságon.
prev-appear-past-3sg the court-sup
'The witness, in particular the witness for the prosecution, appeared in court.'
- (c) Az önkormányzat és a polgármester figyelmeztették a lakosságot.
the city.council and the mayor warn-past-3pl the population-acc
'The city council and the mayor warned the population.'

- (d) Az önkormányzat, *éspedig/mégpedig* a polgármester,
 the city.council in.particular the mayor
figyelmeztette a lakosságot.
 warn-past-3sg the population-acc
 'The city council, in particular the mayor, warned the population.'
- (e) *Az önkormányzat, *éspedig/mégpedig* a polgármester,
 the city.council in.particular the mayor
figyelmeztették a lakosságot.
 warn-past-3pl the population-acc
 'The city council, in particular the mayor, they warned the population.'

The ungrammaticality of plural verbal endings with *éspedig/mégpedig* results in the fact that they cannot coordinate (singular) nouns of distinct person features, since in that case plural ending is (would be) obligatory on the verb. Cf. (96a–c):

- (96) (a) *Én *éspedig/mégpedig* a koronatanú megjelentünk a bíróságon.
 I in.particular the star.witness prev-appear-past-1pl the court-sup
 'I, in particular the star witness, we appeared in court.'
- (b) *Te *éspedig/mégpedig* a koronatanú megjelentetek a bíróságon.
 you in.particular the star.witness prev-appear-past-2pl the court-sup
 'You, in particular the star witness, the two of you appeared in court.'
- (c) A tanú, *éspedig/mégpedig* a koronatanú, megjelent a bíróságon.
 the witness in.particular the star.witness prev-appear-past-3sg the
 court-sup
 'The witness, in particular the star witness, appeared in court.'

Furthermore, there are also semantic conditions to satisfy for *éspedig*, *mégpedig* to be used: the first conjunct has to carry a "more extensive" reference, whereas the second conjunct has to carry a "less extensive" reference:

- (97) (a) *Péter bejött *éspedig/mégpedig* mindenkinek köszönt.
 Peter prev-come-past-3sg in.particular everybody-dat greet-past-3sg
 'Peter came in, in particular he greeted everybody.'
- (b) Péter bejött *éspedig/mégpedig* rohanvást [jött — be].
 Peter prev-come-past-3sg in.particular darterly come-past-3sg prev
 'Peter came in, in particular in a darting manner.'
- (c) *A házakat (pirosra, sárgára *mégpedig* kékre) festették.
 the houses-acc red-sub yellow-sub in.particular blue-sub paint-past-3pl
 'The houses were painted red, yellow, in particular blue.'

- (d) A házakat (színesre, éspedig/mégpedig pirosra, sárgára és
the houses-acc colourful-sub in.particular red-sub yellow-sub and
kékre) festették.
blue-sub paint-past-3pl
'The houses were painted in various colours, in particular red, yellow, and
blue.'
- (e) *Mari (eredményesen, éspedig/mégpedig olcsón) dolgozik.
Mary effectively in.particular cheaply work-3sg
'Mary works effectively, in particular cheaply.'
- (f) Mari (a cég számára hasznosan éspedig/mégpedig eredményesen és
Mary the firm for usefully in.particular effectively and
olcsón) dolgozik.
cheaply work-3sg
'Mary works usefully for the firm, in particular effectively and cheaply.'
- (g) *Misi (felkészületlenül éspedig/mégpedig rosszindulatúan)
Mike unprepared-adv in.particular maliciously
szólt hozzá.
speak-past-3sg to-poss
'Mike spoke to the point unprepared, in particular maliciously.'
- (h) Misi (önmagáról rossz benyomást keltve, éspedig/mégpedig
Mike himself-del bad impression-acc making in.particular
felkészületlenül és rosszindulatúan) szólt hozzá.
unprepared-adv and maliciously speak-past-3sg to-poss
'Mike spoke to the point making a bad impression, in particular
unprepared and maliciously.'
- (i) *A (jó alakú éspedig/mégpedig szépen sminkelt) színésznő
the good figured in.particular nicely made.up actress
sok rajongót vonzott.
many fan-acc attract-past-3sg
'The actress, who had a fine figure in particular a nice make-up,
attracted a lot of fans.'
- (j) A (hódító megjelenésű, éspedig/mégpedig jó alakú, szépen sminkelt
the alluring looking in.particular good figured nicely made.up
színésznő sok rajongót vonzott.
actress many fan-acc attract-past-3sg
'The actress, who had alluring looks, in particular a fine figure and a nice
make-up, attracted a lot of fans.'

This subclass of conjunctions exhibits some features of the *n*-ary class and some of the binary class. For instance, its members can coordinate noun phrases of identical person features but they cannot combine diverse grammatical persons. They can connect predicative categories but primarily adverbials of verbs and attributes of nouns; however, in coordinating clauses or verb phrases, they result in doubtful acceptability or downright ungrammaticality.

6. Summary: differences between the functions of n -ary vs. binary conjunctions

6.1. n -ary conjunctions

- (i) Categories that can exclusively be coordinated by n -ary conjunctions are such that their person/number/definiteness features have to locally agree with the verbal inflection (NP *és/meg/vagy* NP).
- (ii) The number of conjuncts is grammatically not restricted.
- (iii) There are covert (phonologically unrealised) n -ary conjunctions. These occur between the conjuncts of multiple coordinations, except between the last two.
- (iv) As a lexical category, this type of conjunction is all but “empty”: it does not signal any specific contentful relation (other than the general relations of conjunction or disjunction). At least one overt n -ary conjunction has to be present for the construction to be grammatical. The meaning of the construction carries the feature of plurality.
- (v) An n -ary coordinative conjunction, as head, selects the feature to be unified depending on the syntactic function of the construction: it unifies the features relevant for subject, object, or adverbial role in the case of nominative, accusative, and oblique (adverbial) case-marked conjuncts, respectively. The result of that unification appears on the verbal inflection in agreement with the node immediately dominating the coordinate construction.
- (vi) If the relevant features of conjuncts are not nominal features (they have no person/number, definiteness, case features) but “predicative” ones (see below), then the n -ary conjunction is a prerequisite of an interpretation satisfying the conjunctive or disjunctive relation but it does not fulfil a feature unification function and does not attribute feature values to the individual conjuncts. The actual presence of the conjunction is not a well-formedness condition in this case; its omission can change the interpretation of the construction but does not make it ill-formed. The grammatical categories concerned are precisely the ones that can be coordinated by binary conjunctions, too.

6.2. Binary conjunctions

- (i) The number of conjuncts is exactly two.
- (ii) Binary conjunctions have no covert (phonologically uninterpreted) form.
- (iii) These conjunctions can coordinate predicates, structural projections of predicates, as well as predicative constituents. Binary conjunctions **cannot** (directly) produce coordinate constructions of categories that are sources or carriers of person/number, definiteness, or case features to satisfy local agreement ($*NP_1$ *de/tehát* NP_2). They either connect categories for which person/number, definiteness, or case agreement is irrelevant (adjectives, adverbs, etc.), or else they connect categories that exhibit agreement (finite verbs, clauses) but are not sources of it. Binary conjunctions can be paraphrased by conjunctive expressions (**ennek ellenére** 'in spite of this', **ennek következtében** 'as a consequence of this', etc.) the antecedent of whose pronominal component is the left-hand-side conjunct (a predicative complement, an attributive or predicate adverbial complement, a verb phrase, or a clause), and whose second component is the name of a relation. Each binary conjunction expresses some permanent relation (opposition, consequence, etc.).
- (iv) Binary coordinative conjunctions are lexical units that form relations based on but **certain** categorial and lexical features of the conjuncts, **selected** by the conjunction. For instance, *de* 'but' can link conjuncts that have semantic features on the basis of which opposition, contradiction, intensification, etc. can be produced; and *tehát* 'hence' can occur between conjuncts whose semantic features make it possible to form a relation of inference. The lexical meanings of the conjuncts may be antonymous or there may be a consequence relation between them. But that is not necessary for their compatibility with the conjunction. Lexically non-antonymous expressions can be linked by *de*, and constructions not implying a consequence relation can be linked by *tehát*. In such cases, the conjunction selects features of the conjuncts that are compatible with the relation they signify: features that underlie the speaker's notion that there is opposition or contradiction or a consequence relation between certain properties or states of affairs that are referred to by the conjuncts. The meaning of each binary conjunction is a conventional implication (Grice 1975; Karttunen-Peters 1979).

- (v) The constructions that can be coordinated by a binary conjunction are well-formed without an overt conjunction, too; they can lack a conjunction altogether. This influences the interpretation of the construction but does not bear on its well-formedness.

The differences between the two classes can be summarised as follows: n -ary conjunctions unify the grammatical features of the conjuncts that are relevant for the syntactic function of the construction, whereas binary conjunctions turn the conjuncts into members of the conventional implication that they stand for.

7. The mechanism of selecting the features to be unified in a coordinate construction

7.1. A would-be conjunct may have person/number features, a definiteness feature, topic or focus feature, case feature, etc. Of these features, it is necessary to select a set of features that are needed in order for a well-formed coordinate construction to be formed, in view of the syntactic function of the whole construction. If we assume that the items to be coordinated carry features with respect to their syntactic function and position (subject, object, adverbial, topic, focus, etc.) individually and to begin with, then the grammatical (computational) mechanism has to check those features. This has to be done with respect to a complex structure **within** which there is feature unification, too. Assuming a bottom-up, left-to-right cyclic structure building procedure, whenever some structural unit is combined with a given point of the syntactic structure, it will c-command all nodes previously prepared by the phrase marker with which it is now combined. In Phonetic Form, at the same time, it will linearly precede the phonetic correspondents of all units it c-commands.²⁸ In the case of coordinate constructions, a point of the syntactic structure gets a complex coordinate structure combined with it whose **constituents** also have c-command, feature unification, and precedence relations among them. At the same time, these relations obtain between the complex coordinate construction and the syntactic domain “under” it; the latter is preceded and c-commanded by &P.

Feature checking grammatical operations either have to be assumed not to “see” the inside of a coordinate construction but rather to check

²⁸ Applying the Linear Correspondence Axiom (LCA) of Kayne (1994).

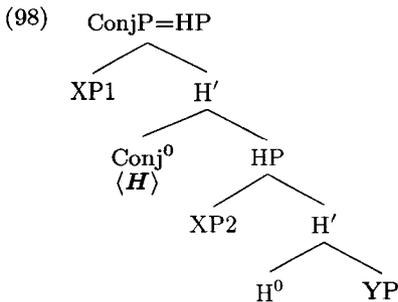
the &P node dominating the whole structure; or else to “see” the grammatical features of the individual conjuncts. The first assumption is supported by the fact that the features of DP/NP coordinations and the verbal agreement markers are related in various ways, by the empirical rules that refer to them. If we opt for this assumption, we have to find out what mechanism there is to make sure that the category of the conjunction unifies exactly those features of the conjuncts that happen to be relevant with respect to the whole of the coordinate construction, and why DPs/NPs that do not contain an overt conjunction at all are ill-formed.

7.2. In terms of X-bar theory, the final conjunct is a complement (or adjunct) of the conjunctive head, the non-final (initial) conjunct being the specifier of &'. Such a structure (cf. (57)) expresses the relation of c-command. In a structure made up by categories that can exclusively be coordinated by *n*-ary conjunctions (in &P), the &⁰ head would unify the features of its complement and those of its specifier. If there is no conjunction there, the structure is ill-formed. However, it is hard to find any property other than c-command that would follow from the first conjunct being a specifier and the second being a complement or adjunct. On the other hand, there are data about the symmetrical behaviour of the conjuncts, see (6)–(14) in section 1.1 above. In those examples, the conjuncts appear to stand in a relation of the same type with the head of the construction. The assumption of an asymmetrical structure does not tally with the observation that the members of a coordinate construction have to be able to participate individually in all grammatical relations that the whole construction can participate in. (For instance, each conjunct of a coordinate construction that is a subject is such that they could be subjects on their own, outside of the coordinate construction, too.) This follows from their **identical** syntactic category. It is difficult to see, on the assumption that the first conjunct is a specifier and the second is a complement, how it would be possible to capture the fact that they have to stand in a relation of identity to be able to be coordinated.

It seems that this and similar phenomena of symmetry cannot be accounted for in terms of a specifier/complement structure. Therefore, it appears to be reasonable to accept that coordinate constructions have both symmetrical and asymmetrical properties. We should assume a structure that can express both types of properties. In what follows, we will outline that possibility.

8. *n*-ary conjunctions: functional heads and conjunctive heads

8.1. Camacho (1997, 54–61) assumes a structure for coordinate constructions that is able to express both their symmetrical and their asymmetrical properties. In that structure, each conjunct is a specifier, and the conjunction is the head of the structure. Thus, the coordinated constituents are terms of structural relations of the same type, but the asymmetry shown by pronoun binding within coordinate constructions is captured and also the “many-headed” character of coordination is reflected. In sum, the structure given below both satisfies the conditions of X-bar theory and does justice to the observations on structural symmetry.



Accepting the claim that feature unification can take place in a local specifier–head relation, Camacho (1997) assumes that the whole of the coordinate construction is in the specifier position of a functional projection of the sentence. In (99), the lower H^0 head is some functional head of the sentence structure. The feature $\langle H \rangle$ of that head may get copied onto the coordinative conjunction that is the head of the coordinate construction. The *n*-ary conjunction is then a special kind of head that, in addition to its own categorial feature, necessarily has the feature of being “empty”, hence able to take over a feature from some functional head in the sentence structure.

8.2. A point in favour of Camacho’s proposal is that, keeping the traditional asymmetrical structure of X-bar theory, it would be rather difficult to account for certain feature unification phenomena. In Hungarian, if a coordinate subject is formed from subjects of diverse persons, the construction induces the appearance of a plural agreement marker on the verb whose person feature will be the “top” value of the conjuncts.

Whether the plurality feature actually occurs on the verb or not is also influenced by whether the coordinate subjects are in a position requiring their movement out of the VP or whether they remain within the VP.²⁹ In terms of the model in É. Kiss (2002), the topic feature being checked results in movement from VP to the [Spec,TopP] position. That operation has an effect on person/number agreement, too. Coordinate 3rd person singular subjects being moved into the topic (into the [Spec,TopP] position) may induce plural inflection on the verb, whereas if the same coordinate subject construction remains within PredP, plural verbal inflection is of doubtful acceptability or ungrammatical:

- (99) (a) [_{Top} Kati és Béla [_{PredP} elolvasták a könyvet].
 Kate and Bill prev-read-past-3pl the book-acc
 'Kate and Bill have read the book.'
- (b) */? [_{PredP} Elolvasták (Kati és Béla) a könyvet].
 prev-read-past-3pl Kate and Bill the book-acc
- (c) [_{PredP} Elolvasta (Kati és Béla) a könyvet].
 prev-read-past-3sg Kate and Bill the book-acc

Overt pronouns of diverse persons obligatorily make a plural inflection of the highest common person appear on the verb. This is more grammatical

²⁹ We follow the model of É. Kiss (2002) here. That model says that a Hungarian sentence consists of two immediate constituents, Topic and Predicate. In the default case, a topic constituent has the features 'referential' and 'specific'. The topic is attached to [Spec,TopP], the specifier position of the TopP projection. The topic position is filled by an overt syntactic movement that binds an argument position within VP. The TopP projection can repeat itself. The minimal Predicate contains a VP expanded by morphosyntactic projections and either it also contains an aspectual phrase (AspP) or it is embedded under operator phrases like the projections of focus or quantifier phrases. The VP begins with the verb, followed by the arguments in an unrestricted order. VP is expanded by morphosyntactic heads like modality, tense, mood, and object and subject agreement. Since in Hungarian the case features of subject and object are not bound to an invariant syntactic position each, case feature checking does not require overt syntactic movement in terms of É. Kiss (2002). The verb and its inflectional endings are joined up by an operation of morphosyntactic merger (Bartos 1999). The relevant assumption for us here is that the checking of accusative and nominative case are not done in [Spec,Agr_oP] and [Spec,Agr_sP], respectively. The checking of the case features of the subject is associated with the [Spec,TenseP] position but without overt movement, "invisibly", i.e., at the level of Logical Form. That is, the subject need not overtly move into an invariant position. The subject—just like the other arguments of the verb—can only move out of the VP if it is topicalised or if it undergoes operator movement.

if the pronouns are in the [Spec,TopP] position than if they are in a post-verbal position within PredP:

- (100) (a) [_{TopP} (Te meg ő)_k] [_{PredP} elolvastátok t_k a könyvet].
 you and he prev-read-past-2pl the book-acc
 ‘You and he have read the book.’
- (b) ??[_{PredP} Elolvastátok (te meg ő) a könyvet].
 prev-read-past-2pl you and he the book-acc

The doubtfulness of (100b) is not only based on the fact that there is an overt pronoun after the verb but also on the doubtful acceptability of plural verbal agreement with a postverbal coordinate subject. Postverbal coordination of a contentful noun and a pronoun likewise results in doubtful acceptability:

- (101) (a) [_{TopP} (Péter meg te)_k] [_{PredP} elolvastátok t_k a könyvet].
 Peter and you prev-read-past-2pl the book-acc
 ‘Peter and you have read the book.’
- (b) */?[_{PredP} Elolvastátok (Péter meg te) a könyvet].
 prev-read-past-2pl Peter and you the book-acc
- (c) [_{PredP} Elolvastátok pro a könyvet].
 prev-read-past-2pl the book-acc
 ‘You have read the book.’

Thus, the reflection in the verbal inflection of person/number features appearing on the node dominating the coordinate construction also depends on whether the coordinate conjunction is a coordinate subject **exhibiting agreement as a topic** or it remains within the PredP.

The coordination of pronouns bearing a ‘topic’ feature requires the appearance of **overt** pronouns in topic position:

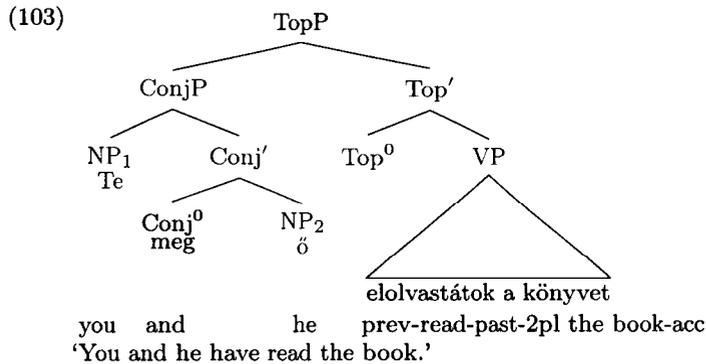
- (102) (a) [_{TopP} (Te meg te)₁] [_{VP} sétáltak t₁ a kertben].
 you and you prev-walk-past-2pl the garden-ine
 ‘You and you were walking in the garden.’
- (b) [_{TopP} (Te meg én)_k] [_{VP} sétáltunk t_k a kertben].
 you and I prev-walk-past-1pl the garden-ine
 ‘You and I were walking in the garden.’
- (c) [_{TopP} (Te meg ő)_m] [_{VP} sétáltak t_m a kertben].
 you and he prev-walk-past-2pl the garden-ine
 ‘You and he were walking in the garden.’
- (d) *[_{TopP} (pro + pro)_k] [_{VP} sétáltunk t_k a kertben].
 prev-walk-past-1pl the garden-ine
 ‘We were walking in the garden.’

- (e) *_{[TopP (pro + pro)]₁} [_{VP} sétáltak t₁ a kertben].
 prev-walk-past-2pl the garden-ine
 'You were walking in the garden.'

It follows from the data in (99)–(102) that it is impossible to coordinate subject pronouns in a PredP-internal, postverbal position and that with a postverbal coordination of 3rd person singular referential expressions the verb cannot bear a plural agreement marker. The opposite is true of the [Spec,TopP] position: coordination of overt pronouns of nonidentical persons is possible there and a plural agreement marker on the verb is grammatical with coordinated pronouns in the topic. A coordinate subject made up by 3rd person singular referential expressions and located in [Spec,TopP] may induce plural agreement marking on the verb.

In sum, movement to [Spec,TopP] makes unification of features of coordinated subjects possible, whereas in a PredP-internal, postverbal position the same type of unification is not possible. Hungarian has no invariant subject position, therefore we need not assume overt movement to [Spec,Agr_SP] for feature checking to be feasible (see É. Kiss 2002, 75). On the other hand, whenever a coordinate subject moves to [Spec,TopP], that movement brings about properties of subject–verb agreement that do not exist within PredP. (If the direct object or some other argument moves to [Spec,TopP] but the subject remains in PredP, the above phenomena do not arise.)

In accordance with Zoerner's (1996) proposal, an asymmetrical coordinate construction (in terms of X-bar theory) may have the following representation (cf. (100a)):



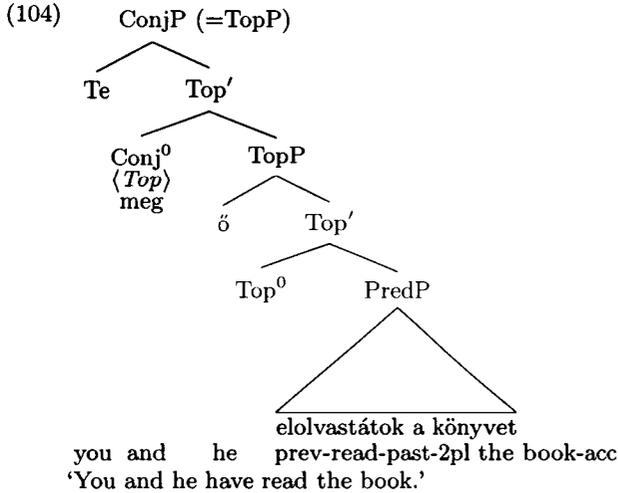
In terms of the Minimalist Program, for the 'topic' feature to be checked, a local relation is needed between the ConjP node in the specifier and the

Top⁰ head node. This is expressed in the above structure. What it does not express, however, is the function of Top⁰ that determines that the person/number value appearing on ConjP is now reflected in the verbal inflection as a coordination of subjects that **enters into agreement as a topic** (not as a PredP-internal constituent).

We accept the claim that the ‘nominative’ features of the conjuncts are checked without overt movement.³⁰ The subject is generated within VP even if it is a coordinate construction. At the ConjP node, along with other features, the unified person/number feature of the conjuncts has to appear. That is, before that node moves to [Spec,TopP] and the ‘topic’ feature is checked, it has to be made sure that the person/number features of the coordinated DP/NPs take the value “highest shared feature” at the ConjP node. ConjP is a maximal projection containing the unified values of person/number features; but the reflection of that feature unification on the verbal inflection **also** depends on which position of the sentence structure is occupied by ConjP. We have seen that without the Conj⁰ head the coordinate DP/NP subject construction is ill-formed, the Conj⁰ head is indispensable for the unification of person/number features of the conjuncts. It follows from what we have observed in (100)–(102) that movement to [Spec,TopP] influences the unificatory function of the Conj⁰ head. In that respect, the above structure does not give any information.

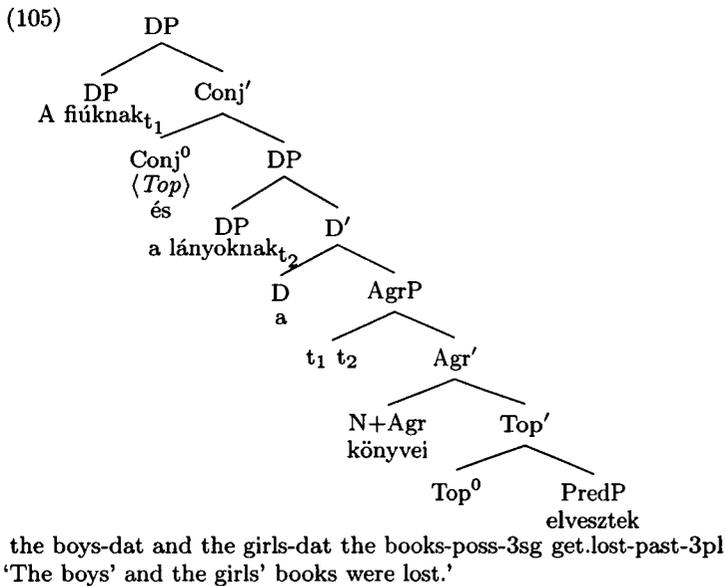
What we have to express, then, is that the feature unification function of the Conj⁰ head is affected by what other functional head there is in its local context. The functional head relevant here is T⁰, as the ‘topic’ feature is checked between T⁰ and ConjP. On the other hand, in order for the unified features of the conjuncts to be able to appear at ConjP, we need a **Conj⁰** head, too. The function of the latter is influenced by the function of T⁰: a subject construction that is a topic and enters into agreement as such behaves differently from one that does not have that feature. We are looking for a structure that reflects that T⁰ → **Conj⁰** relation. If Conj⁰ could take on the features of the functional head to which the whole of the coordinate construction is associated (in the present case, T⁰ → Conj⁰), we could have the following structure:

³⁰ É. Kiss (2002, 54) proposes that the feature ‘nominative’ is checked in [Spec,TenseP] at the level of Logical Form.

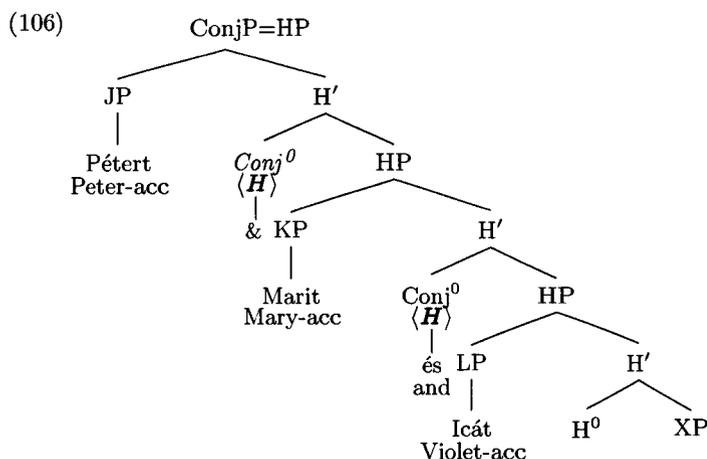


This structure is quite close to (98), proposed by Camacho (1997, 54). Conj^0 now inherits the functional feature $\langle \text{Top} \rangle$. The conjunctive head subsequently transmits the unification of the person/number features of XP_1 and XP_2 ; in the present example, those of DP_1 and DP_2 .

The value of the head feature taken on by Conj^0 can be $\langle \text{Top} \rangle$ in a coordination **within** the complex DP, too. The tree diagram only shows as much as is relevant with respect to coordination:



In coordinate phrases consisting of more than two conjuncts, the relation between the conjunctive head and the relevant functional head of the sentence structure is such that the relevant features of the H^0 functional head are taken on by all $Conj^0$ heads, overt and covert ones alike. Thus, the general structure of a coordination of JP, KP and LP, fulfilling an H syntactic function in the sentence, is as follows:



In this structure, the lower $Conj^0$ is an overt conjunction, whereas the next one up, $Conj^0$, is a covert one. The option of the covert conjunction reflects the copiability of features from head to head, the ability of a conjunctive head to take on features. The whole of the coordinate construction is an HP projection of the H functional head of the sentence representation.

9. Binary conjunctions: a symmetrical structure with precedence constraints

9.1. In binary structures, partly because of the number of conjuncts being only two, overt binary conjunctions do not have covert copies with properties that are identical to theirs. Also, overt binary conjunctions can be omitted from coordinations of categories that they are able to coordinate. In that case, the interpretation of the construction may change but its well-formedness remains. We have shown that the linguistic meanings of binary conjunctions are conventional implications, i.e., consequence

relations that do not influence the truth conditions of the sentence but indicate the speaker's opinion or expectation regarding the state of affairs described in the clauses. Binary conjunctions as functors take the conjuncts as arguments of the relation they signal, for instance, as arguments of the relation ⟨*hence*⟩, ⟨*therefore*⟩, ⟨*but*⟩, ⟨*in turn*⟩, or ⟨*however*⟩.

The conjunctive head selects two predicative categories (clauses or verb phrases, or else predicative arguments or predicative adjuncts,³¹ or predicate adverbials or verb adverbials, or attributive modifiers of nouns). It is an open issue in what sense this is 'selection by the conjunctive head'. Selection in the strict sense, like that of an argument by its governing category, is not found here. On the other hand, binary conjunctions do pick the category or features of their arguments. First of all: each binary conjunction requires that it has two and only two arguments (whose internal complexity is not limited). Second: the arguments selected in this sense have to have a predicative feature or a predicative function. Third: the two arguments have to belong to the same category. Fourth: full NPs are excluded, non-predicative elements are excluded, and free morphemes of certain classes (e.g., postpositions, preverbs) are also excluded as arguments of binary conjunctions.³² These conjunctions, in sum, do constrain the categorial/syntactic and semantic properties of their arguments. And fifth: they provide their arguments with properties that determine their surface order.

The categories selected by some conjunctive head *BinConj* cannot be different in a way that would motivate one of them being a specifier and the other one being a complement (it was exactly categorial identity and essential feature identity that was a basis of selecting the two arguments). We have no reason to regard both conjuncts to be specifiers in view of the grammatical mechanism checking/unifying their person/number features, definiteness features or case features (as we did in the case of *n*-ary conjunctions) since categories with a predicative feature/function are not sources, merely bearers of such feature agreement. The structure we assumed for *n*-ary conjunctions cannot be employed here. We are left with the possibility that binary conjunctions select two complements in a sense that is particular to this category of conjunctive heads.

³¹ On predicative arguments and predicative adjuncts, see Komlósy (1992, 445–70).

³² *n*-ary conjunctions tolerate the latter two classes: *Az asztal (alatt és fölött és mögött) mindenefelé könyvek voltak* 'There were books (under and above and behind) the table'; *Péter egész nap (ki és be és föl és le) rakodott* 'Peter was loading things (out and in and up and down) all day long'.

Thus, we have the following schema: $\text{BinConj}^0 (X_{\text{pred}}, Z_{\text{pred}})$. Both X_{pred} and Z_{pred} are arguments, not “strictly” selected complements. We assume that the two arguments form a **symmetrical** structure that can be characterised by certain precedence constraints. Why do we have to produce a linear order in which one of the conjuncts gets before the conjunction, the other one staying behind?

The explanation will be sought in the fact that the BinConj^0 head provides its arguments X_{pred} and Z_{pred} with features that induce a strict order within the syntactic structure. In terms of the relations signalled by *tehát* ‘hence’, *ezért* ‘therefore’, *ugyanis* ‘given that’, *de* ‘but’, *míg* ‘while’, *viszont* ‘in turn’, *azonban* ‘however’, *pedig* ‘though’, *holott* ‘albeit’, etc., one of the conjuncts receives a different “role” from that of the other one. It is the given binary conjunctive head that determines the relation between word order and that “role”: which conjunct gets “before” the conjunction and which gets “after” it.

Our assumption is that each binary conjunction attributes one of the arguments X_{pred} and Z_{pred} a property that we will refer to by the feature $\langle R\text{-base} \rangle$ and the other one a property we will refer to as $\langle R\text{-value} \rangle$. In the **framework** of the relation signalled by the conjunction, it is these features that organise the order of constituents.

The conjunct marked as $\langle R\text{-base} \rangle$ will give the **point of departure** or base of the relation. On the conjunct marked $\langle R\text{-value} \rangle$, on the other hand, the **value of the relation feature** will appear, e.g., values like ‘inference’, ‘explanation’, ‘contrast’, ‘contradiction’, ‘expectation’, ‘contrary to expectation’, etc.³³

It is a specific property of the individual conjunctions what particular order they associate with a given distribution of the features $\langle R\text{-base} \rangle$ and $\langle R\text{-value} \rangle$. The features reflect the characteristics of the conventional implication that is the linguistic meaning of the given binary conjunction. Consider a few types of conjunctions, and an abbreviated indication of the conventional implication concerned:

³³ Depending on the actual context, these feature values can be equivalently represented by complex expressions like *ennek következtében* ‘as a consequence’, *ennek eredményeként* ‘as a result’, *ennek ellenére* ‘in spite of this’, *ezzel szemben* ‘on the other hand’, and others. The constituents of these expressions make the two properties transparent: the pronominal part refers to the conjunct marked $\langle R\text{-base} \rangle$ and the contentful relation-name to that marked $\langle R\text{-value} \rangle$.

Conjunction of "inference": *tehát* 'hence'

Conventional implication: from X_{pred} we conclude that Z_{pred}
 $\langle R\text{-base} \rangle$ $\langle R\text{-value} \rangle$

Conjunction of "consequence": *ezért* 'therefore', *emiatt* 'because of this'

Conventional implication: from X_{pred} it follows that Z_{pred}
 $\langle R\text{-base} \rangle$ $\langle R\text{-value} \rangle$

Conjunction of "explanation": *ugyanis* 'given that'

Conventional implication: X_{pred} is explained by Z_{pred}
 $\langle R\text{-base} \rangle$ $\langle R\text{-value} \rangle$

Conjunction of "concession": *pedig* 'though', *holott* 'albeit'

Conventional implication: X_{pred} should not be the case if Z_{pred}
 $\langle R\text{-value} \rangle$ $\langle R\text{-base} \rangle$

Conjunction of "contrary to expectation": *de* 'but', *mégis* 'still', *azonban* 'however'

Conventional implication: despite X_{pred} it is the case that Z_{pred}
 $\langle R\text{-base} \rangle$ $\langle R\text{-value} \rangle$

Conjunction of "contrastive opposition": *de* 'but', *míg* 'while', *viszont* 'in turn', *azonban* 'however'

Contrastive implication: X_{pred} is opposed to Z_{pred}
 $\langle R_1 \text{ or } 2 \rangle$ $\langle R_1 \text{ or } 2 \rangle$

With the majority of these conjunctions, the conjunct bearing the feature $\langle R\text{-base} \rangle$ has to linearly precede the conjunction, and that bearing $\langle R\text{-value} \rangle$ has to follow it. Examples include *tehát*, *ezért*, *emiatt*, *ugyanis*, *de*, *mégis*.

With a smaller class of conjunctions, it is the conjunct bearing the feature $\langle R\text{-value} \rangle$ that has to linearly precede the conjunction, and it is that bearing $\langle R\text{-base} \rangle$ that has to follow it. Examples include the conjunctions of concession *pedig*, *holott*.

9.2. The interpretation of the features $\langle R\text{-base} \rangle$ and $\langle R\text{-value} \rangle$ assigned by the conjunctions can be studied in the temporal relations of the clauses. There are conjunctions with which the clause marked $\langle R\text{-base} \rangle$ may be interpreted as describing an event that takes place **prior to** that described in the other clause and the clause marked $\langle R\text{-value} \rangle$ may be interpreted as describing an event that takes place **after** that described in the other clause. For instance, conjunctions of concession order the

conjuncts linearly as $\langle R\text{-value} \rangle$, $\langle R\text{-base} \rangle$. The event described in the **second**, $\langle R\text{-base} \rangle$ clause **precedes** that expressed in the first, $\langle R\text{-value} \rangle$ clause (if both clauses describe states, they will be interpreted as simultaneous):

- (107) Jól bántam Máriával, **pedig/holott** megszökött tőlem.
 well treat-past-1sg Mary-inst though/albeit prev-escape-past-3sg abl-1sg
 'I treated Mary well even though she escaped from me.' (**beforehand**)

Conjunctions of "contrary to expectation" order the conjuncts linearly as $\langle R\text{-base} \rangle$, $\langle R\text{-value} \rangle$. The event described in the **first** clause **precedes** that expressed in the second (again, if both clauses describe states, they will be interpreted as simultaneous):

- (108) Jól bántam Máriával, **de mégis** megszökött tőlem.
 well treat-past-1sg Mary-inst but still prev-escape-past-3sg abl-1sg
 'I treated Mary well but she escaped from me.' (**afterwards**)

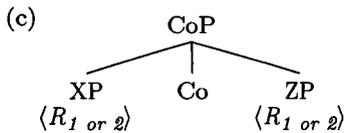
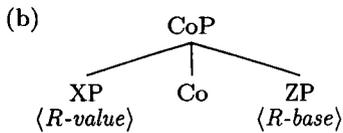
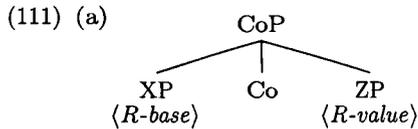
A similar phenomenon can be observed with conjunctions of inference/consequence (*tehát, ezért, emiatt*). The opposite temporal relation is shown by $\langle R\text{-base} \rangle$ and $\langle R\text{-value} \rangle$ clauses with conjunctions of explanation: here, the former can refer to a later event and the latter to an earlier one:

- (109) (a) Mari megszökött, **tehát/ezért/emiatt** jól bántam vele.
 Mary prev-escape-past-3sg hence/therefore well treat-past-1sg inst-3sg
 'Mary escaped, therefore I treated her well.' (**afterwards**)
 (b) Mari megszökött, **ugyanis** jól bántam vele
 Mary prev-escape-past-3sg given.that well treat-past-1sg inst-3sg
 'Mary escaped, since I treated her well.' (**beforehand**)

Conjunctions that attribute the features $\langle R_1 \text{ or } 2 \rangle$, $\langle R_1 \text{ or } 2 \rangle$ to their arguments require that both positions, before and after them, be filled; however, they leave the actual order as optional. These conjunctions signal symmetrical relations like contrastive opposition: the order of the conjuncts is not predetermined and the interpretation is not influenced either way:

- (110) (a) János magas, **de** Mária alacsony.
 John tall but Mary short
 'John is tall but Mary is short.'
 (b) Mária alacsony, **de** János magas.
 Mary short but John tall
 'Mary is short but John is tall.'

It is a common feature of all structures assumed here that they are symmetrical and that the linear order of their constituents are predetermined (except in the last case). The order of constituents depends on whether the conjunction requires the order $\langle R\text{-base}\rangle$, $\langle R\text{-value}\rangle$ or $\langle R\text{-value}\rangle$, $\langle R\text{-base}\rangle$ (or neither).



9.3. These symmetrical structures involve constraints on the order of their constituents. For instance, in coordinating clauses, the conjunction can never occur inside the structure of the $\langle R\text{-base}\rangle$ clause, irrespective of whether the latter happens to be the first or the second conjunct. On the other hand, the conjunction **can** occur inside the structure of the $\langle R\text{-value}\rangle$ clause provided it is the second conjunct. Thus, for conjunctions requiring the linear order $\langle R\text{-base}\rangle$, $\langle R\text{-value}\rangle$, the position immediately following the topic (and preceding the focus field) of the second clause, and even the end of the second clause, are grammatical positions. On the other hand, the conjunctions of concession *pedig*, *holott* cannot occur in the inside of the second clause since they require the order $\langle R\text{-value}\rangle$, $\langle R\text{-base}\rangle$:

- (112) Péter a TÉVÉT nézte, János $\left. \begin{array}{l} \text{viszont} \\ \text{azonban} \\ \text{tehát} \\ \text{ezért} \\ \text{emiatt} \\ \text{ugyanis} \end{array} \right\}$ MINDIG a RÁDIÓT hallgatta.
 ⟨R-base⟩ ⟨R-value⟩

'Peter watched TV, in turn/however/therefore/hence/consequently/given that John ALWAYS listened to the RADIO.'

- (113) Péter a TÉVÉT nézte, János MINDIG a RÁDIÓT hallgatta $\left. \begin{array}{l} \text{viszont} \\ \text{azonban} \\ \text{tehát} \\ \text{ezért} \\ \text{emiatt} \\ \text{ugyanis} \end{array} \right\}$.
 ⟨R-base⟩ ⟨R-value⟩

- (114) Péter $\left. \begin{array}{l} * \text{viszont} \\ * \text{azonban} \\ * \text{tehát} \\ * \text{ezért} \\ * \text{emiatt} \\ * \text{ugyanis} \end{array} \right\}$ a TÉVÉT nézte, János MINDIG a RÁDIÓT hallgatta.
 ⟨R-base⟩ ⟨R-value⟩

- (115) Péter a TÉVÉT nézte, $\left\{ \begin{array}{l} \text{holott} \\ \text{pedig} \end{array} \right\}$ János MINDIG a RÁDIÓT hallgatta.
 ⟨R-value⟩ ⟨R-base⟩

'Peter watched TV, albeit/even though John ALWAYS listened to the RADIO.'

- (116) Péter a TÉVÉT nézte, János $\left\{ \begin{array}{l} * \text{holott} \\ * \text{pedig} \end{array} \right\}$ MINDIG a RÁDIÓT hallgatta.
 ⟨R-value⟩ ⟨R-base⟩

- (117) Péter a TÉVÉT nézte, János MINDIG a RÁDIÓT hallgatta $\left\{ \begin{array}{l} * \text{holott} \\ * \text{pedig} \end{array} \right\}$.
 ⟨R-value⟩ ⟨R-base⟩

For *n*-ary conjunctions, such ordering options are not available. Some of them cannot occur clause-internally in either conjunct: *és* 'and', *vagy* 'or', *vagy pedig* 'or else'. Others are obligatorily right-adjoined to the topic: *meg* 'and' and conjunctive (not concessive) *pedig* 'and'. No *n*-ary conjunctions can have any other position:

- (118) (a) Péter a TÉVÉT nézte, és/vagy/vagy pedig János MINDIG a RÁDIÓT hallgatta.
 'Peter watched TV, and/or/or else John ALWAYS listened to the RADIO.'
- (b) Péter a TÉVÉT nézte, János $\left\{ \begin{array}{l} \text{meg} \\ \text{pedig} \end{array} \right\} / \left\{ \begin{array}{l} *és \\ *vagy \\ *vagy pedig \end{array} \right\}$ MINDIG a RÁDIÓT hallgatta.
- (c) Péter a TÉVÉT nézte, János MINDIG a RÁDIÓT hallgatta $\left\{ \begin{array}{l} *meg \\ *és \\ *vagy \\ *vagy pedig \end{array} \right\}$.

Structures that are coordinated by binary conjunctions remain well-formed without those conjunctions, too, but their interpretation may change in that case. If the conjunction is not present, the speaker's opinion of the properties or relations appearing in the clauses remains implicit.³⁴ The order of the clauses may suggest what relation actually underlies the coordination:

- (119) (a) Megharapott a kutya, enni adtam neki.
 prev-bite-past-3sg the dog eat-inf give-past-1sg dat-3sg
 'The dog bit me, I gave it some food.'
- (b) Enni adtam a kutyának, megharapott.
 eat-inf give-past-1sg the dog-dat prev-bite-past-3sg
 'I gave the dog some food, it bit me.'

These coordinate construction will be attributed a symmetrical structure as above, with an unspecified coordinating operator &. Where an overt binary conjunction is added to the structure, it will determine the relation, often superseding the interpretation made probable by the order of the clauses by giving it a different speaker's angle:

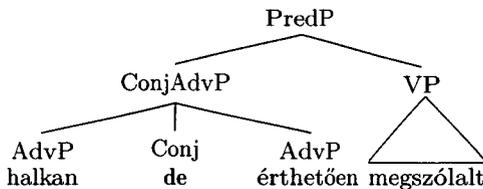
- (120) (a) Megharapott a kutya, pedig enni adtam neki.
 prev-bite-past-3sg the dog though eat-inf give-past-1sg dat-3sg
 'The dog bit me, though I had given/I was giving it some food.'
- (b) Megharapott a kutya, mégis enni adtam neki.
 prev-bite-past-3sg the dog still eat-inf give-past-1sg dat-3sg
 'The dog bit me, still I gave it some food.'

³⁴ It is true in general that omitting a linguistic unit carrying a conventional implication will not make the sentence ungrammatical but will change its meaning. Cf. similar properties of *még . . . is* 'even', also carrying a conventional implication: *Még Jánosnak is tetszik Mari* 'Even John likes Mary' vs. *Jánosnak tetszik Mari* 'John likes Mary'. The two sentences are equally well-formed but the conventional implication carried by the first is not present in the second.

- (c) Enni adtam a kutyának, ezért megharapott.
 eat-inf give-past-1sg the dog-dat therefore prev-bite-past-3sg
 'I gave/had given/was giving the dog some food, therefore it bit me.'
- (d) Enni adtam a kutyának, holott megharapott.
 eat-inf give-past-1sg the dog-dat albeit prev-bite-past-3sg
 'I gave the dog some food, even though it had bitten me.'

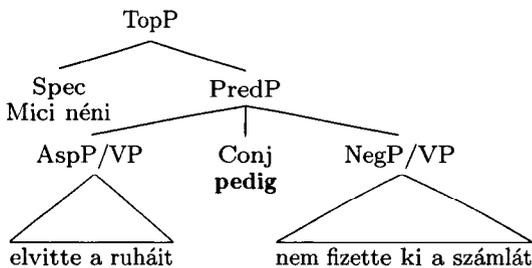
Recall that, for NP/DP coordinations involving n -ary conjunctions, we assumed an asymmetrical structure. On the basis of the observations detailed above, we now attribute a **symmetrical** structure to coordinations involving binary conjunctions. The major constituents of such symmetrical structures made up by predicative categories or predicative elements follow strict ordering constraints. The following tree diagrams contain the relevant details only³⁵ for predicate adverbial, verbal, and adjectival phrases:

(121)



softly but comprehensibly prev-speak-past-3sg
 'She started to speak softly but comprehensibly.'

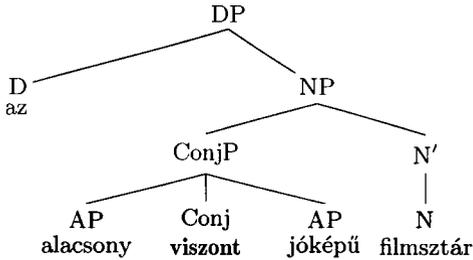
(122)



Aunt Mitzi away-carry-past-3sg the dress though not pay-past-3sg out the bill
 'Aunt Mitzi took the dress although she had not paid for it.'

³⁵ We basically follow É. Kiss (2002) here, cf. footnote 15.

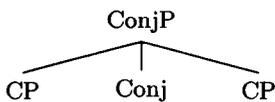
(123)



the short in turn handsome movie star 'the short but handsome movie star'

9.4. Predicative categories or predicative elements can be coordinated not only by binary but also by n -ary conjunctions. The function of the two types of conjunctions is neutralised in these constructions. The person/number/case/definiteness feature unification function of n -ary conjunctions cannot operate here since the coordinated nodes (predicative categories) are not directly the sources of such features, they are merely their bearers. The necessity of an asymmetrical structure was motivated, beyond the binding principle, exactly by the fact that the conjuncts there carry grammatical features to be checked/unified. Since for predicative categories that need does not arise, we have to assume a symmetrical structure of coordination, even in the case of n -ary conjunctions. For the coordination of full clauses, CPs, we likewise assume a symmetrical structure with any type of conjunction, as for predicative constructions. (The function of n -ary conjunctive heads unifying person/number/case etc. features is again irrelevant given that CP nodes themselves do not carry person/number/case features.) Conj0 is not part of the representation of either clause. The general pattern of the coordination of clauses will then be assumed to be like this:

(124)



10. Conclusion

In coordinations of an unrestricted number of terms, conjunctive heads of the n -ary type ensure that unifications of the person/number/definiteness/case features can be checked by the functional head of the sentence structure. In constructions involving an n -ary conjunctive head, all conjuncts are in specifier position, hence they are terms of structural relations of the same type. The structure expresses the facts that the conjuncts are of the same category, that their non-inherent grammatical features are identical to the extent that is required for their coordinability, and that they are proper constituents. The construction follows the pattern of asymmetrical structures. Its head is an n -ary (feature unificatory) conjunction.

Binary conjunctive heads as functors select the arguments of the conventional implications they stand for, from among predicative categories or predicative elements. The relevant structure is invariably binary and involves two arguments of the conjunctive head. The categories selected are identical to the extent that is required for their coordinability (they stand for the same type of predicative function). The binary conjunctive head attributes the features $\langle R\text{-base} \rangle$ and $\langle R\text{-value} \rangle$ to the arguments as made necessary by the relation type(s) it signals. These features determine the linear order of the conjuncts. The construction follows the pattern of symmetrical structures and can be characterised by ordering constraints.

References

- Bánréti, Zoltán 1992. A mellérendelés [Coordination]. In: Kiefer (1992, 715–97).
- Bánréti, Zoltán 2001a. Az ellipsis mondattana és a lexikai szelekció [The syntax of ellipsis and lexical selection]. In: *Nyelvtudományi Közlemények* 98: 7–70.
- Bánréti, Zoltán 2001b. Többszörös lexikai kiválasztás és párhuzamosság a hátraható VP-ellipsisben [Multiple lexical selection and parallelism in backward VP ellipsis]. In: Marianne Bakró-Nagy – Zoltán Bánréti – Katalin É. Kiss (eds): *Újabb tanulmányok a strukturális magyar nyelvtan és a nyelvtörténet köréből*. Kiefer Ferenc tiszteletére barátai és tanítványai, 97–119. Osiris Kiadó, Budapest.
- Bartos, Huba 1999. Morfoszintaxis és interpretáció: A magyar inflexiók jelenségek szintaktikai háttere [Morphosyntax and interpretation: Syntactic aspects of Hungarian inflectional phenomena]. Doctoral dissertation, ELTE, Budapest.
- Bartos, Huba 2000. Az alanyi és a tárgyias ragozásról [On indefinite vs. definite inflection]. In: Büky – Maleczki (2000, 153–70).

- Büky, László–Márta Maleczki (eds) 2000. A mai magyar nyelv leírásának újabb módszerei IV [New methods in the description of Hungarian]. Szegedi Tudományegyetem, Szeged.
- Camacho, José 1997. The syntax of NP coordination. Doctoral dissertation, USC, Los Angeles.
- Dik, Simon C. 1968. Coordination. North-Holland, Amsterdam.
- É. Kiss, Katalin 2002. The syntax of Hungarian. Cambridge University Press, Cambridge.
- Goodall, Grant 1987. Parallel structures in syntax. Cambridge University Press, Cambridge.
- Grice, Paul H. 1975. Logic and conversation. In: Peter Cole–Jerry L. Morgan (eds): Syntax and semantics 3, 41–58. Academic Press, New York.
- Grootveld, Marjan 1992. On the representation of coordination. In: R. B. Bennema–R. van Hout (eds): Linguistics in the Netherlands, 61–73. ICG Publications, Dordrecht.
- Kálmán, László–Viktor Trón 2000. Értékek azonossága-e az egyeztetés? [Is agreement the identity of values?]. In: Büky–Maleczki (2000, 43–56).
- Karttunen, Lauri–Stanley Peters 1979. Conventional implicature. In: K. Oh–D. A. Dinneen (eds): Syntax and semantics 11, 1–57. Academic Press, New York.
- Kayne, Richard 1994. The antisymmetry of syntax (Linguistic Inquiry Monographs 25). MIT Press, Cambridge MA.
- Kenesei, István 1992. Az alárendelő mondatok [Subordinate clauses]. In: Kiefer (1992, 529–713).
- Kiefer, Ferenc (ed.) 1992. Strukturális magyar nyelvtan 1. Mondattan [A structural grammar of Hungarian 1. Syntax]. Akadémiai Kiadó, Budapest.
- Komlósy, András 1992. Régenek és vonzatok [Valence and government]. In: Kiefer (1992, 299–527).
- Larson, Robert 1988. On the double object construction. In: Linguistic Inquiry 19: 335–391.
- Lehmann, Willfried (ed.) 1981. Syntactic typology. Studies in the phenomenology of language. University of Texas Press, Austin.
- Moltmann, Friderike 1992. Coordination and comparatives. Doctoral dissertation, MIT, Cambridge MA.
- Munn, Alan 1993. Topics in the syntax and semantics of coordinate structures. Doctoral dissertation, University of Maryland, College Park.
- Németh T., Enikő 1991. A megnyilatkozástípus elméleti kérdései és a szóbeli diskurzusok megnyilatkozáspéldányokra tagolása [Theoretical issues concerning utterance types and the segmentation of spoken discourse into utterance tokens]. Doctoral dissertation, Szegedi Tudományegyetem, Szeged.
- Sag, Ivan–Gerald Gazdar–Thomas Wasow–Samuel Weisler 1985. Coordination and how to distinguish categories. In: Natural Language and Linguistic Theory 3: 117–171.

- Velde, John R. te 1997. Deriving conjoined XPs: A minimal deletion approach. In: Werner Abraham – Elly van Gelderen (eds): German: Syntactic problems—a problematic syntax (Linguistische Arbeiten 374), 231–260. Max Niemeyer Verlag, Tübingen.
- Wesche, Birgit 1995. Symmetric coordination. An alternative theory of phrase structure (Linguistische Arbeiten 332). Max Niemeyer Verlag, Tübingen.
- Zoerner, Ed 1996. The syntax of &P. Doctoral dissertation, University of California, Irvine CA.

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STRUCTURAL SYNONYMY AND FORMAL VARIANTS: RELATIVE CLAUSES AND THEIR PARALLELS IN SIX EARLY HUNGARIAN TRANSLATIONS OF THE BIBLE

ADRIENNE DÖMÖTÖR

Abstract

Structural synonymy is exhibited by sets of expressions that are capable of conveying the same denotative content but are differently constructed and hence have slightly different meanings. Synonymous structures, due to the general complexity of syntactic phenomena, are not quite coterminous semantically, stylistically, or pragmatically; hence, they are not synonyms in the strict sense. It is exactly such differences that make it possible for them to offer a choice for the language user.

Formal variants, in the author's view, are sets of syntactic structures that do not exhibit any semantic diversity despite their formal differences; hence, they are freely interchangeable (or, in the case of historical phenomena, are assumed to be such on the basis of available data). The existence of formal variants is the basis of the subsequent emergence of synonymous constructions.

This paper discusses variation and structural synonymy in one type of complex sentences: those involving relative clauses. The data are taken from parallel passages of six different Hungarian translations of the Bible written between 1416 and 1626, supplemented by two contemporary translations of the same passages.

1. Introduction

Synonymy is a well-researched area of semantics. Ever since the history of linguistics began, a host of definitions have been put forward, trying to embrace all or some of its aspects. Relevant studies have mainly been concerned with the synonymy of lexemes, and they have been primarily published in volumes on word semantics or conducted in the course of the preparation of various dictionaries of synonyms.

However, **structural** (or syntactic) **synonymy** is one of the least researched topics both synchronically and diachronically, as well as both with respect to Hungarian and as an issue in general linguistics (in spite of the fact that many analyses touch upon its effects). Language users, due to their ability of paraphrasis, can recognise the phenomena of structural synonymy and apply them more or less deliberately in their spoken

or written utterances; they even get directly confronted with those phenomena in the course of language learning, translating or interpreting.

The point of departure of the present study is the claim that language involves structural synonymy, not directly depending on the synonymy of words, in all phases of its history; such structural synonymy is based on linguistic changes of earlier periods and is the basis, in turn, of further linguistic changes to come. The fact that competing variants usually coexist for some time, with all its synchronic/diachronic effects, is common knowledge. “What may strike the strictly synchronicist student of language as a superfluous instance of variation is in fact a vehicle of linguistic motion and, as such, has a double nature. From the point of view of synchronic information flow, it ensures the efficiency of communication; from that of the history of language, it ensures its mobility” (Róna-Tas 1978, 385). But the types of variation usually discussed in handbooks of historical linguistics are mainly lexical, morphological, or phonological.

Therefore, it is in the area of syntactic structures this time that I have been trying to find answers to the question of what the characteristic stages of the development of certain synonymous forms are; and how the coexistence of older and more recent forms—as Károly (1980, 45) puts it, “the fight of competing forms that constitutes the history of a language”—actually comes about. In the context of the question raised, a category emerged that has not yet been investigated: the category of ‘formal variants’.

1.1. Synonymous syntactic structures and formal variants

Structural synonymy is constituted by a pair/set of expressions that are capable of conveying the same denotative contents but are differently constructed and hence have slightly different meanings. **Synonymous structures**, due to the general complexity of syntactic phenomena, are not necessarily coterminous semantically, stylistically, or pragmatically (hence, they are never strict synonyms); it is exactly such differences that make it possible for them to offer a choice for the language user. Two syntactic structures are said to be synonymous if they can be substituted for one another without the denotative meaning of the portion of text including them undergoing a major change. (For other definitions of the synonymy of statements cf., e.g., Kiefer 2000, 26.) Kiss (1993, 115) captures the contrast between syntactic synonyms as a matter of different presentations of the same referential content, that is, as a secondary se-

mantic difference, a presentational opposition. Haader (2002, 76) defines synonymous syntactic forms as functional variants of each other, where the possibility of choice is given by the fact that identity and difference are simultaneously present in them.

Formal variants, on the other hand, are sets/pairs of syntactic structures that—despite their formal differences—do not exhibit any semantic distinction; in other words, they are freely interchangeable (or, in the case of historical phenomena: assumed to be such on the basis of available data). The basis of the emergence of synonymous constructions is the existence of formal variants: structures that are differently shaped but are probably of the same function initially may get coloured into synonyms as time goes by.

This paper discusses variation in one type of complex sentences: those involving relative clauses. It reviews the devices of creating such constructions but does not deal with lexical differences or grammatical ones that are internal to the clauses concerned.

1.2. The material investigated

The choice of material is motivated by the definite nature of the text of Bible translations: the Hungarian constructions that are intended by the translator to reflect the original as accurately as possible are undoubtedly closely related to one another as well. (It is another issue what degrees of that relatedness can be observed in the parallel texts.) On the other hand, biblical texts—just because of their definite nature—are inappropriate for the investigation of some related questions, hence an analysis of other authors and other works may reveal further aspects of the issue in the future.

The data are taken from three chapters (Matthew 10–12) of six different translations of the Bible from the Late Old Hungarian and Middle Hungarian periods (the 15–17th centuries). The approximately 130 constructions found in the material exhibit four different degrees of relationship: identity, substantial difference, formal variation, and synonymy.

It is most infrequent for identical constructions to occur in all of the parallel places. It is much more usual for some of the texts to contain identical constructions while the others have formal variants or synonymous solutions. Wherever there are identical constructions in all six translations, these are due to Latin sentences that are quite simple to in-

terpret and translate and whose Hungarian equivalents show no or little variability (even if it would be possible in principle).

The other extreme, substantial difference among our sources, occurs very rarely. János Sylvester's aspiration to Erasmian precision sometimes results in a surplus of content: SylvB.¹ 15v: "Nemde ket verebeczket egg kúfded pinzeñ adna kiel, *mell' pinz allnak mondatik*" 'Are not two sparrows sold for a small amount [*that is called an 'as'?*]?' / Mt 10,29: "Nonne duo passereres asse veneunt" / PestiB. 19v: "Nemde keet werebet hoznake hogy el agyak eggy kyf penzen" 'Are not two sparrows sold for a farthing?' (and roughly similarly in the other translations). Sometimes—apparently without reason—some piece of content is left out: KárB. 10r: "Es ne félyyetic azoktól, kic az teftet ôlhetic meg, (0) hanem félyyetic attól, à ki..." 'And fear not them which kill the body: but rather fear him which...' / Mt 10,28: "Et nolite timere eos qui occidunt corpus, *animam autem non possunt occidere; sed potius timete eum qui...*" / PestiB. 19v: "Ees ne fellyetek azoktol, kyk meg ewlyk az teftet, *az lelket keggy nem ewlhetyk meg, de fellyetek inkab azt, ky...*" 'And fear not them which kill the body, *but are not able to kill the soul*: but rather fear him which...' (and roughly similarly in the other translations).

The aim of this paper is to present characteristic tendencies with respect to formal variants and synonymous constructions. For comparison, we use corresponding portions of the Vulgata and two present-day translations as well. In citing data, however, we do not necessarily list all sources in all cases. The Latin original and the modern versions are given wherever the phenomenon at hand makes in necessary; the historical sources are quoted as dictated by the distribution of the constructions analysed but—apart from rare exceptions—at least one of the Old Hungarian texts (MünchK., JordK.), one of the Middle Hungarian Protestant translations (PestiB., SylvB., KárB.), and the single Middle Hungarian Catholic version (KálB.) are invariably included.²

¹ See List of Abbreviations at the end of this paper.

² The excerpts are taken from the following sources. **Late Old Hungarian period:** *Müncheni Kódex* (after 1416/1466) [MünchK.]; *Jordánszky-kódex* (1516–1519) [JordK.]. **Middle Hungarian period:** *Wy Testamentum magjyar nyeluen*. Vienna, 1536. (translated by Gábor Pesti) [PestiK.]; *Vy testamentū maajar űelweñ*. Újsziget, 1541. (translated by János Sylvester) [SylvK.]; *Az Szent Biblianac masodic resze*. (...) *Wrunc Iesus Christvsnac Wy Testamentuma*. Vízsolly, 1590. (translated by Gáspár Károlyi) [KárB.]; *Szent Biblia*. Vienna, 1626. (translated by György Káldi) [KálB.]. **Present:** *Biblia. Istennek az Ószövetségben és Újszövetségben adott kijelentése*. Református Zsinati Iroda, Budapest,

2. Formal variants

Formal variants, as has been mentioned, are constructions that only differ from one another with respect to their form, i.e., whose differences do not involve their meaning. In the area of relative clauses, differing conjunctions or phoric pronouns (cf. Dömötör 2001) are responsible for formal variants.

Such variants come into being when, in addition to an existing means of expressing a certain function, another form begins to be used for the same function without—initially, at least—the constructions assuming different roles. The key constituents of constructions constituting formal variants may emerge parallelly (e.g., *mikoron* / *mikort* ‘when’) or one may historically derive from the other (e.g., *ki* / *aki* ‘who’).

Formal variants are characterised by the fact that, within a given period, the language user does not find any relevant difference between them, hence (s)he is free to make her/his choice. As time goes by, however, they may undergo differentiation of meaning and the forms that used to have the same role may cease to be interchangeable without any consequence: they either turn into synonyms (like relative clauses introduced by *ki* / *aki* ‘who’) or undergo specialisation and drift away from one another (like relative clauses introduced by *ki* ‘who’ vs. *mi* ‘that’). In some cases, formal variants may coexist for quite a long time (like (*az*) *a dolog, ami...* / (*az*) *a dolog, amely...* ‘the thing which...’).

2.1. Constructions with *az* / *amaz* ‘that’

In the periods under scrutiny, these constructions undoubtedly functioned as formal variants: both phoric pronouns were also able to express simple deixis. (This also applies to the phoric pronoun *azon* ‘that’, cf. Dömötör 1995, 671.) Before the head of an attributive clause, only a single determiner was used. *Az* could either be a definite article or a demonstrative (phoric) pronoun. On the other hand, *amaz* (and *azon*) were able to disambiguate the phoric pronoun meaning.

1995 [Prot.]; *Ószövetségi és Újszövetségi Szentírás*. Szent István Társulat, Budapest, 1996 [Cath.]. The texts are from the original or facsimile versions, except MünchK. that is quoted from Nyíri (1971); KálB. whose 1732 edition has been consulted; and the two contemporary translations that are taken from a CD-ROM entitled *Bibliatéka* (Arcanum Adatbázis Kft.). English glosses are based on corresponding passages in King James' Bible (1611).

By the Middle Hungarian period, the combination of demonstrative pronoun plus article came to be generally used, and in a construction *az a* ‘that’ (literally: that the) the role of *az* as a phoric pronoun became unambiguous. Nevertheless, *amaz* did not necessarily assume a special meaning at that time (cf. (1b)):

- (1) (a) MünchK. 17rb: 9 Illes ki iquend9
 (b) KárB. 11r: 9 *amaz* Illyés, az ki el j9uend9 vala
 (c) KálB. 2: 283b: 9 az Illyés, a’ ki el-j9vend9
 ‘this is Elias, which was for to come’ (Mt. 11,14)

It was only later that *amaz*—with a definite article by then—specialised in the meaning of differentiation from another specified item. *Azon* remained to be used without an article and to express simple deixis.

2.2. Constructions with *ki* ‘who’ vs. *mi* ‘that’, *mely* ‘which’

Occurring with antecedents whose denotations did not have the semantic feature ‘human’, these constructions apparently coexisted in Late Old Hungarian and Early Middle Hungarian as formal variants. In Old Hungarian, the conjunction *ki* was most generally used both for persons and for nonpersons (like Latin *qui, quae, quod*). *Mely* and *mi* hardly occurred, usually referring to non-human entities. By the Middle Hungarian period, the differentiation of these formal variants became more dynamic: *ki* began to be restricted to antecedents having the semantic feature ‘human’, gradually replaced by *mely* with respect to nonpersons (cf. (2d–f)):

- (2) (a) MünchK. 17va: k9zde zidalma3ni m9d a v9z9f9cat kicb9n f9c i9zag9c l9tt9n°
 uala
 (b) JordK. 386: kezde gonozt mondany az v9r9f9l9knak, kykben h9w na9 f9k
 yozagokat tet vala
 (c) PestiB. 21v: kezde fedden9 az w9r9f9l9kat, kykben ew f9k chodakat tewt
 wala
 (d) SylvB. 17r: el9kezde 3amlalni gon9f9gokat az v9r9f9l9knac, az
 mell’ekben ũ f9k ifteni tehetf9hit ielentette vala
 (e) KárB. 11r: kezd9 Ielus 3emekre h9nni az v9r9f9l9knac, az m9llyekben
 Ifteni er9 9ltal val9 tfud9kat t9tt vala
 (f) KálB. 2: 283b: kezd9 fzemekre h9nni a’ v9r9f9l9knak, m9llyekben igen f9k
 cf9d9ai l9ttek
 ‘began he to upbraid the cities wherein most of his mighty
 works were done’ (Mt. 11,20)

Figure 1 shows percentages of occurrence of *ki*, *mi*, *mely* with nonhuman antecedents.

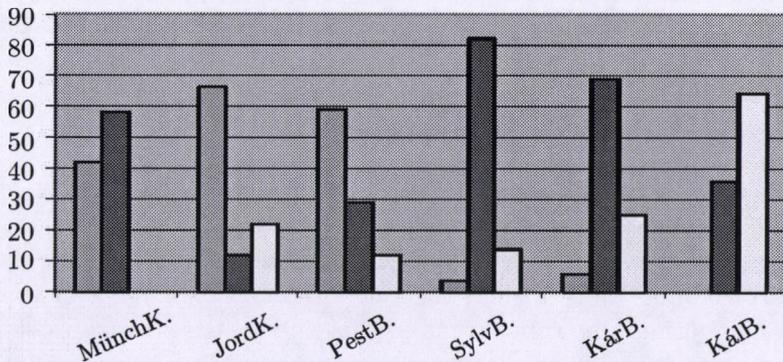


Fig. 1

The distribution (in %) of *ki* 'who', *mi* 'what', *mely* 'which' with nonhuman antecedents (*ki*: grey column, *mely*: black column, *mi*: white column)

In the earlier translations—up to and including Pesti's—*ki* refers to nonhuman antecedents in large numbers (cf. (2a-c)). In later texts—beginning with Sylvester's—this happens in exceptional cases only, and in Káldi's translation, in the 17th century, not at all. Given that the texts by Pesti and Sylvester are a mere five years apart, this spectacular difference cannot be ascribed to the passage of time (and to usage changing over time); it is much more likely that an existing tendency has been recognised and deliberately used from Sylvester onwards.

In parallel with the repression of *ki*, the share of *mely* and *mi* as used with nonhuman antecedents shows gradual increase beginning with JordK. In Middle Hungarian, *mely* outnumbers *mi* until Káldi (see section 2.3 on the use of these two conjunctions). It is peculiar and probably represents individual usage that in the earliest text, MünchK., *mely* occurs more frequently than *ki* (the usage of the translator thus being ahead of his time by more than a hundred years).

The Bible translations investigated here suggest that the differentiation of the use of *ki* vs. *mi* / *mely* according to their reference to human vs. nonhuman antecedents was a tendency strengthened into a rule from the middle of the 16th century. However, an analysis of texts from diverse authors and diverse genres has shown that the use of *ki* with a nonhuman antecedent did not count as an idiosyncrasy even as late as the 18th century (Dömötör 2000, 199). This fact suggests, on the one

hand, that translators of the Bible were exceptionally conscious language users of their time. On the other hand, it cautions us not to regard our conclusions drawn from an investigation of the usage of translators of the Bible as general truths about the given period in all cases.

2.3. Constructions with *mi* 'that' vs. *mely* 'which'

The data suggest that the constructions (*az,*) (*a*)*mi*... (lit. '(that) what') and (*az,*) (*a*)*mely*... '(that) which' (i.e., constructions of the conjunctions *mi* / *mely* with—overt or covert—**non-attributive** phoric demonstrative pronouns) were formal variants in Old Hungarian and in Early Middle Hungarian. In translations of this period, the latter occurs more frequently (cf. (3b,c) with a phoric pronoun and (3a,d) without). Later, however, (*a*)*mi* begins to become generally used in this function. In Károlyi's text, in the late 16th century, such vacillation is not widespread any more, whereas Káldi consistently uses this construction as is regularly done today (cf. (3e)). By the end of the period under scrutiny here, then, differentiation of a type of constructions with nonhuman heads took place:

- (3) (a) MünchK. 17ra: Meñnètec hizdeffetecmeg Ianofnac / *melleket* hallottatoc
 (b) PestiB. 21r: Menyetek el mongyátok meg Ianosnak azokat *mellyeket* hallottatok
 (c) SylvB. 16v: es kőuetfigkippen bešillitek meg az Janofnac *ezeket az melleket* hallotok
 (d) KárB. 10v: Mennyetec el, és mondgyátoc meg Jánofnac, *az mellyeket* hallottoc
 (e) KálB. 2: 283b: El-menvén jelentfétek-meg Jánofnac, *a' miket* hallottatok
 'Go and shew John again *those things which* ye do hear and see' (Mt. 11,4)

The result of that differentiation survives to the present day; (*az,*) *ami*... characterises high-standard usage (and is regarded as regular), but (*az,*) *amely*... is also found in less fastidiously formed, especially spoken, utterances.

In constructions of the type (*az*) *a dolog,* (*a*)*mely*... '(that) the thing which' (i.e., constructions with—overt or covert—**attributive** phoric demonstrative pronouns), (*a*)*mely* exhibits rather consistent use in the periods investigated, suggesting a regularity in the making:

- (4) (a) MünchK. 17va: ha Sodomaban lottèc volna è *iozagoc mellec* te bènèd lottèc

- (b) PestiB. 22r: ha fodomakba lewttének volna *ež chodak, meljiek* lewttének te benned
- (c) SylvB. 17r–v: ha az Sadamanak vārofiban ielentettevolna az iften az ũ fok ifteni *tehetlīghit, melleket* te benned ielente
- (d) KárB. 11r: ha Sodomában, *azoc az Ifteni erđc* lettek volna, *mellyec* te benned lettec
- (e) KálB. 2: 284a: ha Sodomában lőttek volna *a' cfodák, mellyek* te-benned lőttek
'if the mighty works, which have been done in thee, had been done in Sodom' (Mt. 11,23)

However, in this type of constructions, the choice between *ami* vs. *amely* failed to stabilise later on; in this role these constructions remained as formal variants to the present day, even though the construction (*az*) *a dolog, amely...* 'the thing which' is the more prestigious variant; e.g.,

- (4) (f) Prot.: Ha Szodomában mentek volna végbe *a csodák, amelyek* benned történtek
- (g) Cath.: Ha Szodomában történtek volna *azok a csodák, amelyek* benned történtek

2.4. Constructions with *ki / aki* 'who', *mi / ami* 'that', *mely / amely* 'which'

In the periods we are investigating, *ki / aki* etc. appear to exist as formal variants (in the use of these pronouns as conjunctions). Their compound form including *a(z)-*, as variants of the simple (noncompound) translations of Latin *qui, quae, quod*, came into being by a reanalysis of uninflected phoric pronoun + conjunction. It becomes more frequent during the Middle Hungarian period (cf. (5d–f)):

- (5) (a) MünchK. 16vb: *Ki* fogad tütökèt engemèt fogad
- (b) JordK. 385: *ky* fogad tyteket, enghem fogad
- (c) PestiB. 20v: *Valakij* tjteteket fogadand engemet fogad
- (d) SylvB. 16r: *Az ki* tütökõt fogadbe hāzāba, enghemet fogadbe hāzaba
- (e) KárB. 10v: *Az ki* titeket bę fogad, engem fogad bę
- (f) KálB. 2: 283b: *A'ki* titeket bé-fogad, engem fogad-bé
- (g) Mt. 10,40: *Qui* recipit vos me recipit
'He that receiveth you receiveth me'

Figure 2 shows percentages of occurrence of the two versions of the conjunction: the one without an anterior constituent vs. the one with *a(z)-*.

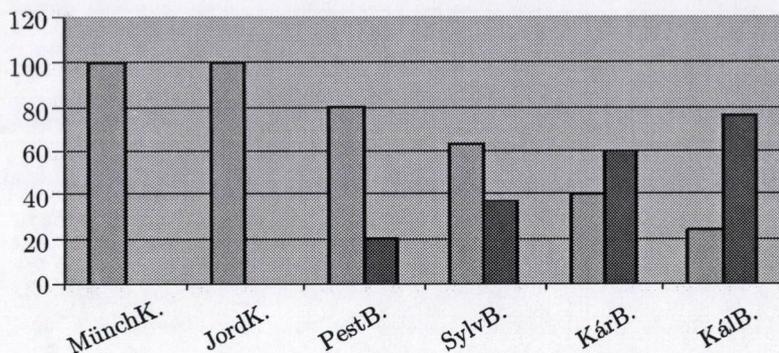


Fig. 2

The distribution (in %) of *ki* 'who' vs. *a(z)-ki* 'who'
(*ki*: grey column, *a(z)-ki*: black column)

The Old Hungarian period is predominantly characterised by the conjunctions lacking the anterior constituent (even though the material of this investigation does not include compound forms, they do sporadically occur already in that period). In the Middle Hungarian translations, conjunctions involving *a(z)-* become increasingly frequent text by text, their proportion surpasses that of plain conjunctions by the end of the period studied; the tendency thus predicts the later total victory of the compound version.

The spread of the variants involving *a(z)-* is the most conspicuous in the *ki* / *aki* type. Of *mely* / *amely*, the compound form only occurs sporadically. The noncompound corresponding to *ami* is very rare; probably *aki*—that got very frequent in the Middle Hungarian period—whirled along the conjunction *mi* / *ami* that began to be widely used at that time, or maybe the additional homonymy of *mi* 'what/that' with *mi* 'we' also played a role in the fast spread of the variant *ami* (Haader 1997 shares the latter view).

Due to the dash of the compound forms, constructions involving the conjunctions *ki* / *mi* and *aki* / *ami* later—after the period under scrutiny here—cease to be formal variants: because of the stylistic difference that arises between them, they join the ranks of synonymous structures by *ki* and *mi* becoming archaic or poetical. The difference between *mely* and *amely*, on the other hand, remains slight: the plain variant often occurs in texts of diverse genres; it does not count as archaic but has more prestige than the compound variant and is mainly used in writing. However, present-day translations of the Bible consistently use *amely* as opposed to *mely*, a fact suggesting that *mely*—following the lead of *ki*

and *mi*—is being ousted from modern usage, even in the most elevated styles (cf. (4f–g) above).

It is to be noted here that example (5), in addition to the alternation of *ki* / *aki*, exhibits another variant: *valaki* ‘someone, whoever’ (5c).

Relative clauses functioning as subject and object of the main clause—following the Latin model in Bible translations—are often preposed in the sentence. That position is especially favoured by conditional clauses. Thus, conditional meaning may easily be taken as implied in such constructions even where no overt marker of conditionality is present; the form prefixed by *vala-* appearing in some of the parallel places may express this possibility. Conjunctions of the type *aki* and *valaki*, often occurring parallelly in preposed clauses and both having a formal surplus over *ki*, could (have) develop(ed) a formal convergence. This is shown by cases where Latin *quicumque* ‘whoever’ is translated by *aki* (cf. (6b)) by translators who otherwise use all the three forms *ki*, *aki*, and *valaki*:

- (6) (a) JordK. 385: *vala ky* ytalt adand egynek ez aprok kezzel, ... nem vezty el hw erdemeeet
 (b) KárB. 10v: *az ki* italt ád ezec kőzzül czac az kifebiknec, ... nem vefti el az ő iutalmát
 (c) KálB. 2: 283a: *valaki* italt ád egynek e' leg-kisfebbek-kőzzül ... el nem veztyi jutalmát
 (d) Mt. 10,42: *quicumque* potum dederit uni ex minimis, ... non perdet mercedem suam
 ‘whosoever shall give to drink unto one of these little ones ... he shall in no wise lose his reward’

However, in the appropriacy of these pronominal conjunctions for such a role, their inherent meanings must have had a larger share. That inherent meaning shows a basic difference with respect to definiteness vs. indefiniteness, a crucial ingredient of the expression of conditionality, too. The significant number of counterexamples—involving postposed relative clauses and/or the lack of *vala-*prefixed parallels—suggests that constructions involving *aki*-type forms did not, after all, become formal variants of those involving *vala-* in which conditionality is made explicit (see section 3.1 on the synonymy of such constructions).

3. Synonymous structures

As was pointed out earlier, synonymous structures differ from formal variants in that the meanings of the former (but not the latter) are slightly

different even though their contents are basically the same. Therefore, the language user chooses, either consciously or in a spontaneous manner, between constructions of non-identical meaning when (s)he selects one of the synonymous possibilities rather than the other.

The secondary semantic differences of synonymous constructions may be of various degrees. They can be slight, representing nuances of emphasis on the individual aspects of what is being said; or they can be more marked, turning some implicit piece of information into an explicit one, or enhancing one of several potential meanings that the construction is able to convey. Instances of the latter possibility are cases in which relative conjunctions of the same basic function but of partly different roles occur in parallel, or in which the relative clause itself alternates either with a syntactic constituent (a specific, infrequent version of this case involves lesser semantic differentiation) or with a coordinate clause. These types of cases constitute the subject matter of the rest of the present paper.³

The alternation of conjunctions shows that the generally accepted definition of synonymy—two words are said to be synonymous if they can be substituted for one another without the denotative meaning of the portion of text including them undergoing a major change—is only valid for what are known as ‘autosemantic’ words (i.e., content words), whereas for function words, carrying a relational meaning, it is not. With respect to the latter, it is the constructions as wholes, rather than the individual words in them, that the criterion of interchangeability defines

³ Synonymous possibilities that serve the purposes of slightly emphasising some aspect of what is being said will deserve further study later on. In the area of structures involving relative clauses, these show up in the following alternations: 1. Between conjunctions: parallels of the type *amely helyen / ahol* ‘at which place / where’. 2. Between phoric pronouns: zero vs. overt phoric pronoun; word order of the phoric pronoun; pronouns of ‘near’ vs. ‘distant’ reference (in Hungarian, the former invariably involve front-harmonic vowels, whereas the latter involve back-harmonic ones; used as phoric pronouns, back-harmonic (distant) forms are always possible, whereas front-harmonic (near) or ‘exophoric’ forms constitute a marked, more emphatic solution); alternative pronouns (e.g., *az / olyan* ‘that / like that’: JordK. 383: “Vala ky azert meg maradand mynd veghyg, az *ollyan* ydwezwl” / SylvB. 15v: “de valaki mind vighigleñ bikesiguel valo türifben marad-meg, *az üduözül*” ‘but he that endureth to the end shall be saved’; Mt. 10,22). 3. Between constructions of phoric pronoun plus head: parallels of the type *azt, akit / azt a férfit, akit / ot, akit* ‘that, whom / that man, whom / him, whom’. 4. Between constructions of phoric pronoun plus head plus conjunction: parallels of the type *azt a könyvet, amelyet / azt a könyvet, amely könyvet / azt, amely könyvet* ‘that book, which / that book, which book / that, which book’. 5. Between various orders of the individual clauses.

as synonymous with one another. The most straightforward example of this is the relationship between conjoined clauses and pseudo-relative clauses as shown by the parallel conjunctions *és* 'and' / *ami* 'that'; but a number of other constructions could also be mentioned as relevant evidence. For instance, such evidence is the use of diverse conjunctions for subordinate clauses of the same type (here, temporal):

- (7) (a) SylvB. 18r: *El Jefus minek vtanna megefmerete volna mafüa mene onnan*
 (b) KárB. 11v: *Iefus pedig ezt mikor meg értette volna, el méne onnét*
 (c) Mt. 12,15: *Iesus autem sciens recessit inde*
 'But when Jesus knew it, he withdrew himself from thence'

Mikor 'when' introduces a simultaneous subordinate clause whenever at least one of the events (or states) is continuous. On the other hand, in cases where two non-continuous events (or states) are involved, their combination suggests sequentiality. The participle *sciens* 'knowing, understanding' (cf. MünchK. 18rb: "Ihc ke *tuduan* èlmene onnaton") is translated in (7b) by an inchoative verb form 'learned, began to understand', thus the construction expresses a sequence of events (similarly but with a participle: JordK. 389: "Jefus kedyglen *meg thudwan* el meene oñan"). This is further emphasised by the writer of (7a) by using the conjunction of anteriority *minekutána* 'whereafter', also providing for the possibility of causal interpretation. The two constructions are synonymous, but the two conjunctions—outside of the constructions—are clearly not.

3.1. Alternation of relative conjunctions

The result of a choice between implicit meaning and that made grammatically explicit is shown by the use of alternative conjunctions (as examples (7a–b) above also demonstrate).

Conditionality can be represented in relative clauses both unmarked and marked. In the periods investigated here, plain conjunctions alternate with *vala-* and *a(z)-* forms.

Constructions including a noncompound conjunction (e.g., *ki* 'who') can have two types of relationships to conditionality: either they do not involve it at all, or they suggest it implicitly. Most constructions including a conjunction with *vala-*, by contrast, make conditional meaning explicit. The use of the indefinite pronoun (e.g., *valaki* 'someone') as a conjunction is made possible by an earlier process of reinterpretation of interrogative–

indefinite pronouns as relative pronominal conjunctions. Later on, the expression of conditionality by a mere *vala-* conjunction is mostly going out of use, but adverbial constructions of frequency (e.g., *valahányszor* ‘whenever, at any time’, lit.: ‘in some number of cases’) have preserved that possibility to the present day.

It is more difficult to take sides with respect to the relationship, in that period, between constructions involving *a(z)-* (e.g., *aki* ‘(he) who’) and implicit conditionality. One thing is certain: this form gets stabilised later as a conjunction of nonconditional relative clauses. However, parallel sentences from the Middle Hungarian period do not give us a good enough clue to assume that some authors in some instances wanted to drop the possibility of an implicit secondary meaning by using constructions involving *a(z)-*prefixed conjunctions. All that can be said is that, as time goes by, *a(z)-*prefixed conjunctions are increasingly often used in parallel with *vala-*prefixed ones as well as in cases where such parallel is not available (see section 2.4).

The Latin conjunction *quicumque* ‘whoever’ is usually translated using *vala-* forms. In such cases, with very rare exceptions, identical translations arise, a fact that shows both the unambiguousness of the Latin construction and the customary nature of its reflection in Hungarian:

- (8) (a) MünchK. 18va: *valaki* mondand igét embezfia èllèn megbolattatic nèki
 (b) JordK. 390: *vala ky* mondand vala my bezedet embernek fya ellen, meg boczattatyk hw neky
 (c) PestiB. 24v: *walakj* mondand zoot, embernek fyanak ellene meg bochatatyk nekj
 (d) SylvB. 19r: *valaki* valami bebidet mondand az embernek fiának ellene, meg boczattatik űneki
 (e) KárB. 12r: *valaki* bóland az embernek fia ellen, megbotfáttatic néki
 (f) KálB. 2: 285a: *valaki* az ember fia-ellen fzóll, meg-bocsáttatik néki
 (g) Mt. 12,32: *quicumque* dixerit verbum contra Filium hominis, remittetur ei
 ‘whosoever speaketh a word against the Son of man, it shall be forgiven him’

Vala- forms also often occur as translations of *qui*, *quae*, *quod* in some of the parallel places (cf. (9c–d)), whereas in the other translations nonconditional (*a*)*ki* is written. The examples in (9) furthermore clearly illustrate the temporal sequence of solutions. Word order follows the Latin model in all cases:

- (9) (a) MünchK. 16vb: *Ki ke ɔ attat aġ ɔ annat inkab ʒeʒeti hognē èngemèt nē mèlto èn hozjam*
- (b) JordK. 384: *Ky hw attyat es annyat fellyeb zerethy mynt enghemet, az nem melto en hozyam*
- (c) PestiB. 20r: *Valakj attyát, awagy annyát, nalamnal fewlljeb ʒeretj, Nem melto een hozzam*
- (d) SylvB. 16r: *Valaki fellebb ʒeretendi az ũ attat, auag anñāt en nālamnal, nem milto az en hozzām*
- (e) KárB. 10v: *Az ki ʒereti attyát vagy annyát, inkább hogy nem engemet, nem méltó én hozzám*
- (f) KálB. 2: 283a: *A'ki attyát vagy annyát inkább ʒereti hogy-fem engem, nem méltó hozzám*
- (g) Mt. 10,37: *Qui amat patrem aut matrem plus quam me, non est me dignus*
'He that loveth father or mother more than me is not worthy of me'

Figure 3 shows percentages of cases where conditionality is unmarked (or uninvolved) and where it is—probably—marked by *vala-* conjunctions as translations of *qui, quae, quod* (where *vala-* is involved in at least one text):

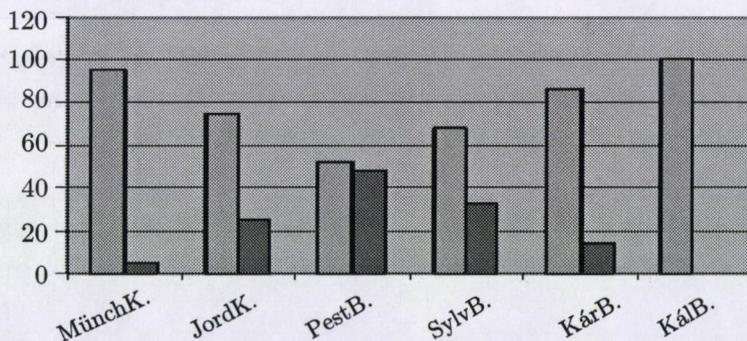


Fig. 3

The distribution (in %) of two types of translations of *qui, quae, quod* (conditionality not marked: grey column, conditionality marked by *vala-*: black column)

In parallels of *qui, quae, quod*, as in other cases, translators of the Old Hungarian period mainly use the plain conjunctions (see (9a,b)); that is, they either leave the potential secondary meaning of conditionality implicit or they drop it altogether. Several translators of the Middle Hungarian period, on the other hand, often use *vala-* conjunctions (see (9c,d)), suggesting that they recognise and wish to convey the conditional

shade of meaning. In Middle Hungarian texts prior to KÁLB., this change is increasingly more pronounced first, but then it becomes less widespread again. The two translations that exhibit a highest occurrence of *vala*-conjunctions are Pesti's and Sylvester's (these two texts are related to one another in some other respects, too). However, it is not in a single case that György Káldi—who, as the author of the Catholic version published after the Protestant ones containing a number of neologisms, returns in his consistent conservatism to solutions closest to the Latin original—departs from the use of relative pronominal conjunction corresponding to the Latin model. The process of the spread of *vala*-, first rushing forward but then stopping short around the mid-sixteenth century, exemplifies the situation in which a linguistic possibility, even though it turns out to be a feasible solution, nevertheless drops out of use after a while.

In later periods, then, even constructions of this type require the conjunction *ha* 'if'—attested since the early Old Hungarian period—to express explicit conditionality. The word *ha* and the earlier (indefinite) pronominal conjunction, depending on the overall structure of the sentence, often produce what is known as double subordination.⁴ On the other hand, clauses introduced by *aki* express unconditional relativity. The modern Protestant translation often makes the former, and the Catholic one the latter, choice, each relying on its own textual traditions. For instance, the modern versions of (8) run as follows: "*Ha valaki az Emberfia ellen beszél, bocsánatot nyer*" (Prot.) 'If someone [= anyone who] speaks against the Son of man, he will be forgiven' vs. "*És aki az Emberfia ellen beszél, bocsánatot fog nyerni*" (Cath.) 'And he who speaks against the Son of man will be forgiven'. cf. also the modern versions of (10) below: "*ha valaki nem születik víztől és Lélektől, nem mehet be az Isten országába*" (Prot.) 'if someone [= anyone who] is not

⁴ This can be observed in present-day syntactic structures, too: wherever the indefinite pronoun in the subordinate clause corresponds to the—usually covert—phoric pronoun of the main clause in that both are subjects or both are objects, etc., double dependence results as in *Ha valakit nem szeretek, nem hívom el* 'If I dislike someone, I won't invite her' / 'Anyone I dislike, I won't invite'; *Ha valaki el akar menni, ne állj az útjába* 'If someone wants to leave, don't stop her' / 'Anyone who wants to leave shouldn't be stopped'. This construction, at least in Standard Hungarian, is best tolerated if the subordinate clause is preposed. On the other hand, wherever no such correspondence is available and therefore the *akkor, ha* 'then, if' construction prevails, an independent conditional clause results as in *Eljövök, ha valaki értem jön* 'I will attend if someone comes to fetch me'; *Tovább is itt maradna, ha valakit nem kellene meglátogatnia* 'She would stay longer if she didn't have to go and see somebody'.

born of water and of the Spirit, he cannot enter the kingdom of God' vs. "Aki nem vízből és (Szent)lélekből születik, az nem megy be az Isten országába" (Cath.) 'Who is not born of water and of the (Holy) Spirit cannot enter the kingdom of God'.

The fight of *ha ki* (*hanem ha ki*) / *valaki* / *ha valaki* 'if who (except who) / someone / if someone' in the period under investigation is best revealed by translations of constructions that involve double subordination in Latin, too (the example in (10) comes from outside our corpus):

- (10) (a) MünchK. 86vb: *hanē ha ki* ǝfīng žúlētēndic vizből z ǝcēt lelēcből / nem mēhēt bē itēnn^o ožzagaba
 (b) JordK. 630: *hanem ha ky* wyonnan zyletendyk vyztŵl, es zent lelektŵl, nem mehet be ittennek orzagaban
 (c) PestiB. 187r: *walakj* nem žyletjyk wjztewl, ees zent lelektewl, be nem mehet ittennek orzagaba
 (d) SylvB. 129r: *ha valaki* viztŵl, es bent lelektŵl nem bŵletendik, be nem mehet az ittennek orzagaba
 (e) KárB. 82v: *ha valaki* nem bŵletendic viztŵl és bent lélektŵl, nem mehet bę az Isten oržagába
 (f) KálB. 2: 362a: *ha ki* újonnan nem žfŵletik vizbŵl es Szent-Lélekbŵl, nem mehet-bé az Isten oržagába
 (g) Jn. 3,5: *nisi quis* renatus fuerit ex aqua et Spiritu sancto, non potest introire in regnum Dei
 'Except a man be born of water and of the Spirit, he cannot enter into the kingdom of God'

It is to be noted here that, due to the semantic affinity of conditionality and concession, translations of *qui*, *que*, *quod* may also involve *akár*- 'any-' conjunctions, too. This may result in inverse word order (11b), a very rare alteration in Bible translations:

- (11) (a) MünchK. 18vb: mēden hiu iğezŵl / *kit* ǝmbezec bęžellēndn^o / okot kēl adnia ŵ zolla itelēt napiā
 (b) KárB. 12v: *akarami* (!) hiuolkodó befzédet bŵllyanac az emberec, bāmot adnac arról az itélet napián
 (c) KálB. 2: 285a: minden hívolkodó iğérŵl, *mellyet* ŵzólnak az emberek, ŵzámot adnak az itélet napján
 (d) Mt. 12,36: omne verbum otiosum *quod* locuti fuerint homines, reddent rationem de eo in die iudicii
 'every idle word *that* men shall speak, they shall give account thereof in the day of judgement'

An *akár*- conjunction may also occur as the translation of *quicumque* 'whoever' (12b):

- (12) (a) JordK. 392: Byzonyawal *valaky* teendy en atyamnak akarattyat ... , az en atyamffya
 (b) SylvB. 18v: Mert *akarki* legen az ki az en atamnak akarattāt tifi ez az ki ennekem atāmfa
 (c) KálB. 2: 283a: Mert *valaki* az én Atyám akarattyát cfelekfzi ... , az az én atyám-fia
 (d) Mt. 12,50: *Quicumque* enim fecerit voluntatem Patris mei ... ipse meus frater
 'For *whosoever* shall do the will of my Father ... , the same is my brother'

What is more, even *vala-* conjunctions may express assent/concession. In a context where the subordinate clause refers to the totality of (certain types of) individuals, rather than to a certain individual or group of individuals, the construction may be one of assent or concession rather than a conditional one. Translations that turn the Latin participle into a subordinate clause may use a simple relative clause (13b) but it is also possible for them to convey a shade of meaning of assent or concession (13c):

- (13) (a) MünchK. 18va: Mèndèn o2zag 9n9 bènne megozlatot megpu3toltatic
 (b) PestiB. 24r: mynden o2zag *ky* ew maga ellen meg hasonlyk, el romol
 (c) KárB. 12r: Minden orfág *valamelly* magában meg hafonlic él pu3túl
 (d) KálB. 2: 285a: Minden maga-ellen meghafonlott orfág, el-pufztúl
 (e) Mt. 12,25: Omne regnum *divisum contra se* desolabitur
 'Every kingdom *divided against itself* is brought to desolation'

3.2. Relative clauses vs. constituents

Parallels between relative clauses and relative constituents—as structural variants of the analytic vs. synthetic type—constitute the richest domain of structural synonymy. Variants first occurring in the periods investigated here continue to function as synonyms to the present day; but the frequency of occurrence of the individual versions may differ across periods depending on the type of construction involved. Over time, we can observe a clear—albeit not linear—shift towards analytic constructions. (As time goes by, even coordinate constructions increasingly participate in this shift, again in a nonlinear manner; cf. section 3.3).

It is characteristic of the periods under investigation that wherever the Latin text has a relative clause, it will usually (though not always) be followed by the translators. On the other hand, places where the Latin

text has a participial construction or some other nominal constituent that could also be expressed by a relative clause, exhibit a more variegated picture. The most frequent tendencies found in this area constitute the subject-matter of the present section.

3.2.1. Participial constituents vs. relative clauses

Alternations of this type are made possible by the semantic ambiguity of these expressions that may either be kept or else be disambiguated by foregrounding one of the possible meanings. The most frequent such structural parallels can be observed with time adverbials. Here, by resolving the conciseness of the participial construction, the clausal solution is capable of enhancing or disambiguating some aspect of its complex meaning. Thus, it can make the temporal relationship of events more clear-cut (14b); in cases of more complex adverbials, it can emphasise the pure time reference of the subordinate clause (15b, c) by neutralising the change-of-state aspect of (15a,d):

- (14) (a) JordK. 382: *El meenwen kedeg, predicallatoc*
 (b) PestiB. 18v: *Ees mijkoron el menendetek, predikaljyatok*
 (c) SylvB. 14v: *Mikoroñ kedigleñ elmentek, predikallatok*
 (d) KálB. 2: 282a: *El-menvén pedig praedikállyatok*
 (e) Mt. 10,7: *Euntes autem praedicate*
 'And as ye go, preach'
- (15) (a) MünchK. 18rb-va: *Ih̄c ke tuduā 9 gondolattokat mōda nēkic*
 (b) PestiB. 24r: *Iefus keḡyg mijkoron latna az ew gondolatjokat monda nek̄yk*
 (c) KárB. 12r: *Iefus pedig mikor az δ gondolattyokat látta vólna, monda nēkic*
 (d) KálB. 2: 285a: *Jéfus pedig tudván gondolattyokat, monda nēkik*
 (e) Mt. 12,25: *Iesus autem sciens cogitationes eorum dixit eis*
 'Jesus knew their thoughts, and said unto them'

Simultaneously with the investigation of the distribution of participial constructions vs. subordinate clauses, we had to record parallel coordinate constructions as well (for a discussion, see section 3.3); but since the latter occurred in rather low numbers, their share of the phenomena discussed here can only be indicative of their mere presence.

Figure 4 shows percentages of occurrence of the possible translations of Latin participial constructions:

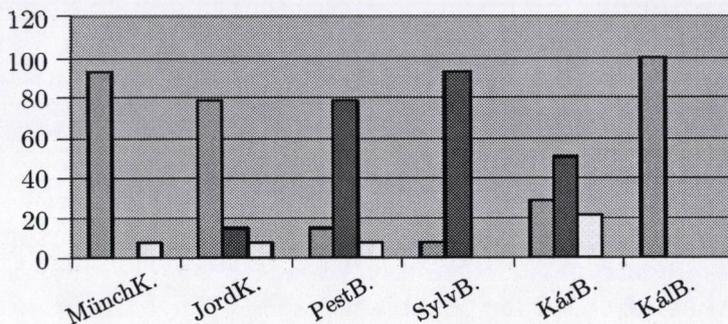


Fig. 4

The distribution (in %) of three types of translations of participial constructions (constituent: grey column, subordinate clause: black column, coordinate clause: white column)

As the examples show (14b,c, 15b,c), it is primarily Protestant translations of the Middle Hungarian period that expand participial constructions into clauses. (However, this apparently strong shift towards analyticity is deceptive in that our investigation does not cover all participial constructions in the corpus but only those in which at least one translator chose the clausal solution.) Káldi's Catholic Bible—in his effort, already mentioned, to reach the highest possible grammatical faithfulness—keeps the participles, a fact that makes his translation similar to the earliest ones (compare (14d), (15d) with (14a), (15a)). The translator who uses clauses the most often is Sylvester—striving, as has also been mentioned, for accuracy of content and explicitness. It must be the case that the individual translators had an effect on one another since it is often in the same places that Pesti, Sylvester and Károlyi (and occasionally also the writer of the Jordánszky Codex) opt for clauses, respectively participles, in parallels of the Latin participial construction. At the same time, it is conspicuous that in cases where the Latin text has a clause it is Sylvester and Károlyi who sometimes translate it by a phrase rather than by a clause. This reveals that the authors did not unconditionally apply their translator's/text creator's principles but rather selected the form they thought to be most appropriate of the synonymous possibilities depending on the construction at hand.

The two modern translations show that, as a continuation of the Middle Hungarian tendency, the ratio of clausal constructions has kept growing. The translator's techniques observed reflect a further shift in the direction of analytical constructions. In the case of complex participles, given that a corresponding clause can usually only express one of

the several meanings of the participial construction, clausal solutions in general involve the narrowing of the potential range of meaning. In the Protestant version we often find clauses, and even the Catholic text does not strictly follow Káldi's participial tradition; nevertheless, discrepancies occur both ways, suggesting that present-day translators also make their choice among the synonyms available on the basis of individual considerations:

- (16) (a) Prot.: *Ezt látva a farizeusok szónvá tették*
 (b) Cath.: *Amikor ezt meglátták a farizeusok, szóltak neki*
 (c) Mt. 12,2: *Pharisaei autem videntes dixerunt*
 'But *when* the Pharisees *saw it*, they said'

Unlike in the cases we have seen so far, in parallels of one specific use of participial constructions the variants involve little difference in meaning. In the various forms of expressions introducing direct-speech quotations, *kiáltván mond* 'say shouting', *kiált mondván* 'shout saying', *kiált* 'shout', and *mond* 'say' all play the role of quoting head verb; of the double expressions, one expresses the fact of utterance, and the other specifies a characteristic of it (see Dömötör 2001, 351–4, for details). For instance (only different versions are given):

- (17) (a) MünchK. 17rb: *hafonlatnac a ... gèzmekechez kic vùltuē mondnac o felecn^c*
 (b) PestiB. 20r: *Hafonlatos az olyan gyermekekhez, kÿk ... jÿweltnek az ew tarfoknak, mondwan*
 (c) SylvB. 17r: *hafonlatos az germekekhez kik ... űuðltenek az ű tãrfainak, eł ezt mongãk*
 (d) KãrB. 11r: *hafonlatos az gyermekekhoz, kic ... kiãltnac az ô tãrfainac*
 (e) Mt. 11,16–17: *Similis est pueris ... , qui clamantes coaequalibus dicunt*
 'It is like unto children ... *calling* unto their fellows, And *saying*'

3.2.2. Non-participial constituents vs. relative clauses

The alternation of these merely show a difference of degree in the enhancement of what is being said. Clausal translations of Latin constructions that are either not participial themselves or cannot be translated into Hungarian as such only make the content they express more emphatic, by their lengthier, "more verbal" character, and sometimes by the phoric pronoun they involve (see (18b), (19c) vs. (18c), (19b)):

- (18) (a) MünchK. 16vb: *z embezn° ρ hazabèliec ρ èllènfegi*
 (b) PestiB. 20r: *Ees embernek ellenfegÿ leznek, kÿk wannak ewnnen hazaba*
 (c) SylvB. 16r: *Es az embernek ellenfighi lißnek azok az kik ùneki hāzabeli nÿpi*
 (d) KálB. 2: 283a: *és az ember ellenfégi, az δ háza-népe*
 (e) Mt. 10,36: *et inimici hominis, domestici eius*
 'And a man's foes shall be *they of his own household*'
- (19) (a) JordK. 386: *Hafonlatos az pyacson yló gyermekekhez*
 (b) PestiB. 21v: *Hasonlatos az olÿan gyermekekhez, kÿk kÿjn ÿlnek*
 (c) KárB. 11r: *hafonlatos az gyermekekhez, kic az piátzon ùlnek*
 (d) KálB. 2: 283b: *Hafonló a' piacson-ùlð gyermekekhez*
 (e) Mt. 11,16: *Similis est pueris sedentibus in foro*
 'It is like unto children *sitting in the markets*'

The range of synonyms is the widest in constructions in which the attributive modifier goes back to the translation of an adjective; parallel to a relative clause (20c), we can have a qualifier (20a,e), an apposition (20d), or an attributive adverb (20b):

- (20) (a) MünchK. 16ra: *Cananeabèli Simon*
 (b) JordK. 381: *Symon kananeabol*
 (c) SylvB. 16r: *Simon ki Cananea newÿ tartomañbol valo vala*
 (d) KárB. 9v: *Simon Cananeabèli*
 (e) KálB. 2: 282a: *a' Kananaeus Simon*
 (f) Mt. 10,4: *Simon Cananaeus*
 'Simon *the Canaanite*'

Figure 5 shows percentages of occurrence of the possible Hungarian translations of non-clausal Latin constructions.

Thus, the distribution of synthetic vs. analytic constructions is roughly similar to that seen for participial constructions (since coordination is missing here, the structures are of two, rather than three types). Again, we see a dominance of Old Hungarian faithful (phrasal) translations; an upswing of clausal constructions in Pesti's and especially Sylvester's text; and their sudden lack in Káldi's. However, in these cases, the linguistically more economical solution is a lot more often chosen by Pesti, Károlyi, and Sylvester, too.

Both modern translations involve both solutions, even in contradiction to their own textual traditions (18f,g); in general, however, non-clausal (simpler) forms gain the upper hand (19f,g).

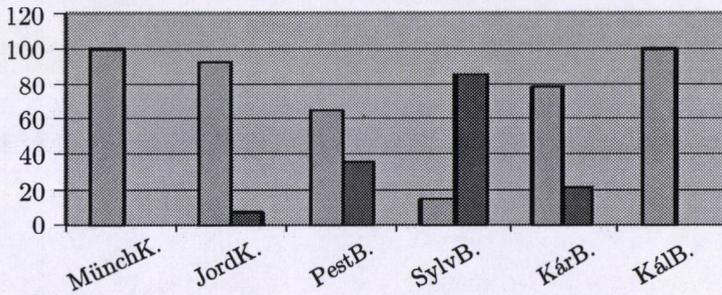


Fig. 5

The distribution (in %) of clausal / phrasal translations of non-clausal constructions (constituent: grey column, clause: black column)

- (18) (f) Prot.: Az embernek *a tulajdon családjá* lesz az ellensége
'A man's *own family* will be his enemy'
(g) Cath.: az embernek ellensége lesz *a háza népe*
'a man's enemy will be *the people of his own household*'
- (19) (f) Prot.: Hasonlít *a tereken tanyázó* gyerekekhez
'It is like children *sitting in the markets*'
(g) Cath.: Hasonlók azokhoz a gyermekekhez, *akik a piacon ülnek*
'They are like children *who are sitting in the markets*'

Note that alternation beyond structural synonymy is yielded by a procedure occasionally employed by Protestant authors of translations of an explanatory/educational kind whereby they use attributive clauses as a means of interpretative translation (see (21c,d), (22c-e)), although some translations can reach that goal by a phrasal solution, as well (21a):

- (21) (a) MünchK. 16ra: Mate *a iëles büngs müuëlkedëtbëli*
(b) JordK. 381: *vamos Mathe*
(c) PestiB. 18v: Mathe, *kij az elewt nÿjlwan walo bÿjnes wala*
(d) SylvB. 14v: Mathe *ki fu.kar vala annak elÿtte*
(e) KárB. 9v: amaz Máthé, *ki Publicanus vala*
(f) KálB. 2: 282a: Máte *a' publikánus*
(g) Mt. 10,3: Matthaëus *publicanus*
'Matthew *the publican*'

- (22) (a) MünchK. 16ra: *Thadeus*
 (b) JordK. 381: *Tadeuf*
 (c) PestiB. 18v: *Lebbeus, kijnék wezetek newe Thadeus*
 (d) SylvB. 14v: *Lebbeus, kinek vezetik newe vala Thaddeus*
 (e) KárB. 9v: *Lebbeus, ki vizetéc neuéröl Taddęufnac hiuattatic vala*
 (f) KálB. 2: 282a: *Taddaeus*
 (g) Mt. 10,3: *Thaddaeus*
 ‘*Lebbaeus, whose surname was Thaddaeus*’

These constructions containing additional information are beyond the area of structural synonymy since they involve a significant difference of meaning. Behind the clausal vs. phrasal structures there is an equivalence relation of explanandum/explicandum and explanation/explication. This phenomenon could be termed pragmatic synonymy.

3.3. Alternation of subordinate vs. coordinate clauses

This alternation—as was mentioned in section 3.2.1—is connected with that between subordinate clauses and participial constituents. Along the scale of synthetic vs. analytical expressions, intraclausal (constituent) constructions are followed by subordinate clauses which in turn are followed by coordinate clauses. (As a most analytical solution, this could be followed by a sequence of independent sentences; but such data were not found in the corpus investigated here.) This type of alternation concerns temporal subordination vs. conjunctive coordination as well as pseudo-attributive subordination vs. conjunctive coordination. Temporal sequence can be expressed explicitly (by a time clause); but that meaning can further be covered by conjunctive coordination, as well as pseudo-attributive subordination, too.

In the texts under scrutiny here, alternation between subordination and coordination can be observed partly in places where the Latin original also has a clause (whether subordinate or coordinate) and where some translations opt for one, others opt for the other solution (and some even “turn back” to participles).

Here is an example of subordinate construction in Latin: subordinate (time) clause (23a,d), coordinate (conjunctive) clause (23b), or participle (23c) in Hungarian:

- (23) (a) JordK. 388: *Es mykoron ennen el ment vona, yewe hw fynagogayokban*
 (b) PestiB. 23r: *De onnet towab iarula, ees mene az ew fynagogayokba*
 (c) KárB. 11v: *Es el ménuén onnét, méne az ő Synagogáiokba*
 (d) KálB. 2: 284b: *És midŕn onnét el-ment vólna, méne az ő fynagógájokba*
 (e) Mt. 12,9: *Et cum inde transsisset, venit in synagogam eorum*
 ‘*And when he was departed thence, he went into their syn-
 agogue*’

And an example of coordinate construction in Latin: coordinate (con-
 junctive) clause (24a,c) or subordinate (pseudo-attributive) clause (24b)
 in Hungarian:

- (24) (a) MünchK. 18rb: *z kouètec otèt lokac / z megvigazta okèt mēd*
 (b) PestiB. 23v: *ees kewetek ewtet nagÿ fok seregek kijket mÿnd meg gÿjogÿta*
 (c) KálB. 2: 284b: *és lokan kőkveték őtet, és mind meg-gyógyítá őket*
 (d) Mt. 12,15: *et secuti sunt eum multi et curavit eos omnes*
 ‘*and great multitudes followed him, and he healed them all*’

Translating a participle, one can likewise use a coordinate construction
 (25b,e), along with the two more frequent solutions discussed above, of
 using a participle (25a,f) or a subordinate clause (25c,d). The occurrence
 of coordinate clauses is facilitated by the original participial construction
 being loosely added to its head noun as an afterthought:

- (25) (a) MünchK. 17rb: *mezt iot Iang nem euen lem iuan*
 (b) JordK. 386: *Mert el ywee Janos, lem eweek, lem ywek*
 (c) PestiB. 21v: *El iwe Ianos, kij nem ezyk lnem ŷÿÿk wala*
 (d) SylvB. 17r: *Mert eliðue az Janos, ki lem iβik lem iβik*
 (e) KárB. 11r: *Mert el iött az (kereztelő) Iános, l-nem éβik, lem iβik*
 (f) KálB. 2: 283b: *Mert el-jött János lem éven lem iván*
 (g) Mt. 11,18: *Venit enim Iohannes neque manducans neque bibens*
 ‘*For John came neither eating nor drinking*’

A coordinate clause is also capable of making a pragmatic possibility
 hidden in a subordinate clause grammatically explicit. If the verb of
 the main clause is in the imperative, the temporal subordinate clause—
 depending on the speaker’s intention—may have imperative force, too.
 By turning it into a coordinate clause, that force is made explicit (see
 (26a) vs. (26b)):

- (26) (a) MünchK. 16ra: *Menñètec ke pzedicallatoc*
 (b) SylvB. 14v: *Mikoroñ kedigleñ elmentek, predikallatok azoknak*
 (c) KálB. 2: 282a: *El-menvén pedig praedikálljatok*
 (d) Mt. 10,7: *Euntes audem praedicate*
 ‘*And as ye go, preach*’

The “more audacious” solution of the earliest text, that of MünchK., is confirmed by both modern translations:

- (26) (e) Prot.: *Menjetek el, és hirdessétek*
 ‘*Go and preach it*’
 (f) Cath.: *Menjetek és hirdessétek*
 ‘*Go and preach it*’

Due to the small number of Old Hungarian and Middle Hungarian parallels involving a coordinate construction, statistical investigation cannot yield any reliable conclusions. But it can be seen clearly that such constructions occur more often in Middle Hungarian Protestant translations and less often in Káldi’s text; again, primarily because the latter author insists on a faithful rendering of participial Latin forms. (It is primarily in Pesti’s and Sylvester’s translations that a more sizeable body of data shows preference for coordinate constructions, cf. Gugán 2002, 34ff.)

The modern translations contain coordinate constructions at these places more often than the earlier texts do (in accordance with its own traditions, the Protestant text more so than the Catholic version). It can be observed in a number of cases that both modern translations employ a construction that is more analytical by one degree than its own tradition: subordination (25i) rather than a participial construction; coordination (24e) rather than subordination; and coordination with a conjunction is replaced by a conjunctionless, i.e., even more independent, variant ((24f), (25h)):

- (24) (e) Prot.: *Sokan utána mentek, s ő mindnyájukat meggyógyította*
 ‘*Many people went after him, and he cured them all*’
 (f) Cath.: *Sokan követték; ő meggyógyította mindnyájukat*
 ‘*Many people followed him; he cured them all*’
- (25) (h) Prot.: *Eljött János, nem eszik, nem iszik*
 ‘*John came, he neither eats nor drinks*’
 (i) Cath.: *Mert eljött János, aki nem eszik, nem iszik*
 ‘*For John came who neither eats nor drinks*’

The versions employing conjunctive coordination, as they are less grammaticalised forms than those involving subordination, have a more complex meaning and a more open range of potential interpretations; in that, they resemble participial constructions of complex meaning that were used more frequently in the earliest texts.

4. Conclusion

The ongoing “cutthroat competition” of the constructions investigated here, as we saw in the foregoing sections, shows diverse scores in the various periods. In some cases, the tendencies that had developed by the Middle Hungarian period, are valid to this day. For instance, this applies to the differentiated use of constructions of *(a)ki* ‘who’, *(a)mi* ‘that’, and *(a)mely* ‘which’ that used to be formal variants once, or the coexistence of the synonymous versions of participial constructions and subordinate clauses (with increasing frequency of the latter). In other cases, the course of language change took another direction after the periods investigated here. For example, the meanings of the phoric pronouns *az* ‘that (one)’ vs. *amaz* ‘that (other one)’ that were formal variants in Middle Hungarian have diverged and stabilised since; and of the constructions of *ki* ‘who’ vs. *aki* ‘who’ vs. *valaki* ‘whoever/someone’ that were synonymous then, the first and last have been suppressed (as relative pronouns).

Most pairs of formal variants (as a pair of forms of identical meaning) are reinterpreted (their meanings begin to diverge) as time goes by. Synonymous versions (as items having a secondary difference of meaning) coexist for some time; some of them later undergo some change (as in the last example of the previous paragraph), whereas others remain stable elements of the linguistic system and continue to offer a choice for the language user (e.g., parallels of participles vs. subordinate clauses vs. coordinate clauses).

Synonymous constructions and formal variants can be made to bear evidence of shifts of parallel devices of expression from period to period, of changing linguistic habits concerning them; thus such an analysis may give us an inside view of the “life histories” of the syntactic structures concerned. An investigation carried out on a larger material might make it possible for us to study phenomena that are beyond the strictly grammatical issues we have discussed here: the distribution of forms might reveal sociocultural, genre-related, or dialectal differences as well.

The study of variants may provide valuable data for historical syntax. Hopefully, the present paper has gone some way in justifying that claim despite the relatively narrow range of the corpus studied and the limited number of phenomena looked at.

List of abbreviations

- Cath. = *Ószövetségi és Újszövetségi Szentírás*. Szent István Társulat, Budapest, 1996.
 Jn. = The Gospel of Jesus Christ according to St John
 JordK. = *Jordánszky-kódex* (1516–1519)
 KálB. = *Szent Biblia*. Vienna, 1626. (translated by György Káldi)
 KárB. = *Az Szent Bibliának masodic része. (...) Wrunc Iesus Christusnac Wy Teftamentuma*. Vizsoly, 1590. (translated by Gáspár Károlyi)
 Mt. = The Gospel of Jesus Christ according to St Matthew
 MünchK. = *Münchener Kódex* (after 1416/1466)
 PestiB. = *Wy Teftamentum magjyar nyeluen*. Vienna, 1536. (translated by Gábor Pesti)
 Prot. = *Biblia. Istennek az Ószövetségben és Újszövetségben adott kijelentése*. Református Zsinati Iroda, Budapest, 1995.
 SylvB. = *Vy teftamentū maġar űelweñ*. Újsziget, 1541. (translated by János Sylvester)

References

- Dömötör, Adrienne 1995. A jelzői mellékmondatok [Attributive clauses]. In: Loránd Benkő – Endre Rácz (eds): *A magyar nyelv történeti nyelvtana 2/2. A kései ómagyar kor: mondatn, szövegrammatika* [A historical grammar of the Hungarian language 2/2. Late Old Hungarian: syntax, text grammar], 666–93. Akadémiai Kiadó, Budapest.
- Dömötör, Adrienne 2000. A minőségjelzői mellékmondatok a középmagyar korban [Attributive clauses in Middle Hungarian]. In: *Magyar Nyelv* 96: 193–206.
- Dömötör, Adrienne 2001. Tendencies in the development of Late Old Hungarian and Early Middle Hungarian main clauses of reported speech. In: *Acta Linguistica Hungarica* 48: 337–69.
- Gugán, Katalin 2002. Syntactic synonymy: A case study. In: *Acta Linguistica Hungarica* 49: 23–49.
- Haader, Lea 1997. Mozaikok névmásokról és ómagyar kori használóikról [Tesserae on pronouns and their Old Hungarian users]. In: Gábor Kiss – Gábor Zaicz (eds): *Szavak – nevek – szótárak. Írások Kiss Lajos 75. születésnapjára* [Words – names – dictionaries. Papers for Lajos Kiss on his 75th birthday], 118–24. MTA Nyelvtudományi Intézet, Budapest.
- Haader, Lea 2002. Mikrodiachronie und Sprachwandel in den zusammengesetzten Sätzen. In: *Acta Linguistica Hungarica* 49: 51–83.

- Károly, Sándor 1980. Hozzászólás a „Történeti nyelvtanírásunk helyzete és feladatai” c. előadáshoz [Comments on “The state and tasks of historical linguistics in Hungary”]. In: Samu Imre – István Szatmári – László Szűts (eds): A magyar nyelv grammatikája. A magyar nyelvészek III. nemzetközi kongresszusának előadásai [The grammar of the Hungarian language. Papers from the Third International Congress of Hungarian Linguists]. Nyelvtudományi Értekezések 104, 41–53. Akadémiai Kiadó, Budapest.
- Kiefer, Ferenc 2000. Jelentéelmélet [Semantic theory]. Corvina Kiadó, Budapest.
- Kiss, Sándor 1993. A mondattani szinonímia szerkezete és átépülésének tényezői [The structure of syntactic synonymy and factors of its reorganization]. In: Katalin Horváth – Mária Ladányi (eds): Állapot és történet—szinkronia és diakronia—viszonya a nyelvben [The relationship of state and history—synchrony and diachrony—in language], 115–9. ELTE BTK Általános és Alkalmazott Nyelvészeti Tanszék, Budapest.
- Nyíri, Antal 1971. A Müncheneri Kódex [The Munich Codex]. Akadémiai Kiadó, Budapest.
- Róna-Tas, András 1978. A nyelvrokonság [Linguistic affinity]. Gondolat Kiadó, Budapest.

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APPARENT SCOPE INVERSION UNDER THE RISE FALL CONTOUR*

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Abstract

This paper proposes an explanation of the apparent scope inversion attested in sentences pronounced with a rise fall intonation contour. It argues that a left-peripheral quantifier pronounced with a (fall-)rise is in topic position (Spec,TopP). A topic phrase must refer to an individual already present in the domain of discourse — that which will be predicated about in the sentence. Non-individual-denoting expressions, among them quantifiers, can also be made suitable for the topic role if they are assumed to denote a property which the rest of the sentence predicates some higher-order property about. A quantifier functioning as a contrastive topic denotes a property of plural individuals, and its apparent narrow scope arises from the fact that it is considered to be a predicate over a variable inherent in the lexical representation of the verb.

Introduction

The narrow scope associated with initial quantifiers in sentences pronounced with a rise fall contour has been in the focus of interest for some time (cf. Jackendoff 1972; Liberman–Sag 1974; Höhle 1991; Büring 1997; Jacobs 1997; Molnár 1998 etc.). Most recently Krifka (1998) has put forth an explanation of the phenomenon. He claims that his theory is superior to the earlier accounts because it not only derives the appropriate scope readings in the full range of cases (at least for German), but also explains the interrelation between the particular intonation contour and inverted scope. We will argue in this paper that Krifka's theory, nevertheless, cannot represent a general solution to the problem of scope inversion under the rise fall contour, because it is based on premises specific to German, which do not hold in other languages displaying the same scope inversion phenomenon, e.g., Hungarian.

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After summarizing the main points of Krifka's theory in section 1, the paper will point out its limitations in section 2. In sections 3–5 an alternative explanation will be put forward. As section 3 will argue, the constituent associated with the rise in sentences pronounced with a rise fall contour occupies topic position (Spec,TopP). Its particular intonation expresses that it is contrasted with (a set of) alternatives. The function of the topic, namely, to denote the logical subject of predication, will be claimed to apply to this type of constituent as well; it is proposed that a quantifier in topic position denotes a property of plural individuals (in the sense of Link 1983) which the rest of the sentence predicates a higher-order property about. The contrast inherent in the interpretation of the contrastive topic requires, on the one hand, that the property it denotes and the alternative properties it is intended to be contrasted with be clearly set apart, or 'individuated', that is, their extensions be disjunct from each other, and, on the other hand, that they constitute a contextually determined set of properties. Section 4 will introduce the crucial ingredients of a compositional semantics for sentences predicating about a property. It will argue that whenever the contrastive topic expression is assumed to have a property denotation then it combines with a verb denotation which is not given in terms of an n -place first order predicate but in terms of a higher-order predicate which contains a property variable corresponding to the argument denoted by the contrastive topic. The idea will be supported by data analyzed by Komlósy (1992), Piñón (2001) and van Geenhoven (1996), who argue that Hungarian and other languages display in certain positions noun phrase arguments which denote properties, and which are best analyzed as combining with a verb denotation containing a property variable. Since in Hungarian any argument of a verb, regardless of its syntactic position, can be turned into the contrastive topic of the sentence, it will be claimed that every verb is associated with multiple lexical representations, which are all derivable from its basic representation as an n -place first-order predicate. Section 5 will show how, on the basis of the above assumptions, the interpretation of Hungarian sentences with contrastive topics can be derived compositionally, in a way which also accounts for the most puzzling feature of quantificational expressions functioning as contrastive topics: their referential variance characteristic of narrow scope quantifiers.

1. Krifka's theory of scope inversion

Krifka's theory of scope inversion under the rise fall contour in German is based on two premises: on the scope assignment principle of Frey (1993), and on the assumption that a clause-initial constituent carrying the rise in a rise fall contour is a 'focus in topic', i.e., a constituent moved from a preverbal focus position into topic position. Frey's scope assignment principle states that

- (1) If α , β are operators occurring in a sentence S, then S has a reading in which α has scope over β iff:
 - (a) α c-commands β , or
 - (b) α c-commands a trace of β .

Krifka argues that—in accordance with principle (1)—a clause-initial quantifier can have narrow scope with respect to a subsequent operator if the operator c-commands the trace of the quantifier. As for the rise fall contour of sentences displaying scope inversion, the rise realized on the initial narrow scope quantifier is not simply a rise but a rise preceded by a brief fall which can be dropped in fast speech, i.e., it is a (fall-)rise, which is represented by the iconic symbol \checkmark in Jacobs (1997). The (fall-)rise contour of the initial constituent opens up otherwise not existing scope interpretation possibilities because it indicates that the given constituent is a topic which has been previously focused. Focusing in German consists in the scrambling of non-focus material from between the focused constituent and the verb. The scrambled constituent will c-command the trace of the topicalized focus; hence it can also have scope over it. This is what happens when, for example, a subject undergoes contrastive topicalization:

- (2) (a) [_{CP} e [_{C'} e [mindestens ein Student [jeden Roman [gelesen]] hat]]]
 at least one-nom student each-acc novel read has
- (b) [_{CP} e [_{C'} hat₁ [mindestens ein Student [jeden Roman [gelesen]] t₁]]]
- (c) [_{CP} e [_{C'} hat₁ [jeden Roman₂ [mindestens ein Student [t₂ [gelesen]]]]]] t₁]]
- (d) [_{CP} e [_{C'} hat₁ [jeden Roman₂ [[mindestens ein Student]_F [t₂ [gelesen]]]]]] t₁]]
- (e) [_{CP} [mindestens ein Student]_{F,3} [_{C'} hat₁ [jeden Roman₂ [t₃ [t₂ [gelesen]]]]]]] t₁]]
- (f) [_{CP} [mindestens ein Student]_{F,3} [_{C'} hat₁ [[jeden Roman]_{F,2} [t₃ [t₂ [gelesen]]]]]]] t₁]]
 'At least one student has read every novel.'

After verb second in (2b), *jeden Roman* is scrambled out of the preverbal focus position so as to give way to subject focus (2c). After its removal, the focus feature is assigned to the subject (2d), which is topicalized afterwards (2e), and becomes a ‘focus in topic’. (Molnár 1998 arrives at a similar conclusion.) The (fall-)rise intonation is a combination of the intonation patterns associated with the topic and the focus functions. Since the trace of *mindestens ein Student* is c-commanded by *jeden Roman*, the narrow scope reading of *mindestens ein Student* is correctly predicted. *Jeden Roman* ends up preverbally, where it assumes a focus feature (2f).

2. Limitations of Krifka’s theory

A problem raised by Krifka’s theory is that we attest similar scope inversion facts also in other languages, for instance in Hungarian, where the premises from which scope inversion follows in Krifka’s framework are not satisfied. Consider the Hungarian equivalent of Krifka’s (2f).

- (3) √Legalább egy diák \minden regényt elolvasott.
 at least one student every novel-acc read
 ‘At least one student read \every novel.’

For Krifka’s explanation to go through in Hungarian, it ought to be shown that (i) Frey’s scope principle is operative in Hungarian, and (ii) a contrastive topic is focused prior to topicalization.

As for scope interpretation, in Hungarian all operators are preposed into A-bar positions on the left periphery of the proposition—hence all operators c-command the proposition, including the traces of their clause-mates. For example, distributive quantifiers, among them universals, are preposed to the specifiers of Distributive Phrases—see É. Kiss (1991; 1994); Beghelli–Stowell (1997); and Szabolcsi (1997b). Consequently, Frey’s scope interpretation principle would predict scope relations to be free. In fact, just the opposite is true: scope relations are disambiguated in Hungarian. Preverbal operators have scope precisely over the domain they c-command and precede; i.e., their scope order corresponds to their surface order. Thus the readings that are provided under (4a) and (4b) do not represent merely the most likely readings of these sentences; they represent their only readings:

- (4) (a) [DistP Csaknem mindegyik könyvet [DistP több diák is [VP elolvasta]]
 nearly every book-acc several student even read
 ‘It holds of nearly every book that it was read by several students.’
- (b) [DistP Több diák is [DistP csaknem mindegyik könyvet [VP elolvasta]]
 ‘It holds of several students that they read nearly every book.’¹

(*Is* translated as ‘even’ is a functional element which turns the element associated with it into a distributive quantifier. A constituent supplied with *is* must land in distributive quantifier position (Spec,DistP), and can only have a distributive reading. On *is* phrases as distributive universal quantifiers, see Hunyadi 1984.)

As for focus assignment in Hungarian, it involves the A-bar movement of the focus constituent into a preverbal operator position (Spec, F(ocus)P according to Brody 1990). Movement of a contrastive topic through Spec,FP, and then the filling of Spec,FP by another constituent would violate the Strict Cycle Condition, a version of which also figures in the Minimalist Program (cf. Chomsky 1995, 190). Furthermore, there are various types of constituents which can easily function as contrastive topics, but cannot be focussed. Such are universal quantifiers, which have a designated landing site in Spec,DistP. Since the universal quantifier is ungrammatical as a focus—see (5a), a universal quantifier associated with the (fall-)rise contour—e.g., that in (5b)—cannot be a topicalized focus.

- (5) (a) *[TopP János [FP MINDEN REGÉNYT olvasott el]]
 John every novel-acc read perf
 ‘*As for John, it was every novel that he read.’
- (b) √Minden regényt [FP \JÁNOS olvasott el]
 ‘All novels were read BY \JOHN.’

It is possible, however, that the preverbal focus figuring in Krifka’s theory is actually not the identificational focus occupying a VP-external operator position in Hungarian but is an information focus, a stressed constituent, which can occur in the Hungarian VP, as well (cf. É. Kiss 1998). So it is conceivable that the structural moves that Krifka pos-

¹ This is exactly the reason why the explanation for the narrow scope of contrastive topics proposed by Büring (1997) would not go through in Hungarian, either. Büring (1997) assumes that all types of contrastive topics are ambiguous with respect to scope assignment, while in Hungarian only the denotation of contrastive topics which are referential expressions can be determined independently of the denotation of the quantificational expression following them in the sentence; non-referential contrastive topics obligatorily take narrow scope.

tulates may take place in the VP in Hungarian, after all. However, the claim that a contrastive topic is a topicalized focus could not be maintained in Hungarian under this assumption, either. Notice, for example, that existential quantifiers of the *vala-* ‘some-’ type cannot be focussed in any sense; they not only cannot be moved to Spec,FP—see (6a), but cannot bear focus stress in the VP, either—see (6b). ((6b), with *valaki* ‘somebody’ stressed, can only be interpreted as a metalinguistic correction, or a twisted, emotionally loaded statement.) Nevertheless, *vala-* type quantifiers can function as contrastive topics—see (7).

- (6) (a) *[_{DistP} Mindenki [_{FP} VALAKIT hívott meg]]
 everybody somebody-acc invited perf
 ‘*It was somebody that everybody invited.’
 (b) ?[_{DistP} Mindenki [meg hívott VALAKIT]]
 ‘?Everybody invited SOMEBODY.’

- (7) √Valakit \mindenki meghívott.
 ‘Somebody was invited by \everybody.’

Krifka (1998) does not actually claim that his theory is of cross-linguistic validity; he calls his theory an explanation of scope inversion under the (fall-)rise intonation in German. Since, however, the (fall-)rise contour of a clause-initial quantifier licenses scope inversion across languages, a generalization appears to be lost if the parallel facts are explained in different ways in every language.

Below we propose an explanation of scope inversion under the (fall-)rise fall contour which, though demonstrated on Hungarian facts, is of cross-linguistic validity. Like Krifka’s theory, our explanation will also correlate the narrow scope and the (fall-)rise contour of an initial quantifier—although it will derive the correlation from different premises. The explanation to be proposed hinges on the claim that quantifiers pronounced with a (fall-)rise are contrastive topics, whose scope interpretation is a consequence of semantic properties derivable from their contrastive topic function.² So the first step in our analysis is the discussion of the syntactic and semantic properties of the contrastive topic.

² Our proposal is related to the analyses of Jackendoff (1972) and Jacobs (1997) in this respect. Jackendoff claims that a sentence like *All men \didn’t go* expresses a statement about its contrastive topic; it states that the topic does not have the property denoted by the comment. In the assertion the negation has scope over the element *all*, which is expressed by stress. Jacobs (1997) calls the apparent narrow scope of initial quantifiers under the (fall-)rise contour an epiphenomenon.

3. The contrastive topic in Hungarian

3.1. Structural position

In Hungarian linguistics it has been a matter of discussion for decades what position constituents pronounced with the contrastive (fall-)rise contour, among them quantifiers undergoing scope inversion, occupy in the richly structured left periphery of the Hungarian sentence. They are clearly neither in the pre-VP focus position (Spec,FP), the canonical position of negative existential quantifiers, nor in a pre-FP quantifier position (Spec,Dist(ributive)P), the canonical position of universal quantifiers. Consider first a negative existential quantifier pronounced with the (fall-)rise contour. Whereas a regular negative existential quantifier, occupying Spec,FP, cannot be followed by (another) focus—see (8a,b), a negative existential quantifier pronounced with a (fall-)rise can—see (9).

- (8) (a) [_{FP} \KEVÉS DIÁK bukott meg kémia**ból**]
 few student failed perf chemistry-in
 ‘It was few students who failed in chemistry.’
 (b) * [_{FP} \KEVÉS DIÁK [_{FP} \KÉMIA**BÓL** bukott meg]]
- (9) √Kevés diák [_{FP} \KÉMIA**BÓL** bukott meg]
 ‘Few students failed in \CHEMISTRY. [It was chemistry that few students failed in.]’

Neither negative existential quantifiers in Spec,FP, nor universal quantifiers in Spec,DistP can precede sentence adverbials—see (10a,b). Quantifiers pronounced with a (fall-)rise, on the other hand, sound natural also before a sentence adverbial—see (11).

He claims that such sentences consist of a topic and a predicate in the scope of an assertion operator:

- (i) [[ASSERT]^{IT} (TOP)(PRED)]

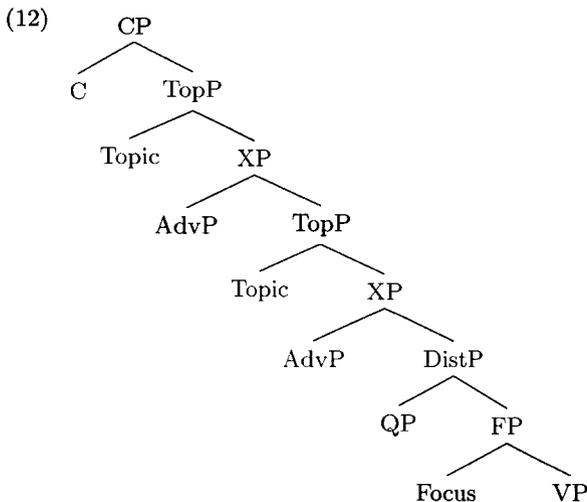
In the propositional content of the sentence the denotatum of PRED is applied to TOP as an argument, which yields (ii):

- (ii) [[PRED]]([TOP])

It is structure (ii), with the topic functioning as an argument of the predicate, that creates the effect of scope inversion. Scope inversion is a consequence of a syntactic configuration in which the trace of the topic is in the c-command domain of a predicate-internal operator.

- (10) (a) **Tudomásom szerint** [DistP \mindendiák [FP CSAK \KÉMIÁBÓL bukott meg]]
 to.my.knowledge every student only chemistry-infailed perf
 'To the best of my knowledge every student failed only in chemistry.'
- (b) ??[DistP \Minden diák **tudomásom szerint** [FP CSAK \KÉMIÁBÓL bukott meg]]
 'Every student to the best of my knowledge failed only in chemistry.'
- (11) √Minden diák **tudomásom szerint** CSAK \KÉMIÁBÓL bukott meg.
 'All students to the best of my knowledge failed ONLY IN \CHEMISTRY. [To the best of my knowledge it was only chemistry that all students failed in.]'

Functionally, the Hungarian sentence falls into two main units: the predicate part, represented by a verb phrase optionally extended by negation into a NegP, by a focus into an FP, and/or by distributive quantifiers into a DistP, and the topic part, represented by one or more noun phrases, whose referent(s) the predicate part is predicated about. Sentence adverbials must be external to the predicate part; they can appear before, after, or between the topic noun phrases, as (12) displays.



Given that a constituent pronounced with the (fall-)rise contour can precede sentence adverbials, the question is whether it is a topic sitting in Spec,TopP, or a further structural position should be established for it on the left periphery of the sentence. As Alberti and Medve (2000) showed, the plausibility of the latter view is diminished by the fact that a constituent with the (fall-)rise contour can either precede or follow a non-contrastive topic, or can also intervene between topicalized constituents.

Observe in (13a–c) the possible orders of the quantifier *minden kollégáját*, pronounced with the (fall-)rise contour, and the two non-contrastive topics: *János* and *a születésnapjára*.

- (13) (a) √Minden kollégáját János a születésnapjára \nem szokta meghívni.
 every colleague.of.his-acc John his birthday.on not used to.invite
 ‘Every colleague of his, John would \not invite for his birthday.’
 (b) János a születésnapjára √minden kollégáját \nem szokta meghívni.
 (c) János √minden kollégáját a születésnapjára \nem szokta meghívni. etc.

Since in the Hungarian sentence functional projections have a fixed order, the internal order of topicalized constituents, on the other hand, is free, the logical conclusion to be drawn on the basis of (14a–c) is that constituents pronounced with a (fall-)rise contour, among them narrow scope quantifiers, are in topic position; they are contrasted/contrastive topics.

3.2. Function and properties

In the language type represented by Hungarian, a topicalized constituent pronounced with regular topic prosody must refer to an individual that is already present in some sense (i.e., at least indirectly) in the universe of discourse. This follows from the nature of topic function: a topic foregrounds an individual from the universe of discourse in order to be predicated about (on the topic function, see Kuroda 1972; Sasse 1987; and É. Kiss 1994; 1995).

Non-individual-denoting elements, among them quantifiers, cannot be external to the predicate part of the sentence—unless they are pronounced with a (fall-)rise contour. Therefore, if a quantifier pronounced with a (fall-)rise indeed occupies topic position and functions as a topic (i.e., as the logical subject of predication), it must be the contrastive (fall-)rise contour that exempts it from the individuality requirement. This conclusion is also confirmed by facts of Japanese, a language representing the same topic-prominent type as Hungarian. According to the Japanese grammar of Kuno (1973), a constituent marked by the topic morpheme *wa* is either referential/generic or contrastive.³ In other words, a non-R expression, when supplied with the *wa* morpheme, must

³ If generic NPs are names of kinds, as claimed by Carlson (1977), then they are also referential, denoting specific individuals.

be interpreted contrasted, and must receive contrastive intonation (Kuno 1973, 47). Consider Kuno's examples (21a–d) on pp. 46–47:

- (14) (a) *Ame wa hutte imasu.
rain topic falling is
'Speaking of rain, it is falling.'

But:

- (b) Ame wa hutte imasu ga, taisita koto wa arimasen.
rain topic falling is but serious matter topic not.exists
'It is raining, but it is not much.'

- (15) (a) *Oozei no hito wa party ni kimasita.
many people topic party to came
'Speaking of many people, they came to the party.'

But:

- (b) Oozei no hito wa party ni kimasita ga,
many people topic party to came but
omosiroi hito wa hitori mo imasen desita.
interesting people topic one person even was.not
'Many people came to the party indeed, but there was none who was interesting.'

The Japanese analogy suggests that a constituent in topic position denoting something other than a specific individual may, indeed, function as a topic, and, furthermore, the licensing of non-individual-denoting expressions as topics must be related to the contrast expressed by their (fall-)rise contour.

Sentences containing a contrastive topic introduce the implicature that there is at least one alternative statement to the one expressed by the sentence which is neither entailed nor contradicted by the latter (for a more detailed discussion on the advantages of the above way of formulating the implicature, as opposed to that proposed in Büring 1997, see Gyuris 2002). The relevant alternative statements are generated by exchanging the denotation of the contrastive topic and that of the predicate for alternatives in the sense of Rooth (1985). Let us illustrate the workings of the above procedure by means of the following examples:

- (16) (a) √Jánosra \számítok.
John-on count-I
'On John, I \do count.'
- (b) √Biciklit \sok lány látott.
bicycle-acc many girl saw
'Bicycles, \many girls saw.'

- (c) $\sqrt{\text{Föl}} \setminus \text{LIFTEN}$ megyek.
 up elevator-on go-I
 'Up, I go by \elevator.'
- (d) $\sqrt{\text{Minden regényt}}$ \nem olvasott el János.
 every novel-acc not read perf John
 'Every novel, John has \not read.'
 First-order representation: $\neg \forall x(\text{novel}(x) \rightarrow \text{read}(j, x))$

The contrasted topic of (16a) is a name. The sentence is a statement about its referent, János; it states about János that I count on him. The contrastive (fall-)rise associated with *Jánosra* implicates that there is at least one alternative statement having the structure 'I count on x ' or 'do not count on x ', where x is a member of the same set as John, whose truth is neither entailed nor contradicted by the truth of (16a). In the present situation, this amounts to saying that the sentence implicates that there is a person on whom I do not count. In the case of the above example, the alternative to the predicate was generated by negating the predicate. In the case of a negated predicate, as in (16d), the alternative is its non-negated counterpart. If the VP is preceded by a focus, as in (16c), the alternative predicate is generated by replacing the value of the focus operator expressing exhaustive identification with a different value (i.e., a different member of the set on which the focus operator operates). If the predicate contains a quantifier, the alternative predicate is generated—roughly—by replacing the quantifier with a different one—see (16b).

(16b) is a statement about the property 'bicycle'; it states that many girls saw a representative of it. The common noun *bicikli*, expressing a property, inherently does not denote a distinct individual, hence it does not satisfy the condition of movement into topic position, and association with the falling intonation typical of regular topics. In (16b), however, it is used as the name of a property, functioning as the subject of predication. (So that it can be contrasted with alternative properties, it has to be properly individuated, i.e., its extension has to be separated from the extensions of the intended alternative properties, naturally.) (16b) can thus be paraphrased as follows:

- (17) 'Of the set of currently relevant properties, the one named in Spec,TopP is under consideration. It is stated about it that many girls saw a representative of it. It is implicated that there is at least one alternative statement about a different member of the same set which is neither entailed nor implicated by the latter (e.g., one stating that the property of being seen by few girls applies to at least one representative of it).'

(17) expresses the intuition that (16b) is a statement about the property 'bicycle', i.e., *biciklit* functions as a topic.

(16c), too, contains an inherently non-individual-denoting topic, the verbal particle *föl* 'up'. *Föl* can also be topicalized only if it is individuated through contrasting. The fact that it is set into a tacit contrast with its counterpart denoting the opposite direction, *le* 'down', makes it clear that we use it as the name of a direction. The sentence means the following:

- (18) 'Of the set of currently relevant directions, the one named in Spec,TopP is under consideration. It is stated about it that I will go there by elevator. It is implicated that the truth of the sentence is compatible with the truth of at least one proposition predicating an alternative property about the downward direction (the only alternative of the contrastive topic denotation), i.e., that I go there by some other means.'

Whereas a universal quantifier cannot be topicalized under the normal topic intonation, it can be used as a contrastive topic. We will claim that the clause-initial quantifier pronounced with a (fall-)rise contour in (16d), just like those in (3) and (5b), is a contrastive topic, which does not denote the maximal set of individuals, or a generalized quantifier (i.e., a set of sets of individuals), but either the maximal individual in the extension of the noun (in the relevant situation) or a property of plural individuals, the property of being the sum of all entities with the property of being a book in the relevant situation. We will argue that the apparent narrow scope of the topicalized expression *minden könyvet* 'every book-acc' is a consequence of the fact that it denotes a specific individual or a property.⁴

⁴ Note that the lack of interpretations (perceived as ill-formedness) for the variant of the above sentence with an affirmative predicate, shown in (i) below, can be explained by saying that there is no alternative statement introduced by this sentence which is not entailed by it. In other words, if all novels were read by John, then all alternative propositions of the form *N novels were read by John* would be true and all of the form *It is not true that N novels were read by John* would be false for $N \leq all$, thus the contrastive topic would not give rise to the required implicature.

- (i) * $\sqrt{\text{Minden regényt}} \setminus \text{elolvasott János.}$
 every novel-acc perf-read John
 #'Every novel, John \has read.'

Note, however, that if in (i) the contrastive intonation falls on the noun, then the alternatives introduced by the contrastive topic would be maximal individuals of

4. Property-denoting contrastive topics and sentence interpretation

4.1. Properties as noun phrase denotations

In the previous sections we claimed that contrastive topic constituents which do not refer to individuals denote properties. Naturally, certain types of quantified expressions, like the contrastive topic of (19) below, may have both a referential reading and a property-denoting reading when used as contrastive topics:

(19) [Spec,TopP $\sqrt{\text{Két diákot}}$ \nem láttam.
two student-acc not saw-I

- (a) 'Two students, I \didn't see.' (It is not true that I saw two students.)
(b) 'Two particular students, I \didn't see.' (It is not true that I saw two particular students.)

In the rest of the paper we will focus on the property-denoting interpretation of contrastive topic noun phrases, illustrated in the (19a) reading, and ignore the referential reading, shown in (19b).⁵

The assumption that contrastive topics denote properties, however, turns out to be incompatible with the traditional assumption that verbs correspond to n -place first-order predicates, since the property-denotation of the contrastive topic argument cannot be combined with the traditional verbal denotation into a sentence-denotation, i.e., a proposition, by means of functional application. (20) illustrates the extensional representation of the property which corresponds to the (a) reading of the contrastive topic of (19), and (21) shows the representation of the meaning of the verb in (19) as an extensional first-order predicate.

a type which could be considered an alternative of *novel*, i.e., *poem*, *newspaper*, etc., and with this intonation sentence (i) does introduce the required implicature.

⁵ If we make quantification over events explicit, reading (19a) in fact corresponds to two readings which are paraphrasable as 'It is not the case that there was an event involving me seeing two students' and as 'It is not the case that there were two students such that there were events involving me seeing them', respectively. In view of the fact that here we are not following the (neo-)Davidsonian tradition of making events part of the ontology of our semantic representation language, the above two types of readings become indistinguishable. We believe, however, that this fact does not influence the validity of the claims presented here.

(20) $\llbracket \text{két diák} \rrbracket = \lambda x \text{ TWO-STUDENT}(x)$

(21) $\llbracket \text{lát} \rrbracket = \lambda y \lambda x \text{ saw}(x, y)$

The property shown in (20) above is the property of being a sum of at least two students. The issue of how the appropriate properties are generated for particular contrastive topic noun phrases will be discussed in section 4.3.

One possible way to ensure that the denotations of the contrastive topic and the VP, shown in (20) and (21), can be combined by means of function-argument application is to lift the type of the VP in (21) to a type which contains a property-variable, and thus can be applied to the contrastive topic denotation in (20).

The traditional assumption that the verbs of the language correspond to n -place first-order predicates has been challenged in several proposals before, some of which, particularly those pertaining to Hungarian, will be considered in the rest of this section.

Komlósy (1992) discusses the interpretation of sentences where the internal arguments of verbs are represented by bare nominals, which are not assumed to name or identify a particular object, but to name a particular property of the internal argument of the verb. (22) shows an example:

(22) Péter újságot olvas.
Peter newspaper-acc reads
'Peter is reading a newspaper.'

According to Komlósy (1992), the meaning of the bare nominal object in (22) is to be represented as in (23a), and the meaning of the verb would be as in (23b). These denotations, composed together by functional application, result in the formula in (24), corresponding to the meaning of the sentence:

(23) (a) újságot 'newspaper-acc': $\lambda y \text{ newspaper}(y_{obj})$
(b) olvas 'reads': $\lambda F \lambda x \exists y [\text{read}(x, y_{obj}) \wedge F(y)]$

(24) $\exists x [\text{read}(p, x) \wedge \text{newspaper}(x)]$

Komlósy claims that verb denotations of type (23b) are always available whenever the verb can have a bare nominal argument, and are derivable

from the two-place first-order predicate denotations, e.g., $\lambda y \lambda x \text{read}(x, y)$, by means of a lexical process.

According to Piñón (2001), a set of Hungarian verbs, the so-called definiteness effect verbs, lack the 'regular' n -place first order predicate denotation altogether, and can only denote predicates over properties. The verb *evett* 'ate' in (25) counts as a definiteness effect verb:

- (25) Anna evett egy almát.
 Anna ate an apple-acc
 'Anna ate an apple.'

Piñón (2001) proposes that definiteness effect verbs should be considered as functions applying to a predicate (or property) argument. In his framework, the meaning of the verb of (25) would be represented (ignoring the dynamicity of the existential quantifier) in the following way:

- (26) $\text{evett}_{\text{def-eff}} \text{'eat'} \Rightarrow \lambda P \lambda x \lambda e [\exists y [\text{eat}'(e, x, y) \wedge P(y)]]$

Van Geenhoven (1996) investigates noun incorporation in West Greenlandic. She claims that from a semantic point of view, West Greenlandic incorporated nouns are indefinite descriptions, which only denote a property. (27) below is the general formula she uses to represent the meaning of a verb which forms a complex together with an incorporated noun:

- (27) $\lambda P_{\langle s, \langle e, t \rangle \rangle} \lambda w_s \lambda x_e \exists y [\text{Verb}_w(x, y) \wedge P_w(y)]$

According to van Geenhoven, the meaning of an incorporated noun is absorbed into the meaning of an incorporating verb due to the fact that the former is assumed to denote a property, represented by the variable P in (27), of the verb's internal argument.

Van Geenhoven links the behaviour of West Greenlandic incorporated nouns to other indefinite constructions in other languages as well, namely, to bare plurals in West Germanic languages, and German split topics. She claims that the narrow scope effects characteristic of these three constructions can be given a uniform explanation, namely: they are instances of semantically incorporated, predicative indefinite descriptions, the existential interpretation of which is due to the verb itself. They cannot be interpreted as definite or partitive, since the variable representing the indefinite is always novel, so it cannot pick up a salient referent.

In his review of a version of van Geenhoven's theory (1996), Cohen (1999) argues that the verbs of a language should be regarded as ambiguous between an incorporating reading and an ordinary n -place predicate interpretation, which is supported by the fact that in the Germanic languages verbs can combine with both bare plurals and with other noun phrases.

In this section we have reviewed three theories which claim—either about a particular class of verbs (those displaying the definiteness effect), or about verbs taking arguments of a particular syntactic category (bare nominal) and semantic type (property)—that their lexical representation is not given in terms of an n -place predicate but contains a property variable. That is why such verbs can take an argument denoting a property in the first place. In view of the fact that there are many verbs in the language which can take bare nominal arguments as well as full noun phrase arguments, it seems to be a reasonable assumption to postulate a lexical rule which maps for each verb its ordinary n -place predicate denotation into a denotation with property variables.

Having examined some constructions in which noun phrase arguments have been assumed to denote properties, in the next section we consider what characteristic features contrastive topic noun phrases share with argument types which have previously been assumed to denote properties.

4.2. The property-reading of contrastive topics

The argument types which have been argued in the literature to denote properties cannot be regarded as definite or partitive, that is, they cannot be taken to be anaphoric expressions linked to some salient object. This property is shared by non-referential topics as well. In the following sentence, for example, the object noun phrase does not necessarily identify a particular referent, as reading (a) shows:

(28) [Spec,TopP $\sqrt{Két\ könyvet}$] \elolvastam.
two book-acc read-1sg

(a) 'Two books, I \did read.'

(b) 'Two particular books, I \did read.'

(29) illustrates a similar case:

- (29) [Spec,TopP $\sqrt{\text{Kevés könyvet}}$] [Spec,FocP $\backslash\text{Mari}$] olvasott el.
 few book-acc Mary read perf
 ‘Few books were read by $\backslash\text{MARY}$.’

The above sentence does not mean that Mary is the person who read particular books which are few in number, but that if there is an individual who has read few books, then it is identical to Mary. (Due to the fact that the noun phrase *Mari* is in focus position, the sentence presupposes that there is indeed an individual who read few books.) The fact that (29) cannot be continued the way shown in (30) proves that the above claim is correct:

- (30) [Spec,TopP $\sqrt{\text{Kevés könyvet}}$]_i $\backslash\text{Mari}$ olvasott el. #Ezek_i nagyon tetszettek neki.
 few book-acc Mary read perf these very pleased her
 ‘Few books_i were read by $\backslash\text{MARY}$. She liked them_i a lot.’

The following example illustrates that in certain cases there is no individual which the contrastive topic expression could identify at all, but the sentence is still well-formed:

- (31) [Spec,TopP $\sqrt{\text{Kevés könyvet}}$] $\backslash\text{senki}$ nem olvasott.
 few book-acc nobody not read
 ‘Few books were read by $\backslash\text{nobody}$.’

(31) would be uttered as an answer to a question like the following one, for example:

- (32) Ki olvasott $\backslash\text{kevés könyvet}$?
 who read few book-acc
 ‘Who read few books?’

(31) expresses that the property of being few books cannot be predicated of any individual read by anyone. This interpretation markedly differs from the one the same DP receives in sentences like (33) below, where, as Szabolcsi (1997b, 122) claims, it “performs a counting operation on the property denoted by the rest of the sentence:”

- (33) Mari [Spec,_? $\backslash\text{kevés könyvet}$] olvasott.
 Mary few book-acc read
 ‘Mary read few books.’

Having argued that postulating a property-reading for contrastive topic DPs does not contradict the assumptions which property-denoting expressions have traditionally been associated with in the literature, in the

next section we will show how the property-denotations are derived for particular contrastive topic DPs.

4.3. Defining the properties denoted by contrastive topic DPs

The property denoted by the contrastive topic of (28) above, *két könyvet* ‘two books-acc’, is the property of being a sum of at least two atomic individuals which fall into the denotation of *book*. Thus, it corresponds to the property of being the sum of elements in the intersection of a set in the generalized quantifier denotation of the DP and the set corresponding to the nominal denotation. (For an arbitrary DP, such a set is normally referred to as a **witness** of the generalized quantifier corresponding to the DP.⁶ The property-denotation of *két könyvet* ‘two books’ is represented formally as follows:

$$(34) \llbracket \text{két könyvet} \rrbracket_{\text{property}} = \lambda x \text{ TWO-BOOK}(x) =_{\text{def}} \lambda x \exists S (S \in \llbracket \text{two books} \rrbracket_{\text{GQ}} \wedge S \subseteq \text{book} \wedge x = \sqcup S)(x)$$

(34) means that the property denotation of *két könyvet* ‘two books-acc’ is a property of sums of individuals, abbreviated as TWO-BOOK, which is defined as the property of being the sum of individuals in a set which is an element of the generalized quantifier denotation of *two books*, i.e., the set of sets of atomic individuals which have at least two books as elements, and which is a subset of the denotation of *book*, i.e., the set of (atomic) books. The formula in (35) shows a possible way how (34) could be generalized to the case of an arbitrary DP:

$$(35) \text{ the property-denotation of arbitrary DPs—first version} \\ \llbracket \text{Det NP} \rrbracket_{\text{property}} = \lambda x \text{ DET-NP}(x) =_{\text{def}} \lambda x \exists S (S \in \llbracket \text{Det NP} \rrbracket_{\text{GQ}} \wedge S \subseteq \llbracket \text{NP}_{\text{sing}} \rrbracket \wedge x = \sqcup S)(x)$$

(35) means that the property-denotation of a DP would be a property of plural individuals which constitute the sum of a set of atomic individuals which falls into the generalized quantifier denotation of the DP and is a subset of the denotation of the constituent noun phrase. This generalization will have to be modified in the light of data illustrating the

⁶ Witness sets of generalized quantifiers correspond to those elements of the set of sets in the generalized quantifier denotation which are subsets of the smallest set the generalized quantifier lives on, cf. Szabolcsi (1997a).

interpretation of DPs with non-monotonic or monotone decreasing determiners (cf. Barwise–Cooper 1981) in contrastive topic position. Before turning to these data, however, let us consider the issue of how the assignment of property-denotations to arguments influences the interpretation of the verbs they appear together with in the sentence.

4.4. The lexical representation of verbs with contrastive topic arguments

It has been claimed that the contrastive topic arguments of verbs can denote properties of plural individuals. It has also been demonstrated that there is no restriction on the syntactic category (bare nominal versus full DP) or thematic role of the argument of the verb which plays the contrastive topic role. In view of these considerations, we suggest that all verbs in the language can be analyzed as predicates over property denotations, which can correspond to any of the arguments of a verb. From the fact that a verb can have several arguments, it follows that each verb in the language must be associated with several denotations, which should all be derivable from its basic n -place predicate denotation—although the nature of the type-raising mechanisms which can generate the former denotations from the latter will not be discussed. Thus, the meaning of transitive verbs in Hungarian will be analyzed in terms of the following formulae:

- (36) (a) $\lambda y_e \lambda x_e \text{verb}(x, y)$
 (b) $\lambda P_{(e, t)} \lambda x_e \exists y [\text{verb}(y)(x) \wedge P(y)]$
 (c) $\lambda y_e \lambda P_{(e, t)} \exists x [\text{verb}(y)(x) \wedge P(x)]$

The first two denotations are more or less similar to those proposed for West Greenlandic by van Geenhoven (1996). Contrary to van Geenhoven, however, we will assume that the individual variables can stand for both atomic and plural individuals in the join semilattice corresponding to the denotation of the common noun.

5. Deriving the apparent narrow scope of contrastive topics

5.1. Contrastive topic DPs with monotone increasing determiners

In this section we analyze examples which show how the apparent narrow scope reading of contrastive topic noun phrases falls out from the premises discussed above. Consider first example (37), and a standard first-order representation of its denotation on the non-specific reading of the contrastive topic (which assumes that individual variables stand for atomic individuals only) in (38):

- (37) [Spec,TopP $\sqrt{\text{Két kutyát}}$] \nem látott Mari.
 two dog-acc not saw Mary
 ‘Two dogs, Mary \did not see.’

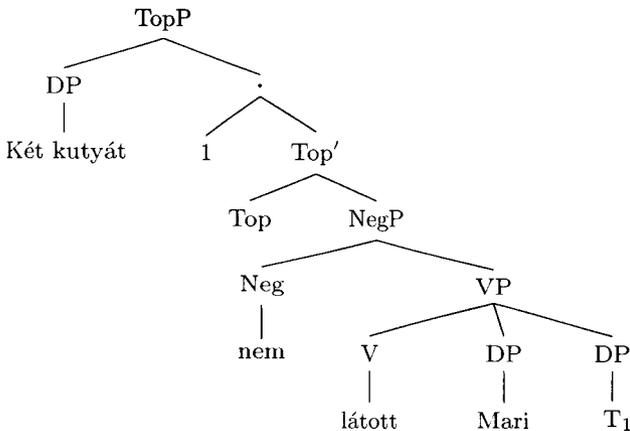
- (38) $\neg \exists x \exists y (\text{dog}(x) \wedge \text{dog}(y) \wedge x \neq y \wedge \text{saw}(\mathbf{m}, x) \wedge \text{saw}(\mathbf{m}, y))$

The syntactic structure of (37) is shown in (40) below. The representation employs a convention used in Reinhart (1983), Rooth (1985), Cresti (1993) and Heim–Kratzer (1998), according to which the actual binder of the trace of a moved phrase is the index of the moved phrase, and which is defined in Cresti (1993, 92) as follows:

- (39) MOVEMENT INDICES

Structures of the form $\text{XP}_i \text{YP}$ are rebracketed as $\text{XP } i \text{ YP}$, and $i \text{ YP}$ translates as $\lambda v_i \beta$, where β is the translation of YP, and v_i is the same variable that was chosen for the translation of t_i inside YP.

- (40)



In (40) above, T_1 signals the trace of the moved constituent with a higher-order (property) denotation. (41) shows the proposed denotations for some of the nodes of the syntactic tree:

- (41) (a) $\llbracket V \rrbracket = \lambda P_{\langle e, t \rangle} \lambda x_e \exists y_e [\text{saw}(x, y) \wedge P(y)]$
 (b) $\llbracket VP \rrbracket = \exists y [\text{saw}(m, y) \wedge Q_i(y)]$
 (c) $\llbracket \text{NegP} \rrbracket = \neg \exists y [\text{saw}(m, y) \wedge Q_i(y)]$

(41a) shows the denotation of the verb (with its object argument denoting a property), and (41b) that of the VP resulting from the combination of the verb with its subject and object arguments. (41c) shows the denotation of the negated VP, which, due to the fact that the Top head is not associated with any specific meaning component, corresponds to the denotation of the Top' projection as well. The denotation of the node dominating Top', generated on the basis of convention (39), labelled by '.' in the tree, is the following:

(42) $\lambda Q_i \neg \exists y [\text{saw}(m, y) \wedge Q_i(y)]$

Combining (42) with the property-denotation of the contrastive topic, abbreviated as $\lambda z_e \text{TWO-DOG}(z)$, and defined according to the pattern in (39) via function-argument application, gives us (43) as the denotation of the whole sentence:

(43) $\lambda Q_i \neg \exists y [\text{saw}(m, y) \wedge Q_i(y)] (\lambda z_e \text{TWO-DOG}(z)) =$
 $\neg \exists y [\text{saw}(m, y) \wedge \text{TWO-DOG}(y)]$

The truth-conditional equivalence between (38) and (43) can easily be shown if the saw relation is assumed to satisfy the properties in (44), where ${}_i \sqsubseteq$ denotes the individual-part relation:

- (44) (a) $\forall x \forall y \forall y' ((\text{saw}(x, y) \wedge \text{saw}(x, y')) \rightarrow \text{saw}(x, y \sqcup y'))$
 (b) $\forall x \forall y \forall y' ((\text{saw}(x, y) \wedge y' {}_i \sqsubseteq y) \rightarrow \text{saw}(x, y'))$

(44a) means that whenever there is an individual which stands in the saw relation with two individuals, then it stands in the same relation with the sum of these individuals, whereas (44b) means that whenever there is an individual which stands in the saw relation with another individual, then it stands in the same relation with all the individual parts of the latter.

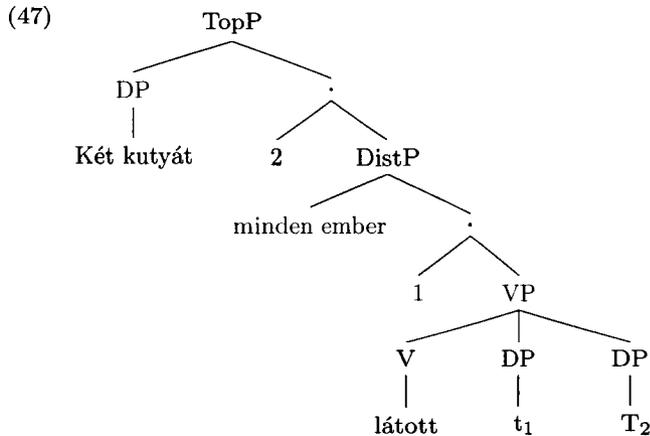
By the same procedure, and on the basis of the same assumptions, the narrow scope reading of the contrastive topic noun phrase in the following sentence, which is paraphrased in (45a), can also be explained:

(45) [_{Spec,TopP} √Két kutyát] \minden ember látott.
two dog-acc every person saw

- (a) ‘Two dogs were seen by \everybody.’ (i.e., ‘Everybody saw two dogs.’)
(b) ‘There are two particular dogs which were seen by everybody.’

(46) shows the traditional first-order representation of reading (45a), with variables standing for atomic individuals, and (47) represents the syntactic structure of the sentence:

(46) $\forall x(\text{person}(x) \rightarrow \exists y\exists z(\text{dog}(y) \wedge \text{dog}(z) \wedge y \neq z \wedge \text{saw}(x, y) \wedge \text{saw}(x, z)))$



The denotation of the VP node can now be given in terms of the formula in (48).

(48) $[[VP]] = \exists y[\text{saw}(z, y) \wedge Q_i(y)]$

(49a) shows the denotation of the node dominating the VP (generated according to convention (39)) which, combined by means of function-argument application with the denotation of the universal noun phrase in (49b) (in which the predicate AT only applies to atomic individuals), results in the formula corresponding to the denotation of the DistP node, shown in (49c).

- (49) (a) $\lambda z \exists y[\text{saw}(z, y) \wedge Q_i(y)]$
 (b) $\lambda P_{\langle e, t \rangle} \forall x[[\text{person}(x) \wedge \text{AT}(x)] \rightarrow P(x)]$
 (c) $\lambda P_{\langle e, t \rangle} \forall x[[\text{person}(x) \wedge \text{AT}(x)] \rightarrow P(x)](\lambda z \exists y[\text{saw}(z, y) \wedge Q_i(y)]) =$
 $= \forall x[[\text{person}(x) \wedge \text{AT}(x)] \rightarrow \exists y[\text{saw}(x, y) \wedge Q_i(y)]]$

Note that since the individual-level variables are assumed to stand for both atomic and plural individuals here, in (49b) above it is indicated explicitly that the domain of the universal quantifier includes atomic individuals only. (50a) shows the denotation of the node dominating DistP, whereas (50b) indicates how it is combined by means of functional application with the property-denotation of the contrastive topic:

- (50) (a) $\lambda Q_i \forall x[[\text{person}'(x) \wedge \text{AT}(x)] \rightarrow \exists y[\text{saw}'(x, y) \wedge Q_i(y)]]$
 (b) $\lambda Q_i \forall x[[\text{person}'(x) \wedge \text{AT}(x)] \rightarrow$
 $\exists y[\text{saw}'(x, y) \wedge Q_i(y)]](\lambda x \text{ TWO-DOG}(x)) =$
 $= \forall x[[\text{person}'(x) \wedge \text{AT}(x)] \rightarrow \exists y[\text{saw}'(x, y) \wedge \text{TWO-DOG}(y)]]$

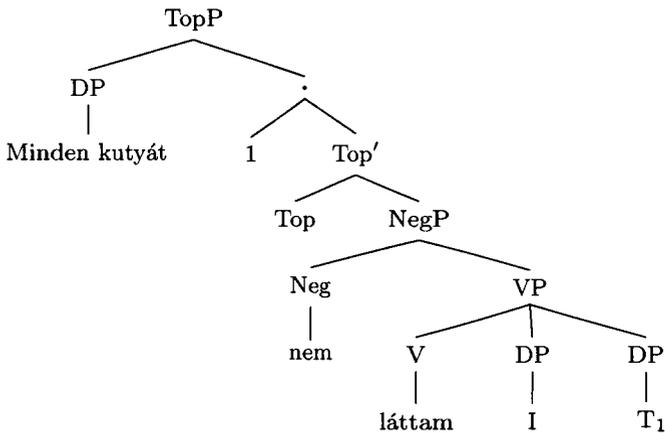
Assuming that the relation denoted by *saw* has the properties defined in (44) above, the truth-conditional equivalence between (50b) and (46) follows: if for any atomic individual with the *person* property there are at least two atomic individuals in the denotation of *dog* which the former stands in the *saw* relation with, then any atomic individual with the *person* property will be such that it stands in the *saw* relation with an individual in the semilattice of dogs with at least two atomic parts, and vice versa.

In the following example, the role of contrastive topic is played by a noun phrase which is normally taken to express universal quantification. (52) shows the syntactic structure associated with (51):

- (51) [_{Spec,TopP} $\sqrt{\text{Minden kutyát}}$ \text{\textbackslash}nem lát\text{t}am.
 every dog-acc not saw-I
 'Every dog, I \text{\textbackslash}didn't see.'

We propose that when such a universal DP appears as a contrastive topic, it either denotes an individual or a property, as other contrastive topics do. The denotation of the sentence, however, would be the same proposition on both interpretations. If the DP denotes an individual, it is the maximal individual in the semilattice corresponding to the denotation of the noun, as proposed by Maleczki (1995). This individual can directly combine with the property-denotation of the predicate, and thus the proposition corresponding to the meaning of the sentence is the

(52)



following: the property of not being seen by me does not hold of the maximal individual in the denotation of *dog*. Since this (negative) property does not distribute down to the atoms of the above lattice, the truth of above proposition does not entail that there is no dog I have seen.

Consider now the property-denotation of the contrastive topic DP, which, following the pattern of (39), would be the property of being the sum of all atomic individuals in the denotation of *dog*. (This property is possessed by one individual only, the maximal individual in the semilattice corresponding to the noun denotation.) The above property is abbreviated as in (53a), whereas (53b) shows the denotation of the NegP. The denotation of the TopP node of (52) is generated by means of function-argument application from the above two denotations, as indicated in (53c):

- (53) (a) $\llbracket \text{minden kutyát} \rrbracket_{\text{property}} = \lambda x \text{ ALL-DOGS}(x)$
 (b) $\llbracket \text{NegP} \rrbracket = \llbracket \text{Top}' \rrbracket = \neg \exists y [\text{saw}(\mathbf{I}, y) \wedge Q_i(y)]$
 (c) $\lambda Q_i \neg \exists y [\text{saw}(\mathbf{I}, y) \wedge Q_i(y)] (\lambda x \text{ ALL-DOGS}(x)) =$
 $= \neg \exists y [\text{saw}(\mathbf{I}, y) \wedge \text{ALL-DOGS}(y)]$

(53c) means that there is no individual with the property of being the sum of all dogs which I saw, which correctly reflects the truth-conditions of the sentence. In the next section we turn to sentences where the contrastive topic role is played by DPs which contain monotone decreasing or non-monotone determiners.

5.2. Contrastive topic DPs with monotone decreasing and non-monotonic determiners

In (54) below, the contrastive topic position is filled by a DP which is assumed not to be able to introduce a discourse referent (cf. Szabolcsi 1997b), and which contains a non-monotonic determiner:

- (54) [_{Spec,TopP} √Pontosan két filmet] [_{Spec,FP} \Péter] látott.
 exactly two movie-acc Peter saw
 ‘Exactly two movies were seen by \PETER.’

(54) is a statement about the property of being an individual in the denotation of *movie* with exactly two atomic parts. The sentence expresses that Peter is the person who saw an entity with the above property. It implicates that there is at least one other property (of being an individual of the type *movie* with a different number of atomic parts) such that an individual with this property was seen by an alternative of Peter. It presupposes, on the one hand, that there is an individual who saw exactly two movies (due to the focus), and, on the other hand, that properties of being sums of movies with a particular number of atomic parts are considered relevant in the context (due to the contrastive topic).

The contrastive topic of the sentence below contains a monotone decreasing determiner:

- (55) [_{Spec,TopP} √Háromnál kevesebb könyvet] [_{Spec,FP} \János] olvasott.
 three-than less book-acc John read
 ‘Less than three books were read by \JOHN.’

(55) is about the property of being an individual in the denotation of *book* with less than three atomic parts. It states that John is the person who read an entity with the above property, and it implicates that there is an alternative property of sums of books such that an alternative of John read an individual with this property. The sentence presupposes that the above property has been established as relevant in the context—by being set into contrast with properties like those expressed by *pontosan három könyvet* ‘exactly three book-acc’ and *háromnál több könyvet* ‘more than three book-acc’, and that there was someone who read less than three books. However, (55) can be true even if there is no book at all which John read.

Before considering a compositional interpretation for the above sentences, note one more important observation about the contrastive topic

constituents in them, namely, that they, at least in factual statements, must be followed by a constituent in preverbal focus position, unlike the contrastive topic DPs in (3), (19), (28), (37), (45) or (51) above. (56)–(59) below illustrate some unacceptable sentences with *pontosan két filmet* ‘exactly two movies’ and *háromnál kevesebb könyvet* ‘less than three books’. (The various reasons for the unacceptability of these sentences are discussed systematically in Gyuris 2002.)

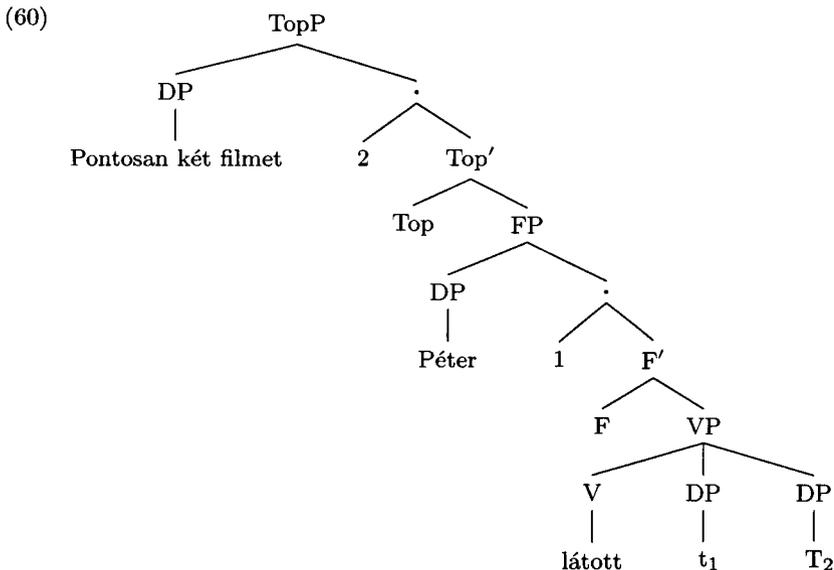
(56) *_[Spec,TopP] √*Pontosan két filmet*] \látott Péter.
 exactly two movie-acc saw Peter
 #‘Exactly two movies \were seen by Peter.’

(57) *_[Spec,TopP] √*Háromnál kevesebb könyvet*] \nem olvasott János.
 three-than less book-acc not read John
 #‘Less than three books \weren’t read by John.’

(58) *_[Spec,TopP] √*Pontosan két filmet*] [_{Spec,QP} \mindenki] megnézett.
 exactly two movie-acc everybody pfx-saw
 #‘Exactly two movies were seen by \everybody.’

(59) *_[Spec,TopP] √*Háromnál kevesebb könyvet*] [_{Spec,QP} \legalább két diák] elolvasott.
 three-thanless book-acc at least twostudent pfx-read
 #‘Less than three books were read by at least \two students.’

We now turn to how to generate the truth-conditions of (54). (60) shows the syntactic structure associated with this sentence.



We generate the denotation of the VP in the usual manner:

$$(61) \llbracket \text{VP} \rrbracket = \exists y [\text{saw}(x, y) \wedge Q(y)]$$

The denotation of the F' node is arrived at by combining the above denotation with the denotation of the focus operator, situated in F, as follows:

$$(62) \text{ (a) } \llbracket \text{F} \rrbracket = \lambda P \lambda z \forall x [P(x) \rightarrow x = z]$$

$$\text{ (b) } \llbracket \text{F}' \rrbracket = \lambda P \lambda z \forall x [P(x) \rightarrow x = z] (\exists y [\text{saw}(x, y) \wedge Q(y)]) =$$

$$= \lambda z \forall x [\exists y [\text{saw}(x, y) \wedge Q(y)] \rightarrow x = z]$$

(62b), combined with the focus denotation, yields the following as the denotation of the FP node:

$$(63) \lambda z \forall x [\exists y [\text{saw}(x, y) \wedge Q(y)] \rightarrow x = z](p) =$$

$$= \forall x [\exists y [\text{saw}(x, y) \wedge Q(y)] \rightarrow x = p]$$

The formula in (63) means that any individual which saw an individual with the property given in the contrastive topic denotation is identical to the denotation of the focus, i.e., Peter, and thus reflects the key feature of the interpretation of the focus in Hungarian, namely, that it expresses exhaustive listing. (63) does not by itself entail that there was an individual satisfying the property specified by the focus frame, i.e., the sentence minus the focused expression. However, Hungarian sentences with a focus already presuppose that there is an entity (property, etc., depending on the assumed denotation of the focus) for which the focus frame holds, and thus the explicit postulation of the above entailment becomes unnecessary. The next formula illustrates how the interpretation of the contrastive topic is combined with that of the rest of the sentence by means of function-argument application:

$$(64) \llbracket \text{TopP} \rrbracket = \lambda Q \forall x [\exists y [\text{saw}(x, y) \wedge Q(y)] \rightarrow x = p] (\lambda z \text{ EXACTLY-2-MOVIE}(z)) =$$

$$= \forall x [\exists y [\text{saw}(x, y) \wedge \text{EXACTLY-2-MOVIE}(y)] \rightarrow x = p]$$

The above formula means that any individual which saw an entity which is a sum of exactly two movies is identical to Peter. This seems to correspond to the truth conditions of the sentence. The only remaining question is how to define the property corresponding to the contrastive topic.

Suppose the property denoted by *exactly two movies* was defined according to the pattern proposed in (35), repeated here as (65), in the way illustrated in (66):

(65) the property-denotation of arbitrary DPs—first version

$$\llbracket \text{Det NP} \rrbracket_{\text{property}} = \lambda x \text{DET-NP}(x) =_{\text{def}} \\ \lambda x. \exists S (S \in \llbracket \text{Det NP} \rrbracket_{\text{GQ}} \wedge S \subseteq \llbracket \text{NP}_{\text{sing}} \rrbracket \wedge x = \sqcup S)(x)$$

(66) $\lambda x \text{ EXACTLY-2-MOVIE}(x) =_{\text{def}}$ —first version

$$\lambda x \exists S (S \in \llbracket \text{exactly two movies} \rrbracket_{\text{GQ}} \wedge S \subseteq \llbracket \text{movie} \rrbracket \wedge x = \sqcup S)(x)$$

Note that if (66) is interpreted in a context in which the properties denoted by the DPs *less than two movies*, *exactly two movies* and *more than two movies* are considered relevant, then any individual with the property of having seen more than two movies, i.e., an entity which constitutes the sum of more than two movies, in fact has the property of having seen an entity which is the sum of less than two movies as well, due to the semantics of the predicate denoted by *saw*. This means that on the denotation of *exactly two movies* assumed in the context where (54) is uttered, the property formalized in (66) will be true of more than one individual, without entailing that the corresponding sentence comes out as false. To overcome the above difficulty, we propose (following a suggestion by Chris Piñón, p.c.) that the properties denoted by DPs containing monotone decreasing and non-monotonic determiners be relativized to the immediate situation, which can be achieved by postulating an implicit situation variable in the representation of the property in question. (This situation variable is not identical to the Davidsonian event variable, rather, it is to be viewed as a variable ranging over parts of possible worlds.)

(67) $\llbracket \text{exactly two movies} \rrbracket_{\text{property}} = \lambda s \lambda x \text{ EXACTLY-2-MOVIE}_s(x) =_{\text{def}}$
—final version

$$\lambda s \lambda x \exists S (S \in \llbracket \text{exactly two movies} \rrbracket_{\text{GQ}} \wedge S \subseteq \llbracket \text{movie} \rrbracket \wedge x = \\ = \sqcup S \wedge \neg \exists x' (x \sqsubseteq_s x' \wedge x' \subseteq_s \llbracket \text{movie} \rrbracket))(x)$$

Thus, according to (67), the DP *exactly two movies* denotes the property of being a sum of exactly two individuals which are movies and which do not constitute individual-parts of other, larger individuals in the denotation of *movie* in the relevant situation. Naturally, in order to be able to formally combine the property in (67) and the property denoted by the rest of the sentence it has to be assumed that the latter (as well as

the verb denotation) also contains an abstraction over a situation variable, which, eventually, comes from the meaning of the verb. Thus, the meaning of (54) would be derived as follows:

$$(68) \text{ [[TopP]} = \lambda Q_s \lambda s \forall x [\exists y [\text{saw}_s(x, y) \wedge Q_s(y)] \rightarrow x =_s p] \\ (\lambda s \lambda z \text{EXACTLY-2-MOVIE}_s(z)) = \lambda s \forall x [\exists y [\text{saw}_s(x, y) \wedge \\ \text{EXACTLY-2-MOVIE}_s(y)] \rightarrow x =_s p]$$

The above formula denotes the set of situations in which any individual who saw exactly two movies is identical to Peter.⁷

Let us turn now to (55), which contains the DP *less than three books*. The denotation of this sentence, following the pattern of (68), would be represented as follows:

$$(69) \text{ [[TopP]} = \lambda Q_s \lambda s \forall x [\exists y [\text{read}_s(x, y) \wedge Q_s(y)] \rightarrow \\ \rightarrow x = j] (\lambda s \lambda z \text{LESS-THAN-3-BOOK}_s(z)) = \\ = \lambda s \forall x [\exists y [\text{read}_s(x, y) \wedge \text{LESS-THAN-3-BOOK}_s(y)] \rightarrow x =_s j]$$

(69) means that any individual for which there is an entity which has the property of being fewer than three books but not more in the situation under discussion is identical to John. Note that on the pattern of (67), the property denoted by *less than three books* would be defined as in (70):

$$(70) \lambda s \lambda x \text{ LESS-THAN-3-BOOK}_s(x) =_{\text{def}} \text{—final version} \\ \lambda s \lambda x \exists S (S \in \llbracket \text{less than three books} \rrbracket_{\text{GQ}} \wedge S \subseteq \llbracket \text{book} \rrbracket) \wedge x = \\ = \sqcup S \wedge \neg \exists x' (x \sqsubseteq_s x' \wedge x' \subseteq_s \llbracket \text{book} \rrbracket)(x)$$

(70) expresses that the property denoted by *less than three books* is the property of individuals which constitute the sum of a set in the set of

⁷ A reviewer for *Acta Linguistica* remarks that the method proposed here to account for the meaning of sentences with contrastive topics can only handle examples with extensional verbs, but not the ones containing intensional verbs, verbs of creation and depiction, like the one in (i):

(i) [CT Sárkányt] [Spec,FP \Mari] rajzol (éppen).
 dragon-acc Mari draws (right now)
 ‘It is Mary who is drawing a dragon right now.’

Although we agree with the reviewer in the above respect, we wish to emphasize that the problems with the above sentence are not restricted to the use of the contrastive topic. As soon as the verbs of the types characterized above are given a denotation based on possible worlds, the properties denoted by the contrastive topics can easily be relativized to the possible worlds the verb denotation is based on, just like they are relativized to situations in (67).

sets in the generalized quantifier denotation of the above DP which is a subset of the set of books, but where the individual itself is not part of any larger individual in the set of books in the present situation. Note that the above property would also be satisfied by the individual which constitutes the sum of the empty set, which Bonomi–Casalegno (1993) refers to as the *empty group*. This could account for the fact that (55) can even be true if there are no books which John read.

Generalizing the mechanism applied in (70), we can update (35), showing the general strategy for generating the property denotations for contrastive topic DPs as illustrated in (71):

(71) the property-denotation of arbitrary DPs—final version

(a) if Det is monotone increasing

$$\begin{aligned} \llbracket \text{Det NP} \rrbracket_{\text{property}} &= \lambda x \text{DET-NP}_s(x) =_{\text{def}} \\ \lambda x \exists S (S \in \llbracket \text{Det NP} \rrbracket_{\text{GQ}} \wedge S \subseteq \llbracket \text{NP}_{\text{sing}} \rrbracket \wedge x = \sqcup S) \end{aligned}$$

(b) if Det is monotone decreasing or non-monotonic

$$\begin{aligned} \llbracket \text{Det NP} \rrbracket_{\text{property}} &= \lambda x \text{DET-NP}_s(x) =_{\text{def}} \\ \lambda x \exists S (S \in \llbracket \text{Det NP} \rrbracket_{\text{GQ}} \wedge S \subseteq \llbracket \text{NP}_{\text{sing}} \rrbracket \wedge x = \sqcup S \wedge \neg \exists x' (x \sqsubseteq_s x' \wedge \\ \wedge x' \subseteq_s \llbracket \text{NP}_{\text{sing}} \rrbracket)))(x) \end{aligned}$$

Note that although DPs with monotone increasing determiners do not require that their property denotation be relativized to a particular situation, for the sake of generality it could be assumed that the properties associated with all DPs would be derived on the pattern in (71b).

The only exception to the above general rule of deriving the property-denotation of DPs is illustrated by the following example, where the property of plural individuals denoted by the contrastive topic expression cannot hold for any objects in the denotation of the noun:

(72) $[\text{Spec,TopP } \sqrt{\text{Semelyik film}}] [\text{Spec,FP } \setminus \text{Jánosnak}] \text{ nem tetszett.}$
 none movie John-dat not liked
 ‘None of the movies were liked BY \JOHN.’

The denotation of the FP of (72) is shown in (73):

$$\begin{aligned} (73) \llbracket [\text{Spec,FP } \setminus \text{Jánosnak}] \text{ nem tetszett} \rrbracket &= \\ &= \lambda Q_s \lambda s \forall x [\neg \exists y [\text{liked}_s'(x, y) \wedge Q_s(y)] \rightarrow x =_s j] \end{aligned}$$

The above formula means that among all individuals it is John for whom there is no entity with the Q_s property in the relevant situation which he liked. Intuitively, (72) means that it is John for whom there is no entity

with the property of being a movie which he liked. This means that the property denoted by the contrastive topic of (72) cannot be identical to the property of not being a movie, which would appear to be the interpretation of this DP in isolation. The apparent mismatch between the interpretation of the contrastive topic taken in isolation versus taken as part of the meaning of the sentence is due to the fact that Hungarian is a negative concord language. The DP *semelyik film* ‘none of the movies’ never appears without sentential negation (disregarding elliptical utterances), and thus it will do no harm if it is interpreted as denoting the property of being a movie. If the negative quantifier of (72) is replaced by a so-called non-D(iscourse)-linked variant of it, which lacks reference to the context, the sentence is out, as illustrated in (74).

- (74) [_{Spec,TopP} √*Sehány film*] [_{Spec,FP} \Jánosnak] nem tetszett.
 none movie John-dat not liked
 #‘No movie was liked BY \JOHN.’

The above data provide an additional argument for the view that explicit reference to the situation has to be built into the denotation of the contrastive topic in (72). (75) shows the proposed denotation of the DP *semelyik film* ‘none of the movies’, whereas (76) illustrates how the above property is combined with the denotation of the rest of the sentence:

- (75) $\llbracket \text{semelyik film} \rrbracket = \lambda s \lambda z \text{ movie}_s'(z)$

- (76) $\lambda Q_s \lambda s \forall x [\neg \exists y [\text{liked}_s'(x, y) \wedge Q_s(y)] \rightarrow x =_s j] (\lambda s \lambda z \text{ movie}_s'(z)) =$
 $= \lambda s \forall x [\neg \exists y [\text{liked}_s'(x, y) \wedge \text{movie}_s'(y)] \rightarrow x =_s j] =$
 $= \lambda s \forall x [\neg \exists y [\text{liked}_s'(x, y) \wedge \text{movie}_s'(y)] \rightarrow x =_s j]$

(76) expresses that any individual for which there is no entity which he liked and which has the property of being identical to any of the movies in the context is identical to John, which corresponds to the intuitive interpretation of the sentence.

6. Summary

We have proposed an alternative to Manfred Krifka’s theory of scope inversion under the rise fall intonation which is not specific to German. We have argued that a left-peripheral quantifier pronounced with a (fall-)rise is in a topic position (Spec,TopP). A topic phrase must refer to an individual already present in the domain of discourse—that which will be

predicated about in the sentence; however, non-individual-denoting expressions, among them quantifiers, can also be made suitable for the topic role if they are interpreted as properties which the rest of the sentence predicates a (higher-order) property about. A quantifier functioning as a contrastive topic denotes a property of plural individuals, and its apparent narrow scope arises from the fact that it is considered to be a predicate over a variable inherent in the lexical representation of the verb.

References

- Alberti, Gábor – Anna Medve 2000. Focus constructions and the “scope-inversion puzzle” in Hungarian. In: Gábor Alberti–István Kenesei (eds): *Papers from the Pécs Conference. Approaches to Hungarian 7*, 93–118. JATEPress, Szeged.
- Barwise, Jon – Robin Cooper 1981. Generalized quantifiers and natural language. In: *Linguistics and Philosophy 4*: 159–219.
- Beghelli, Filippo – Tim Stowell 1997. Distributivity and negation: the syntax of *each* and *every*. In: Szabolcsi (1997c, 71–108).
- Bonomi, Andrea – Paolo Casalegno 1993. Only: association with focus in event semantics. In: *Natural Language Semantics 2*: 1–45.
- Brody, Michael 1990. Some remarks on the focus field in Hungarian. In: *UCL Working Papers in Linguistics 2*: 201–25.
- Büring, Daniel 1997. The great scope inversion conspiracy. In: *Linguistics and Philosophy 20*: 175–94.
- Carlson, Gregory 1977. A unified analysis of the English bare plural. In: *Linguistics and Philosophy 1*: 413–57.
- Chomsky, Noam 1995. *The Minimalist Program*. MIT Press, Cambridge MA.
- Cohen, Ariel 1999. Review article on Veerle van Geenhoven: *Semantic incorporation and indefinite descriptions: semantic and syntactic aspects of noun incorporation in West Greenlandic*. In: *Linguistics 37*: 739–51.
- Cresti, Diana 1993. Extraction and reconstruction. In: *Natural Language Semantics 3*: 79–122.
- É. Kiss, Katalin 1991. Logical structure in syntactic structure: the case of Hungarian. In: James Huang – Robert May (eds): *Logical structure and syntactic structure*, 111–48. Reidel, Dordrecht.
- É. Kiss, Katalin 1994. Sentence structure and word order. In: Ferenc Kiefer – Katalin É. Kiss (eds): *The syntactic structure of Hungarian*, 1–90. Academic Press, San Diego.
- É. Kiss, Katalin 1995. Introduction. In: Katalin É. Kiss (ed.): *Discourse configurational languages*, 1–40. Oxford University Press, Oxford.
- É. Kiss, Katalin 1998. Identificational focus versus information focus. In: *Language 74*: 245–73.

- Frey, Werner 1993. Syntaktische Bedingungen für die semantische Repräsentation: Über Bindung, implizite Argumente und Skopus (*Studia Grammatica* XXXV). Akademie-Verlag, Berlin.
- Geenhoven, Veerle van 1996. Semantic incorporation and indefinite descriptions. Doctoral dissertation, University of Tübingen.
- Gyuris, Beáta 2002. The semantics of contrastive topics in Hungarian. Doctoral dissertation, Eötvös Loránd University, Budapest.
([HTTP://BUDLING.NYTUD.HU/~GYURIS/THESIS.HTML](http://budling.nytud.hu/~gyuris/thesis.html))
- Heim, Irene – Angelika Kratzer 1998. *Semantics in Generative Grammar*. Blackwell, Cambridge MA & Oxford.
- Höhle, Tilman 1991. On reconstruction and coordination. In: Hubert Haider – Klaus Netter (eds): *Representation and derivation in the theory of grammar*, 138–97. Reidel, Dordrecht.
- Hunyadi, László 1984. A kétszeres tagadásról a magyarban [On double negation in Hungarian]. In: *Általános Nyelvészeti Tanulmányok* 15: 65–73.
- Jackendoff, Ray 1972. *Semantic interpretation in generative grammar*. MIT Press, Cambridge MA.
- Jacobs, Joachim 1997. I-Topikalisierung. In: *Linguistische Berichte* 168: 91–133.
- Komlósy, András 1992. Régenek és vonzatok [Valence and government]. In: Ferenc Kiefer (ed.): *Strukturális magyar nyelvtan 1. Mondattan* [A structural grammar of Hungarian 1. Syntax], 299–527. Akadémiai Kiadó, Budapest.
- Krifka, Manfred 1998. Scope inversion under the rise fall contour in German. In: *Linguistic Inquiry* 29: 75–112.
- Kuno, Susumu 1973. *Japanese grammar*. MIT Press, Cambridge MA.
- Kuroda, Sige-Yuki 1972. The categorical and the thetic judgment. In: *Foundations of Language* 9: 153–85.
- Liberman, Mark – Ivan Sag 1974. Prosodic form and discourse function. In: *Papers from the Tenth Regional Meeting of the Chicago Linguistic Society*. Chicago Linguistic Society, University of Chicago.
- Link, Godehard 1983. The logical analysis of plurals and mass terms, a lattice-theoretic approach. In: Rainer Bäuerle – Christoph Schwarze – Arnim von Stechow (eds): *Meaning, use, and interpretation of language*, 302–23. De Gruyter, Berlin.
- Maleczki, Márta 1995. A magyar főnevek és determinánsok interpretációja strukturált tartományú modellekben [Interpreting Hungarian nouns and determiners in semantic models with structured domains]. In: *Néprajz és Nyelvtudomány* 36: 199–234.
- Molnár, Valéria 1998. Topic in focus: the syntax, phonology, semantics, and pragmatics of the so-called “contrastive topic” in Hungarian and German. In: *Acta Linguistica Hungarica* 45: 89–166.
- Piñón, Christopher 2001. Definiteness effect verbs and aspect in Hungarian. Paper presented at the 5th International Conference on the Structure of Hungarian, May 24–26, 2001, Budapest.
- Reinhart, Tanya 1983. *Anaphora and semantic interpretation*. Croom Helm, London.

- Rooth, Mats 1985. Association with Focus. Doctoral dissertation, University of Massachusetts, Amherst.
- Sasse, Hans-Jürgen 1987. Thethetic/categorical distinction revisited. In: *Linguistics* 25:511–80.
- Szabolcsi, Anna 1997a. Background notions in lattice theory and generalized quantifiers. In: Szabolcsi (1997c, 1–27).
- Szabolcsi, Anna 1997b. Strategies for scope taking. In: Szabolcsi (1997c, 109–54).
- Szabolcsi, Anna (ed.) 1997c. *Ways of scope taking*. Kluwer, Dordrecht.

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SYNTACTIC MICROVARIATION AND METHODOLOGY: PROBLEMS AND PERSPECTIVES*

JUDIT GERVAIN

Abstract

Variation in empirical data has been a perseverant problem for theoretical linguistics, especially syntax. Data inconsistencies among authors allegedly analyzing the same phenomenon are ubiquitous in the syntactic literature (e.g., literature on focus-raising in Hungarian; É. Kiss 1987 vs. Lipták 1998), and partly result from the highly informal methodology of data collection. However, even if adequate controls are used to exclude potential biases, variation might remain. The general practice in syntactic research has been to ignore these “microvariations”—mainly in the lack of any systematic empirical method to detect them. The present paper shows that this practice leads to serious theoretical problems and proposes a new empirical method, cluster analysis, to discover, explore and systematize these variations. It also illustrates how this richer empirical basis gives rise to a more fine-grained theoretical analysis.

1. Introduction: questions of dark nature

What counts as empirical data in linguistics? What happens if “investigators proposing different analyses of the same phenomenon disagree about the status of various crucial data” (Levine 2001)? Forgotten after the early struggles between generative grammar and behaviorism, these foundational issues have recently received new attention within the generative paradigm.

The present paper is an attempt to contribute to this new line of research by proposing a potential solution to the methodological problem raised by variation in raw empirical data, as formulated in the initial question by Levine (2001). It is suggested that this methodological difficulty stems from the intuitive nature of methodological practice in generative grammar, and can therefore be remedied by placing research methods on empirically more sophisticated, experimental grounds.

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The article first investigates the current methodology of data collection and analysis in syntactic research, starting out from an overview of the epistemological assumptions that underlie this practice, then going on to the discussion of its empirical inadequacies. Second, it is claimed that experimentation should be introduced into syntactic research, and a new experimental method is put forth to remedy the specific methodological difficulties induced by variation in linguistic data. Hungarian focus-raising constructions serve as an illustration to demonstrate the workings and results of the new method.

2. Empirical methods in syntactic research: blunt tools

Generative syntax has mainly been interested in the characterization of native speaker (syntactic) competence (Chomsky 1957; 1995; 2000). However, the linguistic competence of the human mind is not directly available for observation; researchers in linguistics are obliged to resort to behavioral, i.e., performance data, and thus make inferences about the underlying competence.

What counts, from an epistemological point of view, as relevant performance data and valid inference thereof has been debated ever since the emergence of generative grammar (most importantly e.g., Quine 1953; 1972; Chomsky 1961; 2000; Hill 1961; Ziff 1964; Stich 1971; 1972; Chomsky-Katz 1974; Labov 1975; Tsohatzidis 2002). However, this philosophical aspect of the problem, encompassing questions like the naturalization of linguistics and the underdetermination of theory (i.e., description of competence) by empirical data (i.e., performance), will not be of concern here (for some of these issues, see Zemplén and Gervain forthcoming). In this respect, I will assume that the generative enterprise is basically on the right track when entertaining the possibility of deriving valid and interesting conclusions about the language faculty of the mind from behavioral linguistic data.

Rather, the issue I am raising is of methodological nature and centers around the more practical query of how to collect performance data bearing on the abstract linguistic competence in the most relevant, informative and empirically adequate fashion. What I am suggesting is that the current intuitive and introspective practice, long expelled from other behavioral sciences (Pléh 2000), is highly problematic and needs to be replaced by more strictly controlled experimental methods.

As a first step in examining the current methodology, I will briefly outline the underlying epistemological assumptions, then continue by demonstrating the inadequacies of such a practice.

2.1. Why trust native speaker judgments?

The language faculty and its contents, universal grammar (UG) are regarded by Chomsky (1972; 1995; 2000) as a biologically endowed, innate and thus universal property of the human species. Principles (universals of language structure) and parameters (language-specific switches) contained in UG define the logically possible space for all human languages. Every actually attested natural language falls, by definition, within this possible language space.

In the life of a single individual, UG is in state L_0 at birth. At this stage, all principles and parameters are in their default settings. It is linguistic input during early childhood that sets the parameters to fit the external stimuli.¹ At the end of this procedure, the individual's grammar gets into state L_L , which is the particular grammar of language L that the child was exposed to. Whatever the final state L_L , it will always fall within UG. This claim has two consequences: first, that all human languages are relevant for the study of UG; second, that every individual's mental grammar is relevant for the study of UG. Hence the intuitive-introspective methodology—as Pléh (2000, 75)² puts it: “the incontrovertible intuition”.

This train of thought justifies one aspect of current methods, namely the use of individual judgments. At the same time, it also marks its limits. Since every individual L_L is only a subset of the possibilities available in UG, analyses of individual L_L s have implications for the study of UG, but are not necessarily informative about other L_L s. For the analysis of a particular L_L to be relevant with respect to another L_L , it has to be shown that the two L_L s are identical at least in the relevant aspects. In the case of speakers of the same language, overlap may be assumed as long as their judgments about a construction coincide. This is, of course,

¹ This is a rather simplified view of language acquisition. For more detailed descriptions of the parameter-setting theory, see Fodor (2001), Guasti (2002). For criticism of this approach and alternative hypotheses, see e.g., Elman (1993), Elman et al. (1996) and Gómez-Gerken (2000).

² See Pléh (2000, 75) for a very interesting analogy between Descartes and Chomsky with respect to mentalism and introspection.

not necessarily so, since data always underdetermine the models built on them (Duhem 1954; Quine 1975). However, when judgments diverge, or when no evidence is available to the contrary, it is necessarily not so, and the conclusion is that some of the parameters in the two individuals' L_L s are set differently. And while both are relevant for the study of UG, since they attest different possible settings of a parameter, they are not comparable to each other in any direct way.

Although the above discussion provides but a highly simplified account of some of the generative principles, it is apparent that reliance on native speaker intuition is a necessary consequence of these principles, while the informative, uncontrolled nature of data collection is not. Intuitive judgments can be obtained from informants through more objective, quantified and experimentally controlled procedures. As Chomsky (1957, 13–4), among many others, claimed:

“The grammar of L[anguage] will thus be a device that generates all of the grammatical sequences of L and none of the ungrammatical ones. One way to test the adequacy of a grammar proposed for L is to determine whether or not the sequences that it generates are actually grammatical, i.e., acceptable by native speakers, etc. We can take certain steps towards providing a behavioral criterion for grammaticality so that this test of adequacy can be carried out.”

These early proposals notwithstanding, experimentation has never become the actual practice in generative syntax, which, with the evolution of syntactic theory over time and the increasing sophistication of data, has led to considerable methodological difficulties.

2.2. Empirical problems

There are two aspects of language structure that traditional methodology typically fails to grasp: gradedness and variation.

It has long been noted (for an overview, see Keller 2000) that strictly dichotomic distinctions of grammaticality (e.g., grammatical vs. ungrammatical, or acceptable vs. unacceptable) are unable to cover the full scale of intuitive judgments speakers formulate. Rather, at least for certain constructions, grammaticality is very often graded or even continuous. Although degrees of grammaticality are sometimes made use of in the literature, this practice is neither systematic nor uniform. Works do not generally define or specify how they measure gradedness. Moreover, the

number and the relative distance of the degrees employed vary from one publication to the other, rendering all principled comparisons impossible.

A second problem derives from the fact that judgments on certain, usually highly complex, syntactic constructions are often conflicting. Variation in the data comes from two main sources: methodologically uncontrolled data collection procedures and real speaker variation (Schütze 1996; Cowart 1997).

As shown above, the mapping from grammatical competence to actual linguistic behavior/performance is non-trivial and highly complex, involving several cognitive processes of different kinds (most of them non-syntactic). Evidence from psycholinguistics shows (Schütze 1996) that these factors bias judgments. World knowledge, pragmatic context, word length and frequency, length of utterance, just to mention a few of the potential biases, may all introduce random, and for syntactic purposes irrelevant, variability in linguistic data.

But even these factors filtered out, it may occur that a non-negligible amount of variation remains in the data set, reflecting existing syntactic heterogeneity, i.e., differences of parameter setting among speakers. Importantly, however, this variation is fundamentally different in nature from the above-mentioned random incongruity of the data. Unlike the latter, which is undesirable and should be controlled for, the former constitutes an important source of information with respect to the possible settings of (typically small, language-specific) parameters. These syntactic microvariations (van Oostendorp 2002) are therefore of primary relevance for syntactic theory.

Note that an informal, experimentally uncontrolled methodology fails to distinguish between irrelevant and relevant types of variation, just as it is unable to systematize the latter kind, even if the former is somehow filtered out.

This problem is well illustrated by the literature on focus-raising constructions in Hungarian. In these structures (É. Kiss 1987), an embedded focus constituent surfaces in the focus position of the matrix clause containing a bridge verb (*mond* 'say', *akar* 'want', *gondol* 'think', *szeretne* 'would like' etc.), as illustrated in (1b).³

- (1) (a) Azt mondtad, (hogy) JÁNOS jön.
 expl-acc said-2sg that János come-3sg
 'You said that John was coming.'

³ Small capitals indicate focus.

- (b) JÁNOST_i mondtad, hogy e_i jön.
 János-acc said-2sg that come-3sg

In her analysis of focus-raising, É. Kiss (1987, 141) claims that both (2a), with Accusative case on the raised constituent, and (2b), with Nominative case, are grammatical. In contrast, on the basis of a small-scale survey, Lipták (1998) argues that only (2a) is acceptable.

- (2) (a) János KÉT DOLGOT szeretne, ha sikerülne.
 János two thing-acc would-like-3sg if succeeded-3sg
 'As for John, it is two things that he would like if they succeeded.'
 (b) János KÉT DOLOG szeretné, ha sikerülne.
 János two thing-nom would-like-3sg if succeeded-3sg

But what is one to make of Lipták's (1998) empirical claims? É. Kiss is a native speaker of Hungarian, thus, by definition, an authentic source of intuition. But so are Lipták and her informants. Since the two papers do not provide any information about the data collection procedure, it is impossible to decide whether the inconsistency between the two data sets results from random or real variation. Nevertheless, theoretical analysis of focus-raising cannot proceed without the clarification of this issue.

It can only be hypothesized that, the authors and their informants being trained linguists, the probability of pragmatic, lexical or other biases influencing their judgments is low. Thus, the present case is most probably an instance of real syntactic microvariation.

What follows from this with respect to the analyses the two authors propose? Does the second really falsify the first? Can they be compared at all? What are they the analyses of, in the first place? The individual grammars of the two linguists?

From a more general perspective, the informal nature of methodology undermines the reproducibility of the data, as well as the falsifiability of theories (Hoji 2002), both unwelcome in empirical sciences.

3. New methods in syntax

Recently, several authors have recognized the inherent flaws of informal data collection practices (Schütze 1996; Cowart 1997; McDaniel–Cowart 1999; Keller 2000; Sorace–Keller forthcoming). These works all capitalize on the importance of providing well-established empirical foundations for

syntactic theory by introducing experimental controls into its methodology. By eliminating random variation induced by irrelevant biasing factors, this move will guarantee clearer data. This, however, is only a first step. Specific methods are needed to address the questions of gradedness and speaker variation. While proposals to solve the first problem exist in the literature (Keller 2000; Sorace–Keller forthcoming), no solution has yet been suggested to remedy the second.

In the following section, I will first briefly describe some of the experimental tools that have been put forth. Secondly, I will delineate the principles of a new method that can be used to collect and analyze heterogeneous linguistic data in which variance results from syntactic microvariation.

3.1. Experimentation

As noted before, syntactic research has access to a speaker's mental linguistic competence only through his/her performance, that is, behavior. The relationship between an underlying competence and the corresponding surface behavior is rarely, if ever, one-to-one. Language is no exception. Linguistic competence, the core of the language faculty, communicates with the external world through peripheral performance systems like articulation, memory, the conceptual system, etc. (most recently Chomsky 2000; 2002). Consequently, when inferences are made about the underlying competence on the basis of observable surface behavior, it is best to exclude all possible sources of contamination. Since syntactic methodology lacks experiments and experimental controls, research is left unprotected against noise in the data induced by systems other than the core linguistic (grammatical) competence.

Recently, Schütze (1996), Cowart (1997), and McDaniel–Cowart (1999) have argued for the necessity of “experimental syntax”, and have adopted the methodological principles of psycholinguistics and experimental psychology. I will discuss but a few of these below.

One of the central issues concerns habituation of informants to the specific structure of sample sentences, resulting in more indulgent judgments. This can be prevented by random ordering of sentences in a questionnaire, or by the use of ‘filler sentences’, avoiding too frequent repetition of lexical items and construction types etc.

Secondly, pragmatic, semantic and lexical factors are also known to influence judgments, and should thus be controlled for. For instance, all sample sentences should be matched for the frequency and length of the words contained in them. Differences in style, register or truth value may also bias speakers' judgments.

A third cause for concern is whether to include linguistically trained informants in the experiments. The general argument for using linguists as informants is that having more refined intuitions, they come closer to the concept of the 'idealized native speaker' than naïve informants. In other words, linguists tend to be less prone to bias. On the other hand, it is a standard requirement in experimental psychology that the subjects be naïve with respect to the experimental task, which linguists are not. To the present date, no conclusive evidence has been produced for either argument. However, the few psycholinguistic experiments that deal with this issue (for an overview, see Schütze 1996) have shown no significant difference between trained and naïve informants. (This conclusion will also be confirmed by the results of the present case study, see later.)

Fourth, the nature of the task, i.e., the type of judgment asked from the subjects (e.g., binary or scaled) determines not only what other works in the literature the results will be comparable with, but also the kind of statistical analyses that can be performed on the raw data (e.g., a binary grammaticality decision, producing categorical data, does not allow for certain statistical analyses). Therefore, due attention has to be paid to choosing the most suitable judgment paradigm and scale.

The aforementioned are but some of the factors that contribute to the noise in the data collection procedure. These and similar issues have to be carefully considered and controlled for in order to clarify the empirical bases of syntactic research.

3.2. Degrees of grammaticality

Even well controlled, non-biased data can be highly misleading, if they do not reflect important properties of the phenomenon investigated. Grammaticality rating scales constitute a case in point. As Cowart (1997) and Keller (2000) have argued, grammaticality may not be a discrete property, but a continuum, at least for certain constructions. As a consequence, the traditional binary grammaticality judgments, or even some of the graded scales, may sometimes conceal syntactically meaningful distinctions among constructions.

To overcome these difficulties, Keller (2000) and Sorace–Keller (forthcoming) adopted the method of magnitude estimation, routinely used in psychophysiology to measure perception, where stimuli are typically continuous. The major difference between traditional grammaticality judgments and the ones obtained through magnitude estimation is that the former are absolute, i.e., sentences are evaluated independently of each other, while the latter is relative; the grammaticality of each sample sentence is estimated in relation to a baseline sentence the grammaticality of which is used as the basic unit. Thus, the subject's task is first to assign a unit of grammaticality to the baseline sentence, presented at the beginning of the experimental session. The unit of grammaticality is visualized and quantified as a physical property of a geometrical object, for instance the length of a line. Then, subjects are asked to evaluate the grammaticality of sample sentences as proportional to that of the baseline sentence. They can do this by setting the magnitude of the physical property to a value that is a multiple or a fraction of the baseline. For instance, if a sentence is felt to be twice as grammatical as the baseline sentence, the subject can signal this by assigning the former a line twice as long as to the latter.

Keller (2000) emphasizes that the method, when applied in linguistics, is as reliable as in the original psychophysiological experiments, and its results nicely correlate with judgments obtained by other methods.

A major asset of this procedure is that it provides information about the grammaticality of test sentences with respect to each other, allowing insight into the hierarchy of syntactic constraints, rules etc.—data that can prove useful not only for an Optimality Theoretical approach.

3.3. Microvariation

Inconsistency can be introduced into the data not only by noise or graded grammaticality, but also by speaker variation. The empirical debate between É. Kiss (1987) and Lipták (1998) is most probably a case in point, since it is not unreasonable to suppose that, being professional linguists, these authors are not influenced by biasing factors. Rather, their judgments reflect existing syntactic variation.

There are two questions that need to be addressed at this point:

- (i) What is the theoretical explanation for syntactic microvariation?
- (ii) How can it be detected empirically?

They will be addressed in the remainder of this section.

3.3.1. Microvariation from a theoretical perspective

As Labov (1975, 16) put it, “the logic of linguistic inquiry has been to assume consensus rather than test it”. But positing consensus is, of course, unfounded. The assumption that speakers of language L form a completely homogeneous community is empirically highly unrealistic and also theoretically unexpected in a model of the ‘principles and parameters’ type. Just as separate languages differ with respect to the setting of certain parameters, it is natural to believe that individual grammars may also do so. But importantly, in such a model, the differences are not just random; rather they are systematic along certain parameters. Therefore, the detection of syntactic variants, i.e., ‘syntactic microvariation’ contributes to a more fine-grained exploration of the set of parameters, thus a better understanding of UG.

The study of variation is relatively new in syntax, but not in the broader context of linguistic theory. The notion plays a key role in sociolinguistics. Therefore, it is worth making a short detour here to compare the two approaches. At first sight, they seem to have very little in common. Generative linguistics takes an internalist and individualist stance on language, conceiving of syntax as an autonomous, self-contained system. Sociolinguistics, on the other hand, aims at relating language structure, especially patterns of variation in phonology and morphology to external—social, geographical, historical etc.—factors. Moreover, syntax, unlike phonological and lexical phenomena, has traditionally been neglected in this discipline, as some of its inherent properties (high level of variation, low token frequency of construction types etc.) disfavor the reliable detection of variation patterns and their explanation in terms of external causes (Cornips–Corrigan forthcoming).

Nevertheless, there have recently been attempts in both fields to study syntactic variation in more principled ways. In sociolinguistics, new ideas have been put forth for the conceptualization of syntactic variation, partly adopting the principles and parameters model of generative grammar. Under this view (e.g., Cornips 1998), syntactic variants only relate to social factors indirectly; thus, at a linguistic level, they are considered to be differences in parameter setting, which, on a social level, are

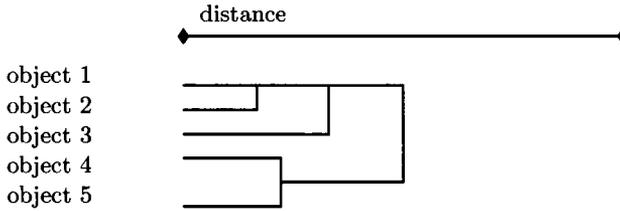
attributable to external variation. Simultaneously, syntactic microvariation has been raising increasing attention in generative grammar (van Oostendorp 2002).

At the intersection of these new tendencies, there seems to emerge a new framework (Cornips–Corrigan forthcoming) that is able to capture both the internal and the external aspects of syntactic variation. This two-level framework first detects and describes structural variation and identifies the underlying parameters, then it makes an attempt to link (some of) the different settings of the parameters to external, social factors.

3.3.2. Detecting variation: clustering

Traditional parametric statistics is useful in analyzing raw experimental data when there is an a priori hypothesis to be tested, e.g., when the researcher has an assumption about the existence of certain variants and wants to verify this. However, without such expectations, classical statistics is of little help. When the aim is to detect systematic patterns (here, syntactic microvariation) in a data set, data mining techniques are used instead. Cluster analysis, the aim of which is to establish categories among the objects observed in an experiment, is the classificatory method that will be introduced and employed in the present paper.

Cluster analysis (Lance–Williams 1967; Everitt 1981; van Ooyen 2001) is a collection of ‘heuristic’ methods for the categorization of objects according to some similarity measure along one or, typically, several characteristics (variables). It is widely used, for instance, in microbiology to establish different strains of bacteria, or in biological taxonomy, to set up species, families, genera etc. of organisms. Cluster analysis has different types and techniques depending on the similarity measure and the classificatory criterion being used, but the underlying logic is the same—the stepwise, reiterative grouping of the two most similar objects or already formed clusters. Thus, agglomerative clustering starts out with as many clusters as there are objects, and by repeatedly putting together those two items (two objects, an object and a cluster, or two clusters) that are the most similar with respect to the measured characteristics, it gradually decreases the number of clusters until all objects eventually belong to one big category. (Divisive clustering proceeds in the other direction.) The result of the categorization is plotted on a dendrogram (Figure 1), from which the classes can be read off (here, for example, objects 1–3 form one cluster and objects 4–5 another).

*Fig. 1*

A dendrogram

(Dis)similarity is measured as a kind of ‘distance’ in the character space, an n -dimensional space defined by the n number of properties observed in the experiment. For instance, if the height and body weight of individuals are measured, these two properties will define a two-dimensional space (the familiar Cartesian co-ordinate system), in which for each individual, height is represented as a value on one of the axes, body weight as a value on the other (Figure 2). The distance of two points (individuals, I_1 and I_2) in such an n -dimensional space can be calculated in a number of different ways, partly depending on the nature of the variables (binary, interval, count, etc.).

Without attempting to give an exhaustive list of these measures, I will simply introduce the most frequently used ones. First, the measure called Euclidean distance is determined in the narrowest sense of the word, i.e., it is the linear distance (e.g., measurable with a ruler) between two points. In our two-dimensional example of heights and body weights, it is the length of the line drawn between two points in the Cartesian co-ordinate system. This distance, the hypotenuse (c) of the right-angled triangle the two points define, can be calculated by the Pythagoras theorem (see Figure 2). A second possibility, known as the city block or Manhattan distance, is to add the two other sides of the triangle ($a+b$), which are adjacent to the right angle. Besides these two well-established measures, many others are reported in the literature (e.g., van Ooyen 2001).

Once the distance between the original objects is determined, the two closest, i.e., most similar can be fused to form a cluster. However, clusters are not ‘natural objects’ in the observed set. In their own rights, they have no values for the observed properties, thus no distances can be calculated. The values and distances have to be somehow obtained through a clustering algorithm from the original objects that are included in the cluster. Again, there are several different ways, and only some of

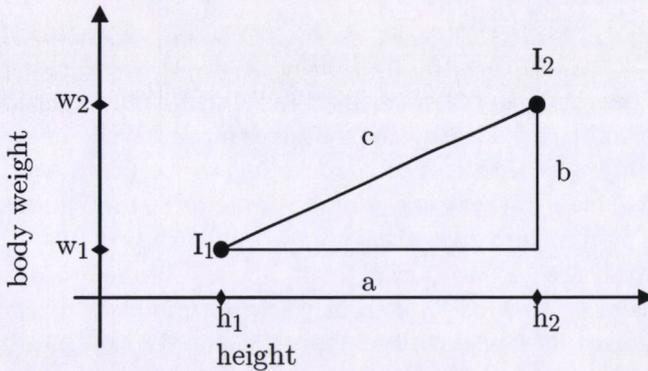


Fig. 2

Calculating Euclidean and city block distances
in a two-dimensional character space

the most popular ones will be enumerated here. The Unweighted Pair-Groups Method Average (UPGMA) defines the distance between a cluster, on the one hand, and an object or another cluster, on the other, as the average of the distances between each point in the cluster and the object or each point of the other cluster. The Furthest Neighbor method determines the distance between two clusters or a cluster and an object as the greatest distance between a member of the first and the second cluster (e.g., if cluster 1 = {A, B}, cluster 2 = {C, D}, distances: $d_{AC} = 2$, $d_{AD} = 6$, $d_{BC} = 5$, $d_{BD} = 10$, then this method will yield $d = 10$ as the distance between clusters 1 and 2), or the greatest distance between the object and a member of the cluster. Since distances are maximized, this method tends to produce well-defined, sharply distinguished clusters. The Nearest Neighbor method, on the other hand, chooses the smallest distance (using the previous example, the distance between the two clusters would be $d = 2$), and produces rather elongated clusters standing closely together, a reason for which the method is also known as chaining. A fourth technique, Ward's method fuses those items into a cluster the fusion of which augments within-cluster variance the least. This procedure also results in strongly demarcated groups, but has the disadvantage of lumping together the outliers, i.e., the aberrant points, which have nothing in common except that they are different from everything else.

A remark is in order here about the use and interpretation of cluster analysis. As mentioned at the beginning of this section, cluster analysis is a heuristic method. In other words, the resulting classification depends on a series of more or less subjective choices made by the user. Resorting to cluster analysis is the first of them. Any two objects can be likened according to some arbitrary criterion. Similarly, in any collection of objects, some classification can always be set up—the question is whether it ‘makes any sense’ or not, that is, if it corresponds to any ‘natural’ pattern in the set. To put it differently, cluster analysis cannot decide if there is regularity in the data set, rather it simply assumes it and tells us what it is like. Thus the burden of the decision is on the user. In syntax, the existence of some pattern in the varieties is ‘guaranteed’ by the principles and parameters framework—performing cluster analysis is therefore justified. (Note the strong theory-laddeness here.)

Secondly, as demonstrated in the short summary of the different types of analysis, the choice of the similarity measure and the clustering algorithm affects the outcome. Therefore, these decisions have to be adapted to and justified by the special needs and properties of the analysis to be carried out.

Furthermore, the interpretation of the final dendrogram is ambiguous. The tree can be split up into groupings in many different ways. Once again, it is up to the user to establish the final categories in such a fashion as to find a classification that fits the raw data in a meaningful way. Going back to the example in Figure 1, instead of the explanation that is given there (cluster 1 = {1,2,3}, cluster 2 = {4,5}), it could be argued that only objects 1 and 2 constitute cluster 1, and object 3 is only loosely related, thus an outlier. Although there is no unique solution, the distance measure scale might be suggestive. The greater the distance until the junction point, the more dissimilar the fused clusters or objects are.

In this section, three aspects of data collection and analysis have been discussed that contribute to the clarification of empirical issues. Experimental settings and controls help to filter out noise, while magnitude estimation and cluster analysis provide ways to exploit the data in terms of degrees of grammaticality and speaker variation. Recall that the existence of speaker variation is not contrary to the spirit of generativism; rather the opposite. Cluster analysis as a means to reveal syntactic microvariation can only work in a model of language that assumes variation to be systematic, like the principles and parameters framework. If suc-

cessful, this method should be able to account for such debates as the É. Kiss–Lipták polemic about focus-raising.

4. Focus-raising in Hungarian: a case study

The use and advantages of the new method will be illustrated below through the case of focus-raising. The example was chosen because there is every reason to believe that the empirical controversy is the reflection of true syntactic variation, not just experimental noise. This constitutes a good testing ground for the clustering method to the extent that its ability to accommodate both É. Kiss's and Lipták's position clearly shows its power in clarifying empirical issues.

4.1. Focus-raising: the empirical issues

Focus-raising, as defined above, is a construction in which the focused constituent of an embedded clause surfaces in the focus position of the matrix clause containing a bridge verb. Several properties of this structure are unequivocal. However, as cited earlier, the morphological case of the raised focused element is controversial. É. Kiss (1987) holds that when raised, a focused embedded subject can optionally keep its Nominative case or pick up Accusative from the matrix verb (see (2) repeated here as (3) for convenience).

- (3) (a) János KÉT DOLGOT szeretne, ha sikerülne.
 János two thing-acc would-like-3sg if succeeded-3sg
 'As for John, it is two things that he would like if they succeeded.'
- (b) János KÉT DOLOG szeretné, ha sikerülne.
 János two thing-nom would-like-3sg if succeeded-3sg

Lipták (1998) has challenged this generalization on the basis of an informal small-scale survey ($n = 12$), arguing that only Accusative case is acceptable, i.e., (3a), while Nominative is ruled out (3b).

There is another property of subject focus-raising, not reported in the literature before, which appears to be subject to a substantial amount of speaker variation. This novel aspect, shown in (5), is best described as optional anti-agreement between the embedded verb and the raised subject, if it is of the type [NumP_{pl} + NP_{sg}] (4). This phenomenon hinges

on a peculiarity of Hungarian DP morphology, namely that nouns preceded by plural quantifiers (*sok* 'many', *néhány* 'some' etc.) or numerals remain morphologically singular.

- (4) Két fiú jön/*jönnek.
two boy-sg come-3sg/come-3pl
'Two boys are coming.'
- (5) Két fiút mondtál, hogy jön/jönnek.
two boy-acc said-2sg that come-3sg/come-3pl
'You said that two boys were coming.'

Since variation and inconsistency was considerable in the data, an experiment was designed with the following three aims in mind:

- (i) to settle the empirical controversy concerning the case of the raised subject;
- (ii) to explore the new facts about the agreement between the focused subject and the embedded verb;

and

- (iii) to determine whether there is any systematic relationship between the case facts and the agreement facts.

4.2. The experiment

4.2.1. Material

In addition to case and agreement, four other factors were introduced in the construction of the test material to facilitate further studies. These additional factors will, however, not be evaluated or discussed here (but see Gervain 2002). The sample sentences were thus constructed along six factors:

- (i) the nature of the raised operator (quantificational/non-quantificational)
- (ii) the case of the raised operator (Nominative/Accusative)
- (iii) the number agreement of the embedded verb (singular/plural)
- (iv) the reading of the embedded verb (agentive/non-agentive, distributive/collective)
- (v) island effects (yes/no)
- (vi) contextual reference (possible/impossible).

Since some variables exclude each other or are mutually irrelevant, not all the possible combinations were surveyed. The used combinations yielded 53 test sentences.

Order of presentation effects were excluded by randomizing the sentences. Habituation and repetition were counterbalanced by the insertion of grammatical and ungrammatical filler sentences, 12 altogether. These were never included in the data used for statistical analysis. The complete questionnaire can be found in Appendix A.

4.2.2. Subjects

Twenty-three informants participated in the survey. Contrary to Schütze's (1996) and Cowart's (1997) claims, subjects with linguistic background were also included ($n = 10$), since the psycholinguistic literature fails to show any significant difference between linguists and non-linguists. Indeed, an analysis of variance revealed no difference between the responses of linguist and non-linguist informants in the present experiment ($F(1, 21) = .846$, ns).

4.2.3. Procedure

A paper-and-pencil questionnaire was administered to informants through electronic mail or physically. Informants with and without linguistic training received different instructions. The latter were given detailed explanation and illustration of the notion of grammaticality. When asked for, further explanation was provided.

Subjects were asked to evaluate the sample sentences on a five-grade scale, ranging from totally unacceptable through three intermediate levels to fully acceptable. The five-grade scale was adopted, on the one hand, in order to allow comparison, as it is one of the most commonly used ratings in the literature; on the other hand, because there was no reason to believe that there would be important within-subject variations in the degree of grammaticality of the sentences (variation was only expected to be between-subject). This rating was treated as an interval measurement scale, i.e., one in which the points are at equal distances from each other. (Note that it is not obvious that such a rating should correspond to a real interval scale, rather than just a simple ordinal one. The extreme values, for instance, could be perceived by the subjects as being further away from the intermediate values than the latter ones from each other. Nevertheless, it can be shown (Schütze 1996; Cowart 1997) that working with interval scales does not distort the results.)

4.2.4. Statistical analyses

As a first step, it has to be shown that there indeed is significant variation in the judgments. Therefore, data has to be tested for the homogeneity of variance to ascertain that speaker variation is indeed significant, at least for some of the test sentences. If this turns out to be the case, informants will be classified by cluster analysis into syntactic 'dialects' on the basis of systematic patterns in their responses. Then, within each dialect, analysis of variance tests will be performed to determine the role of the previously defined variables.

Several remarks are in order here. First, the availability of the last type of analysis crucially depends upon the assumption that the judgment scale was conceived of by informants as an equally paced interval scale, rather than an ordinal scale, because certain statistical analyses can only be performed on the former.⁴ Second, I am not following Cowart (1997) in his categorical refusal of all types of individual data. For an appropriate characterization of the emerging clusters, raw data contained in the individual protocols are indispensable. Third, the decisions about the clustering measure and algorithm have to be made explicit at this point. Euclidean distance was used as the measure of (dis)similarity, as it is well suited for interval data. More importantly, Ward's method was chosen as the clustering algorithm, since its well-defined clusters and its within-cluster variance reducing property nicely mirror the concept of linguistic microvariants, which are clearly distinct from each other with respect to certain parameters, but are homogeneous inside. (In other words, linguistic variation is not gradual, but punctuated.)

4.3. Results: revealing two strategies of focus-raising

The test of variance (see Appendix B) shows that for 33 out of the 53 test sentences, variance in judgments was statistically significant ($p < .05$). In other words, there is variation in the data, and the principles and parameters framework tells us that it must be systematic, therefore it is meaningful to use cluster analysis to establish the syntactic 'dialects'.

A cluster analysis using Ward's method with Euclidean distances (and non-standardized data) was performed with the following result

⁴This assumption is reflected by the fact that the original scale (*, ???, ??, ?, unmarked) was recoded as a five-grade scale from -2 to 2 for the purposes of the statistical analyses.

(Figure 3). Three clusters were established with two outliers (subjects 4 and 11).⁵ A major division lies between group 3 and groups 1–2. This main cut corresponds to the rejection or acceptance of focus-raising, respectively. Put differently, the grammars of some speakers of Hungarian (group 3) do not contain the option of focus-raising at all. The assumption was confirmed by an analysis of variance (ANOVA), which showed a highly significant ($F(1, 21) = 42, 922, p < .0001$) difference between the mean judgment scores of groups 1–2, on the one hand, and group 3, on the other, for all sentence types instantiating operator-raising (all test sentences except 30, 35, 38, 41).⁶

Informants who accept focus-raising can be further divided into two larger groups, 1 and 2 respectively. To establish whether these groups are indeed meaningfully distinct, the debated case assignment factor and the new (anti-)agreement feature were tested in a repeated measures ANOVA, together with group membership as a two-level (group 1/group 2) between-subject factor. A highly significant main effect of case ($F(1, 12) = 246.788, p < .0001$) was found (Figure 4).⁷ Agreement and group membership showed no main effect ($F(1, 12) = 2.667, ns$; $F(1, 12) = .251, ns$, respectively). Significant interactions were obtained for case \times group membership ($F(1, 12) = 24.473, p < .001$), for agreement \times group membership ($F(1, 12) = 6.461, p < .05$) and for case \times agreement ($F(1, 12) = 6.067, p < .05$). No triple interaction was attested ($F(1, 12) = 1.105, ns$).

⁵ Informants 4 and 11 were excluded from both of the groups and from any further analysis. On closer investigation, their protocols appear incoherent. This may be due to experimental error, e.g. these speakers, both of them non-linguists, might have had difficulties understanding the notions of grammaticality or failed to reproduce the sentences with the appropriate focus intonation for themselves. Note, however, that the exclusion of these informants happens on purely methodological grounds. Importantly, this is quite different from the principled, theoretical refusal of individual protocols as suggested by Cowart (1997).

⁶ Italicized sentence numbers refer to the sample sentences as they appear in Appendix A. Note that in the original questionnaire, sentences were not numbered. They appear here only for ease of reference.

⁷ The judgment ratings reported in examples (5) and (6), and in Figure 4, might at first sight suggest that all of these constructions are marginal, and the difference between them lies only in the extent to which they are ungrammatical. Nevertheless, this is not the case. Bear in mind that values given in Figure 1 are means for all the six factors confounded, i.e., the focus-raising sentence types combined. There are types which are less grammatical than the values given here, while others are more grammatical. In fact, some of them are fully acceptable.

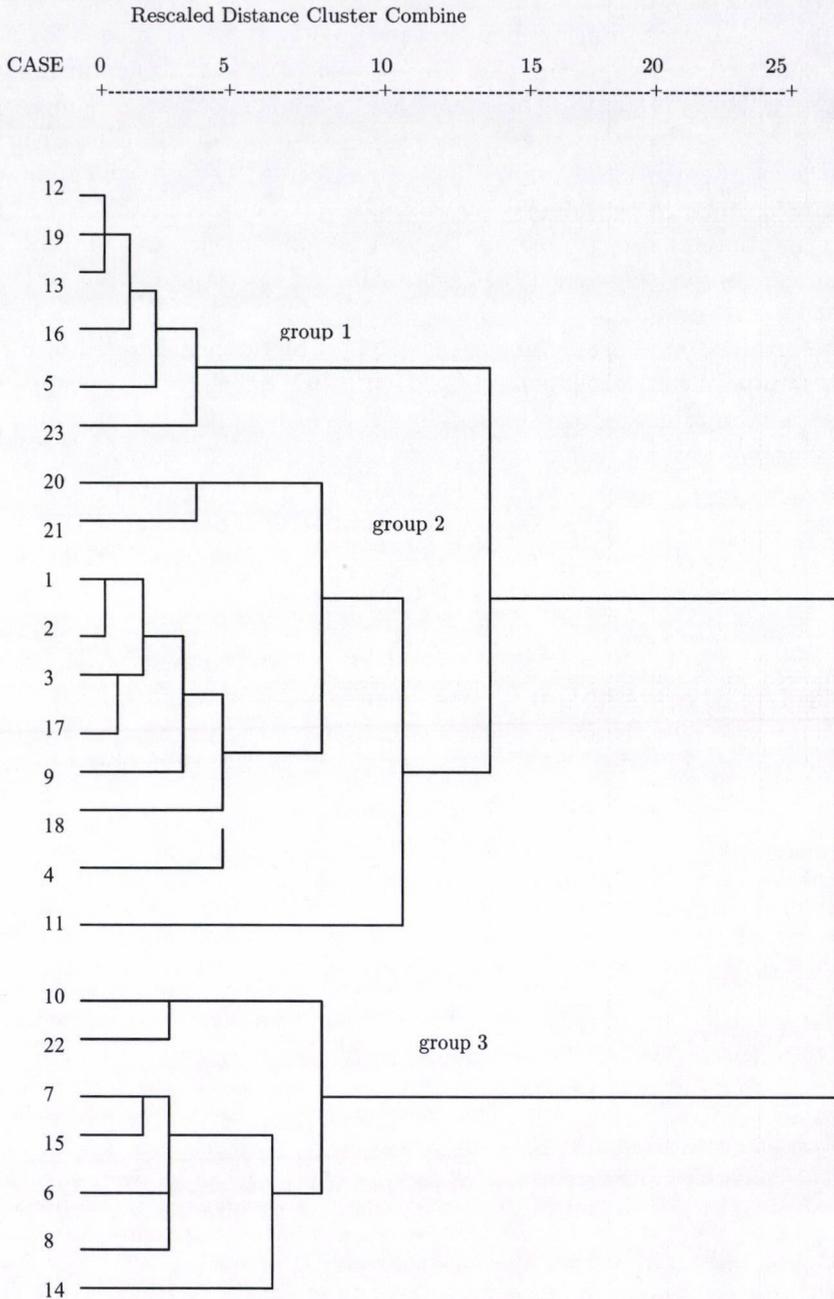


Fig. 3

Hierarchical cluster analysis dendrogram using Ward's Method

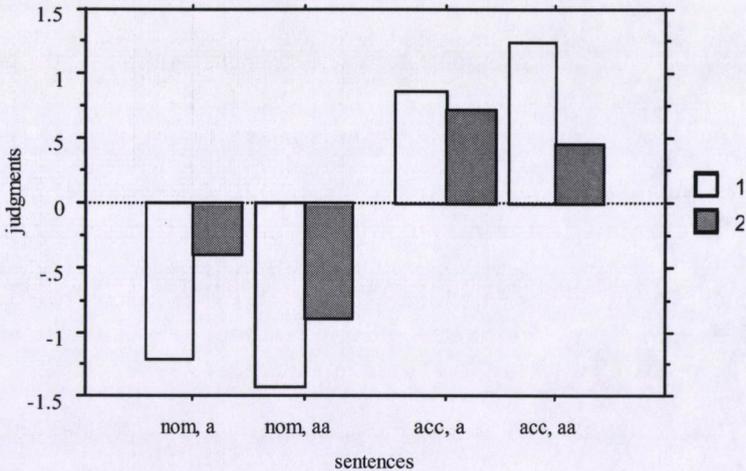


Fig. 4

Effects of case, agreement and group membership for groups 1 and 2.
(nom: Nominative, acc: Accusative, a: agreement, aa: anti-agreement)

These results show that what differentiates between the two groups is a complex pattern of case and agreement co-occurrences.⁸ Group 1 speakers refuse Nominative case altogether, but they tolerate its co-occurrence with anti-agreement even less (6a,b). On the other hand, Accusative case on the raised operator is quite acceptable for them both with agreement and anti-agreement, and interestingly, it is actually preferable with anti-agreement (6c,d).

- (6) (a) ???AZ ÖSSZES LÁNY mondtad, hogy jön.
 the all girl-sg-nom said-2sg that come-3sg
 'You said that all the girls were coming.'
- (b) *AZ ÖSSZES LÁNY mondtad, hogy jönnek.
 the all girl-sg-nom said-2sg that come-3pl

⁸ The absence of main effect of group membership can be accounted for by the fact that the case group × membership and agreement × group membership interactions "explain away" the difference. In other words, the two groups do not behave radically differently with respect to focus-raising in general. Rather, they show different patterns with respect to the tested features of focus-raising. That the distinction between the two groups is nevertheless real is demonstrated by the fact that (i) group membership interacts with both variables and (ii) that these interactions are highly significant.

- (c) ?AZ ÖSSZES LÁNYT mondtad, hogy jön.
 the all girl-sg-acc said-2sg that come-3sg
- (d) AZ ÖSSZES LÁNYT mondtad, hogy jönnek.
 the all girl-sg-acc said-2sg that come-3pl

Group 2 informants do not consider Nominative case on the operator completely grammatical either; however, they are significantly more in favor of it than members of the other group, especially if it occurs with agreement (7a,b). These speakers accept Accusative case to a significantly lesser extent. Moreover, anti-agreement does not amend, but worsen acceptability (7c,d) for these speakers.

- (7) (a) ??AZ ÖSSZES LÁNY mondtad, hogy jön.
 the all girl-sg-nom said-2sg that come-3sg
 'You said that all the girls were coming.'
- (b) ???AZ ÖSSZES LÁNY mondtad, hogy jönnek.
 the all girl-sg-nom said-2sg that come-3pl
- (c) ?AZ ÖSSZES LÁNYT mondtad, hogy jön.
 the all girl-sg-acc said-2sg that come-3sg
- (d) ??AZ ÖSSZES LÁNYT mondtad, hogy jönnek.
 the all girl-sg-acc said-2sg that come-3pl

On the whole, then, two different ways of constructing focus-raising have been detected: group 1 speakers refuse Nominative case (cf. Lipták 1998), especially with anti-agreement, while group 2 speakers do not accept anti-agreement, but tolerate the optionality of case (cf. É. Kiss 1987).

4.4. Discussion: deriving the two strategies

No detailed syntactic analysis will be undertaken here, since the orientation of the present paper is essentially methodological. It will only be shown that the two empirical variants found by the analysis correspond to two distinct syntactic strategies for the derivation of focus-raising.

4.4.1. Movement and resumption

Previous analyses (e.g., É. Kiss 1987; Kenesei 1994; Lipták 1998) all treat focus-raising as a kind of movement—the focused element in the embedded clause raises into the matrix focus position. This scenario is plausible for the agreeing variant, i.e., group 2, but it is unsatisfactory for the anti-agreement option (group 1). Anti-agreement cannot be derived if the

DP starts out as the subject of the embedded verb, since anti-agreement is not tolerated at all in simple clauses. Therefore, I assume that the focused DP is base-generated in the position that the expletive occupies in the corresponding expletive construction (recall (1)), and it moves to the matrix subject position from there. As for the embedded subject position, it is filled by a dummy resumptive pronoun, which is coindexed with the focused DP. Since this latter is morphologically singular, but semantically plural, the resumptive pronoun can inherit either singular or plural features through this coindexation, and can thus trigger either singular or plural agreement on the verb. (For the technical details of this account, see Gervain 2002.)

This picture readily explains the correlation between agreement and case properties. In the movement variant, the focused DP is assigned Nominative case in the embedded clause and optionally Accusative in the matrix, so it may exhibit either (as to how this is technically possible, see Español Echevarría-Ralli 2000). Note that whichever case it exhibits, it incurs a mild violation of some constraint. If the DP keeps its original Nominative case, the Accusative of the matrix verb remains unassigned, while if the DP takes the Accusative, it will have double case, which is a possible, but rare and marked option in natural language. This is the reason why judgments by group 2 speakers never reach the level of perfect grammaticality (cf. (7)).

When the DP is base-generated as a matrix argument, as in the resumptive strategy, only Accusative case is available for it, hence the obligatory Accusative case with anti-agreement.

4.4.2. A prediction: island constraints

Another prediction of the account that is nicely borne out by empirical data is the differential behavior of the two groups of speakers with respect to island constructions. As it is generally held since Chomsky (1981; 1982), (at least certain types of) resumptive elements are used as last resort mechanisms to overcome movement constraint violations. My analysis thus predicts that group 2 speakers, who employ the movement strategy, do not accept sentences violating movement constraints, while group 1 informants, for whom no movement takes place, do. To test this hypothesis, sentences with complex NP islands were included in the questionnaire (2, 10, 19, 23, 26, 32). As Figure 5 shows, the predictions are in complete conformity with the empirical results.

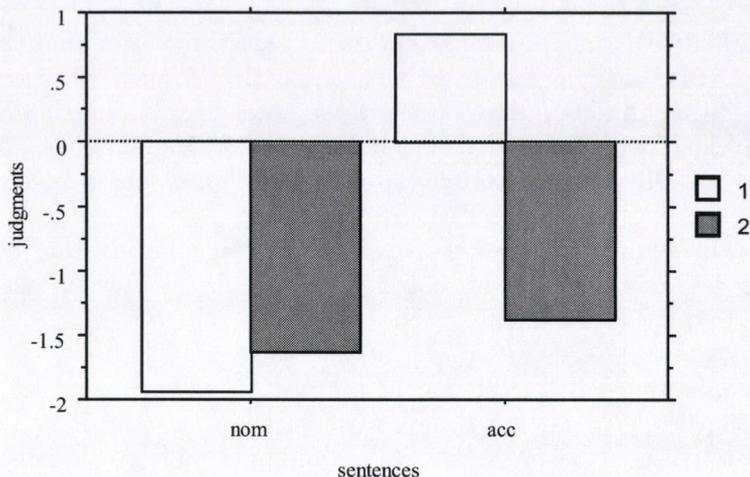


Fig. 5

Complex NP island effects in group 1 (resumption)
and group 2 (movement)

5. Conclusion

The article has discussed the causes and consequences of empirical fuzziness in syntactic research. To overcome such flaws, a new methodology has been proposed which not only filters out inadequacies due to experimental noise and error, but is also able to systematize the remaining variation.

Through the example of focus-raising, it has been demonstrated that this novel method is adapted for the clarification of empirical issues, integrating conflicting data judgments into a meaningful framework. Concretely, for the case of focus-raising, the two cited authors represent different syntactic dialects. Neither of them can be rejected on empirical grounds, but their analyses are not commensurable either, reflecting different syntactic options.

Addressing the initial question of Levine (2001) then, what should happen is the experimental exploration of data, as a result of which a new, comprehensive empirical picture should emerge, accommodating conflicting judgments.

Appendix A

1. ⁹	A KÉT LEGJOBB BARÁTOD mondtad, hogy még sosem látták egymást.
2.	AZ ELNÖKÖT mondtad, hogy hallottad a hírt, hogy megérkezett.
3.	AZ ÖSSZES LÁNY mondtad, hogy jön.
	A LÁNYOK mondták, hogy későn jönnek. ¹⁰
4.	KÉT SZÍNÉSZNŐ tudod, hogy öngyilkosok lettek.
	A VENDÉGEK még nem látták egymást. ¹⁰
5.	PÉTERT mondtad, hogy meghívták.
6.	VALAMELYIK FIÚ szeretnéd, hogy jöjjön.
7.	AZ ÖSSZES LÁNYT mondtál, hogy jönnek.
8.	KÉT SZOMSZÉDODAT hiszed, hogy tegnap szembetalálkoztak az utcán.
	A FIÚK voltak sokan. ¹⁰
9.	HÁROM SRÁC mondtad, hogy körbevették a lányt.
10.	AZ ÖSSZES VENDÉGET mondtad, hogy hallottad a hírt, hogy megérkezett.
11.	A KÉT LEGJOBB BARÁTODAT mondtad, hogy még sosem látta egymást.
12.	HÁROM SRÁCOT mondtál, hogy körbevette a lányt.
13.	KÉT FIÚT mondtál, hogy becsapták őket.
14.	AZ ÖSSZES LÁNY mondtad, hogy jönnek.
15.	A KÉT LEGJOBB BARÁTOD mondtad, hogy még sosem látta egymást.
16.	KÉT FIÚT mondtál, hogy ő jön.
17.	NÉGY SEBESÜLT jelentették, hogy meghaltak.
18.	KÉT SZÍNÉSZNŐT tudsz, hogy öngyilkos lett.
19.	AZ ÖSSZES VENDÉG mondtad, hogy hallottad a hírt, hogy megérkezett.
	Nem AZ ELNÖK érkezett meg. ¹⁰
20.	NÉGY SEBESÜLTET jelentettek, hogy meghaltak.
21.	HÁROM SRÁCOT mondtad, hogy körbevette a lányt.
22.	PÉTERT mondtad, hogy jön.
23.	AZ ELNÖK mondtad, hogy hallottad a hírt, hogy megérkezett.
24.	KÉT SZÍNÉSZNŐ tudod, hogy öngyilkos lett.
25.	AZ ÖSSZES LÁNYT mondtad, hogy jönnek.
26.	AZ ÖSSZES VENDÉGET mondtad, hogy hallottad a hírt, hogy megérkeztek.
27.	HÁROM SRÁC mondtad, hogy körbevette a lányt.
	KÉT SZÍNÉSZNŐ érkezett meg. ¹⁰
	SOK BARÁTOM jött el. ¹⁰
28.	KÉT SZOMSZÉDOD hiszed, hogy tegnap szembetalálkoztak az utcán.
	HÁROM SEBESÜLT halt meg. ¹⁰
29.	AZ ÖSSZES LÁNYT mondtad, hogy jön.
30.	HAT MEGHÍVOTTRÓL tudom, hogy jönnek.

31. HÁROM SRÁCOT mondtál, hogy körbevették a lányt.
32. AZ ÖSSZES VENDÉG mondtad, hogy hallottad a hírt, hogy megérkeztek.
33. KÉT SZOMSZÉDODAT hiszel, hogy tegnap szembetalálkozott az utcán. PÉTERREL találkoztam szembe az utcán. ¹⁰
34. KÉT SZOMSZÉDODAT hiszel, hogy tegnap szembetalálkoztak az utcán.
35. NÉGY BARÁTOMRÓL tudom, hogy hasonlított az apjára.
36. AZ ÖSSZES LÁNYT mondtál, hogy jön.
37. A KÉT LEGJOBB BARÁTODAT mondtad, hogy még sosem látták egymást.
38. NÉGY BARÁTOMRÓL tudom, hogy hasonlítanak az apjukra. ANNA hívta meg a fiúkat. ¹⁰
39. KÉT FIÚ mondtad, hogy ők jönnek.
40. HÁROM SRÁCOT mondtad, hogy körbevették a lányt.
41. HAT MEGHÍVOTTRÓL tudom, hogy jön.
42. KÉT FIÚ mondtad, hogy ő jön.
43. PÉTER mondtad, hogy jön. Biztos, hogy PÉTER jön el. ¹⁰
44. NÉGY SEBESÜLTET jelentettek, hogy meghalt.
45. KÉT SZÍNÉSZNŐT tudsz, hogy öngyilkosok lettek.
46. KÉT SZOMSZÉDODAT hiszed, hogy tegnap szembetalálkozott az utcán.
47. VALAMELYIK FIÚ szeretnéd, hogy meghívják.
48. KÉT FIÚT mondtál, hogy ők jönnek.
49. NÉGY SEBESÜLT jelentették, hogy meghalt. ANNA találkozott az elnökkel. ¹⁰
50. VALAMELYIK FIÚT szeretnéd, hogy jöjjön.
51. KÉT SZOMSZÉDODAT hiszed, hogy tegnap szembetalálkozott az utcán. KÉT CSOMAG sohasem érkezett meg. ¹⁰
52. PÉTER mondtad, hogy meghívták.
53. VALAMELYIK FIÚT szeretnéd, hogy meghívják.

⁹ Numbers only appear here for the sake of easier reference. They were not contained in the original questionnaire.

¹⁰ The sentence is a filler. It does not appear in the statistic analyses.

Appendix B

Test of Variance

	Variance	df	Chi 2	p	95% Inf.	95% Sup.
S1	2,964	22	65,217	<.0001	1,922	5,286
S2	2,680	22	58,957	<.0001	1,738	4,778
S3	2,059	22	45,304	,0049	1,335	3,672
S4	1,067	22	23,478	,7503	,692	1,903
S5	1,340	22	29,478	,2634	,869	2,389
S6	3,178	22	69,913	<.0001	2,061	5,666
S7	1,040	22	22,870	,8183	,674	1,854
S8	2,605	22	57,304	,0001	1,689	4,645
S9	1,431	22	31,478	,1735	,928	2,551
S10	2,265	22	49,826	,0012	1,469	4,038
S11	2,885	22	63,478	<.0001	1,871	5,145
S12	2,727	22	60,000	<.0001	1,769	4,863
S13	2,573	22	56,609	,0001	1,669	4,588
S14	1,885	22	41,478	,0144	1,223	3,362
S15	1,992	22	43,826	,0075	1,292	3,552
S16	1,040	22	22,870	,8183	,674	1,854
S17	,391	22	8,609	,0097	,254	,698
S18	2,723	22	59,913	<.0001	1,766	4,856
S19	,723	22	15,913	,3596	,469	1,290
S20	2,565	22	56,435	,0001	1,664	4,574
S21	2,111	22	46,435	,0035	1,369	3,764
S22	,747	22	16,435	,4125	,484	1,332
S23	,723	22	15,913	,3596	,469	1,290
S24	3,340	22	73,478	<.0001	2,166	5,955
S25	2,391	22	52,609	,0005	1,551	4,264
S26	3,202	22	70,435	<.0001	2,076	5,709
S27	2,083	22	45,826	,0042	1,351	3,714
S28	2,656	22	58,435	<.0001	1,722	4,736
S29	,897	22	19,739	,8013	,582	1,600
S30	,043	22	,957	<.0001	,028	,078
S31	1,352	22	29,739	,2499	,877	2,410
S32	,696	22	15,304	,3023	,451	1,240
S33	1,613	22	35,478	,0690	1,046	2,876
S34	1,443	22	31,739	,1639	,936	2,572
S35	0,000	22	0,000	.	.	.
S36	0,000	22	0,000	.	.	.
S37	2,542	22	55,913	,0002	1,648	4,532
S38	,696	22	15,304	,3023	,451	1,240
S39	,747	22	16,435	,4125	,484	1,332
S40	,391	22	8,609	,0097	,254	,698
S41	0,000	22	0,000	.	.	.
S42	,391	22	8,609	,0097	,254	,698
S43	3,783	22	83,217	<.0001	2,453	6,745
S44	3,059	22	67,304	<.0001	1,984	5,455
S45	2,403	22	52,870	,0005	1,558	4,285
S46	2,953	22	64,957	<.0001	1,915	5,265
S47	,767	22	16,870	,4590	,497	1,367
S48	2,542	22	55,913	,0002	1,648	4,532
S49	2,696	22	59,304	<.0001	1,748	4,807
S50	2,846	22	62,609	<.0001	1,846	5,074
S51	2,715	22	59,739	<.0001	1,761	4,842
S52	2,605	22	57,304	,0001	1,689	4,645
S53	1,340	22	29,478	,2634	,869	2,389

References

- Chomsky, Noam 1957. Syntactic structures. Mouton, The Hague.
- Chomsky, Noam 1961. Some methodological remarks on generative grammar. In: *Word* 17: 219–39.
- Chomsky, Noam 1972. *Language and mind*. Harcourt, New York.
- Chomsky, Noam 1981. *Lectures on government and binding*. Foris, Dordrecht.
- Chomsky, Noam 1982. Some concepts and consequences of the theory of government and binding. (*Linguistic Inquiry Monographs* 6). MIT Press, Cambridge MA.
- Chomsky, Noam 1995. *The Minimalist Program*. MIT Press, Cambridge MA.
- Chomsky, Noam 2000. *New horizons in the study of language and mind*. Cambridge University Press, Cambridge.
- Chomsky, Noam 2002. *On nature and language*. Cambridge University Press, Cambridge.
- Chomsky, Noam – Jerrold J. Katz 1974. What the linguist is talking about. In: *The Journal of Philosophy* 71 (12): 347–67.
- Cornips, Leonie 1998. Syntactic variation, parameters, and social distribution. In: *Language Variation and Change* 10: 1–21.
- Cornips, Leonie – Karen Corrigan forthcoming. Convergence and divergence in grammar. In: Peter Auer – Franks Hinskens – Paul Kerswill (eds): *The convergence and divergence of dialects in contemporary societies*. Cambridge University Press, Cambridge.
- Cowart, Wayne 1997. *Experimental syntax: applying objective methods to sentence judgments*. Sage Publications, Thousand Oaks.
- Duhem, Pierre 1954. *The aim and structure of physical theory*. Princeton University Press, Princeton.
- É. Kiss, Katalin 1987. *Configurationality in Hungarian*. Kluwer, Dordrecht.
- Elman, Jeff 1993. Learning and development of neural networks: the importance of starting small. In: *Cognition* 48: 71–99.
- Elman, Jeff – Elizabeth Bates – Mark Johnson – Annette Karmiloff-Smith – Domenico Parisi – Kim Plunkett 1996. *Rethinking innateness*. MIT Press, Cambridge MA.
- Español Echevarría, Manuel – Angela Ralli 2000. Case mismatches in Greek: Evidence for the autonomy of morphology. In: *Acta Linguistica Hungarica* 47: 179–203.
- Everitt, Brian 1981. *Cluster analysis*. Heinemann-Halsted, London & New York.
- Fodor, Jerry D. 2001. Parameters and the periphery: reflections on syntactic nuts. In: *Journal of Linguistics* 37: 367–92.
- Gervain, Judit 2002. *Linguistic methodology and microvariation in language*. MA thesis, University of Szeged, Szeged.
- Gómez, Rebecca L. – LouAnn Gerken 2000. Infant artificial language learning and language acquisition. In: *Trends in Cognitive Sciences* 4: 178–86.
- Guasti, Maria Theresa 2002. *Language acquisition*. MIT Press, Cambridge MA.
- Hill, Archibald A. 1961. Grammaticality. In: *Word* 17: 1–10.

- Hoji, Hajime 2002. Falsifiability and repeatability in generative grammar. Talk given at TSSS, UIL-OTS, University of Utrecht on the 16 April 2002.
- Keller, Frank 2000. Gradience in grammar. Doctoral dissertation, University of Edinburgh, Edinburgh.
- Kenesei, István 1994. Subordinate clauses. In: Ferenc Kiefer–Katalin É. Kiss (eds): *The syntactic structure of Hungarian*. (Syntax and Semantics 27), 275–354. Academic Press, New York.
- Labov, William 1975. *What is a linguistic fact?* The Peter de Ridder Press, Lisse.
- Lance, G. N.–W. T. Williams 1967. A general theory of classificatory sorting strategies. 1. Hierarchical systems. In: *Computer Journal* 9: 373–80.
- Levine, Robert 2001. The extraction riddle: just what are we missing? In: *Journal of Linguistics* 37: 145–74.
- Lipták, Anikó 1998. A magyar fókuszemelések egy minimalista elemzése [A minimalist analysis of focus raising in Hungarian]. In: László Büky–Márta Maleczki (eds): *A mai magyar nyelv leírásának újabb módszerei III*, 93–115. JATEPress, Szeged.
- McDaniel, Dana–Wayne Cowart 1999. Experimental evidence for a minimalist account of English resumptive pronouns. In: *Cognition* 70: B15–B24.
- Oostendorp, Marc van 2002. Microvariation and grammatical theory. Lecture notes. ([HTTP://WWW.MEERTENS.KNAW.NL/MEDEWERKERS/MARC.VAN.OOSTENDORP/MICROVARIATION](http://www.meertens.knaw.nl/meDEWERKERS/MARC.VAN.OOSTENDORP/MICROVARIATION))
- Ooyen, Arjen van 2001. Theoretical aspects of pattern analysis. In: L. Dijkshoorn–K. Dijkshoorn–J. Towner–M. Struelens (eds): *New approaches for the generation and analysis of microbial fingerprints*, 31–45. Elsevier, Amsterdam.
- Pléh, Csaba 2000. *A lélektan története* [The history of psychology]. Osiris Kiadó, Budapest.
- Quine, Willard 1953. *From a logical point of view*. Harvard University, Cambridge MA.
- Quine, Willard 1972. Methodological reflections on current linguistic theory. In: Donald Davidson–Harman Gilbert (eds): *Semantics of natural language*, 442–54. Reidel, Dordrecht.
- Quine, Willard 1975. On empirically equivalent systems of the world. In: *Erkenntnis* 9: 313–28.
- Schütze, Carlson 1996. *The empirical base of linguistics. Grammaticality judgments and linguistic methodology*. Chicago University Press, Chicago.
- Sorace, Antonella–Frank Keller forthcoming. Gradience in linguistic data. In: *Lingua*.
- Stich, Stephen P. 1971. What every speaker knows. In: *The Philosophical Review* 80 (4): 476–96.
- Stich, Stephen P. 1972. Grammar, psychology, and indeterminacy. In: *The Journal of Philosophy* 69 (22): 799–818.
- Tsohatzidis, Savas 2002. Grammars as objects of knowledge: the availability of dispositionalism. In: *Language Sciences* 24: 97–106.

Zemplén, Gábor – Judit Gervain forthcoming. Az elefántcsonttorony átépítése [Rebuilding the ivory tower]. In: János Kelemen (ed.): Proceedings of the Conference Norma, kijelentés, cselekvés [Norms, statements, acts].

Ziff, Paul 1964. About ungrammaticalness. In: *Mind* 73 (290): 204–14.

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HISTORICAL SOCIOPRAGMATICS: A NEW APPROACH TO THE STUDY OF THE HISTORY OF HUNGARIAN*

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Abstract

The point of departure of this paper is that it is both timely and imperative to renew the traditional systemic approach to historical linguistics primarily focusing on Ancient Hungarian and Old Hungarian and supplement it with usage-centred research based on Middle Hungarian sources (like records of evidence in witchcraft trials). One possible way of doing that is offered by historical (socio)pragmatics, a line of study little known at present within Hungarian linguistics. Although a systematic application of (synchronically tried-and-true, all but classical) pragmatic theories and methods to historical material may come up against unforeseeable or even unresolvable difficulties, such "experimentation" is a promising enterprise: the pragmatic point of view and the theories built on it may provide historical investigations with a framework that can not only be expected to yield new conclusions but also to throw new light upon familiar facts of language history.

The title of this paper raises two questions: 1. Is a new approach to the study of the history of Hungarian needed at all? and 2. What is historical sociopragmatics? In what follows, I will try to answer both questions in that order.

1. Do we need a new approach?

This question has been previously asked by several authors; I will briefly comment on their answers below. The reason why I begin by referring to Péter Maitz's recent paper (Maitz 2000) is that his way of asking this question, and his way of answering it, are rather similar to mine in a number of respects. Although he makes his particular claims with

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reference to the history of the variety of German spoken by the German minority in Hungary, what he says is clearly relevant for the study of Hungarian historical linguistics as well. The differences between his paper and mine are that

(a) I focus on research on the history of Hungarian here and, being a linguist brought up on and working within the classical framework of Hungarian historical linguistics, I approach the issue from the angle of what is (for want of a better term) usually referred to as “traditional” linguistics;

(b) unlike Maitz, I do not pursue the aim of proposing a complex and comprehensive theory of historical linguistics. Rather, in addition to a rather sketchy overview of the state of the art, I wish to point out a gap and to highlight ways of bridging that gap, following some ideas put forward in the literature on other languages and using a few particular instances for exemplification.

1.1. Hungarian historical linguistics, the “traditional” way

I think that there are two basic questions in the history of linguistic changes (as in other areas of inquiry): how and why. Nevertheless, while the ‘hows’, i.e., questions concerning the course that those changes take, have continuously been receiving attempted answers in historical linguistics, the ‘whys’, i.e., queries into the reasons of linguistic changes, are only pursued as long as factors and relationships **internal** to the language system are able to provide some kind of explanation; beyond that, nothing tends to be explored as whatever is beyond language-internal considerations is said to be outside the competence of historical linguistics.

The question that József Herman asked 21 years ago is still an open one: “[...] does a causal explanation of changes in a language system fall within the scope of a realistically defined line of duty of historical linguistics?” (Herman 1982, 4). It appears that the present-day consensus among Hungarian historical linguists mainly shares his basically negative answer: “[...] the most important task continues to be an adequate and coherent exploration of facts, itself a creative type of activity” (ibid. 8).

The prevalent attitude in Hungarian historical linguistics is still dominantly system-centred: what is investigated is primarily grammatical changes, i.e., changes in the system (phonology, morphology, syntax, semantics, word stock) of the language. This claim has been verified and

its reasons within the history of linguistics have been analysed by several authors (e.g., Maitz 2000; Maitz–Molnár 2001; Juhász 2002), hence further support will not be adduced here.

The system-centred character of Hungarian linguistics naturally results in the fact that its focus of inquiry has been on the Ancient Hungarian and Old Hungarian periods, given that almost all interesting events (interesting, that is, with respect to the language system) took place then.

A third peculiarity of Hungarian historical linguistics that logically follows from the foregoing is that it exclusively studies written language or, more exactly speaking, a variety of the language that is particular to genres originally meant to serve written communication—as nothing else survived from the Old Hungarian period (and from Ancient Hungarian not even that).

Of course, the earlier literature also contained hints at ‘extralinguistic’ reasons for linguistic change. On the one hand, this is unavoidable if one deals with semantics, the word stock, etymology, or onomastics, for instance. On the other hand, larger, comprehensive surveys have always devoted some space to historical, social, cultural, etc. circumstances of, as well as their probable effects on, the people speaking the language and hence the language itself (a most obvious example of this is Bárczi 1963). But despite the fact that, e.g., Benkő (1988) deals with this aspect of historical changes more emphatically than it was usually done in earlier works, it is still within the realm of semantics and lexicology that the interdependence of linguistic changes and what are called their language-external reasons are mainly discussed. Phonology, morphology and syntax, highly important as they may be otherwise, are all but untouched in this respect. The terms themselves—“external” vs. “internal” history of a language—reinforce the impression that two clearly different things are involved, even if they may occasionally be loosely connected.

1.2. Hungarian historical linguistics since the pragmatic turn

The pragmatic turn in synchronic linguistics that has resulted in the birth of research trends approaching language from the direction of language use has not brought about a related breakthrough in historical linguistics. This is so even though, time and again, a wish of changing intensity to shift or enlarge the traditional approach towards a more sociolinguistically-oriented one has been sporadically expressed. A detailed review of these ideas would be out of place here, therefore I rest

content with presenting, for illustration, some randomly chosen but perhaps characteristic instances.

The article by Herman (1982) referred to above perambulated the question of whether the methods, results, and attitudes of sociolinguistics are applicable in historical linguistic studies. He then came to an essentially negative conclusion, embodied in his claim, cited above, concerning the most important task of historical linguistics.

A number of years later Klára Sándor, a practising sociolinguist, argued firmly and at many points conclusively that historical linguistics cannot afford to ignore the results of sociolinguistics and that it is pointless, in linguistic research that is at least aiming at comprehensiveness, to draw a sharp distinction between synchrony and diachrony, as well as, consequently, between the attitudes and methods applied in synchronic and diachronic studies, respectively (Sándor 1998a;b).

The historical linguist and dialectologist Dezső Juhász is rather more reserved when it comes to sociolinguistics. Referring back to Herman (1982), he raises the question “why should historical linguistics, having produced respectable results, be inspired by sociolinguistics, a promising but still very young discipline?” (Juhász 2002, 167). Yet, in the same paper, he refers to a “dimensional view” of language as a recommendable researcher’s attitude. He uses that label for an approach to language “in which the three main dimensions of the operation of language, spatial, temporal, and human, form an organic unity” (ibid. 166). However, it appears that he formulates that merely as a theoretical desideratum: as far as practical work is concerned, what he thinks to be feasible is “a division of labour among the various branches of linguistics”, adding that any linguistic description or explanation should involve “the possibility of being extended to all dimensions, even if it later turns out that the study of a certain dimension is irrelevant for the given subsystem or the problem at hand” (ibid.).

In the past few years, following some prompts from the international literature and—for the time being—as a theoretical possibility only, the notion of historical sociolinguistics has also emerged in the Hungarian literature.

Erzsébet Zelliger (Zelliger 1999; 2002), referring to Mattheier and Romaine, describes historical sociolinguistics as a discipline “whose range of interest is restricted to external history” (2002, 305). Its main task is to reconstruct historical changes in a way that “processes be explored within their social embedding” (ibid. 304). What this means more exactly turns

out a few lines later: “What concerns the origin of particular linguistic phenomena, attention should be focused on circumstances that are related to the external history of the language. (Such are, e.g., language contacts, internal migration of the population, the structural layering of the society etc., and the effects of all these on linguistic changes, the modifications that take place in the individual linguistic subsystems.)” (ibid. 305).

What fails to be taken into consideration in this approach is the everyday communication of language users, the face-to-face interaction between speaker and listener, and the joint investigation of each particular linguistic phenomenon with its communicative context.

The first item of the Hungarian literature mentioning pragmatics alongside historical linguistics that I know of is Péter Maitz’s article referred to at the very beginning of this paper. Maitz presents Mattheier’s classification of the areas of historical linguistics; that classification already includes the sociopragmatic approach (Maitz 2000, 508). Maitz and Molnár (2001) follow up, mentioning the demand for a “sociopragmatic direction in historical linguistics”. The authors approach the issue from the vantage point of textology (the subtitle of their article runs as “The role of texts and the tasks of textology in historical linguistics”). They take the central issue of historical text linguistics to be the types and kinds of texts, as well as their being determined by various factors. They discuss the problems of reconstructing and analysing oral communication in past ages and come to the conclusion that historical conversation analysis—that they take to be an adjoining field of study with respect to historical text linguistics—is a more or less Utopian enterprise (ibid. 333–334). In spite of the fact that the grave difficulties that arise concerning historical sources and data are obvious to me as well, I do not share the authors’ pessimistic view—I will return to this issue further below.

The studies briefly surveyed so far—both the ones dealing with researchers’ attitudes and the ones actually discussing historical sociolinguistics—raise theoretical issues, and discuss theoretical considerations. The next question is, what happens in practice.

Although it becomes increasingly obvious for a number of reasons that within historical linguistics it is high time we turned to **spoken language**, hence to the Middle Hungarian and Early Modern Hungarian periods, that process is slow to get going.

As a continuation of *A historical grammar of the Hungarian language* (Benkő et al. 1991; Benkő–Abaffy 1992; Benkő–Rácz 1995) large-scale

research on Middle Hungarian is going on at the Historical Linguistics Department of the Research Institute for Linguistics of the Hungarian Academy of Sciences—but this, being a continuation of earlier work, focuses on the history of the language system just as much as the material published in previous volumes, even though, in view of the period it covers, it will probably include more substantial reference to characteristics of the spoken language.

Furthermore, there are some—albeit rather few—papers on spoken Middle Hungarian or some closely related variety of the language: Gergely (2002) and Pusztai (1999) are two recent examples. These papers, however, do not approach their topic on a sociopragmatic basis.

“Is this important at all?”, the question may arise. An opinion shared by many, even including myself for a time, is “Why, we are doing practically the same thing as they are, except we are doing it with less ado and less theoretical garnishing” (where *we* refers to traditionalists and *they* refers to more pragmatically-oriented approaches). Is this really all there is to it?

At this point, it would be expedient to contrast two well-chosen excerpts from studies written on the same phenomenon of the history of Hungarian. One would be taken from a “traditional” system-oriented paper, whereas the other would exemplify the sociopragmatic approach. Their comparison would hopefully clearly show the differences between the two approaches. However, the point is exactly that papers of the latter, historical-sociopragmatic kind are, at present, completely missing from Hungarian historical linguistics. This is no wonder in view of the fact that we are at the stage of getting acquainted with that approach, rather new as it is in the international literature, too.

Given that it is far beyond the scope of the present paper to fill in that gap, I am forced to illustrate the potential differences on some asymmetrical examples.

First, I quote a characteristic passage from a non-pragmatically oriented, “traditional” paper (Sárosi 1984) that nevertheless investigates a language variety that is close to spoken language (personal letters) and focuses on the relationship between the participants of communication and its linguistic effects.

This longer paper (my own doctoral dissertation, as it happens) investigates terms of address (salutations) and ways people are referred to in 16th-century letters. The excerpt is taken from the chapter called Addressing vs. mentioning. The partners in correspondence are Pál Telegdy;

his wife, Kata Várday; Anna Losonczy (Mrs Ugnot), a relative of Kata Várday's; and István Báthory who was also her relative and was on friendly terms with both her and her husband.

"The Telegdys had a protracted possessory action with Anna Losonczy: she had forcibly retained Kata Várday's pieces of property in Garan and Szentmárton that the Telegdys were unable to get back despite repeated efforts. One of these efforts is documented by letter 11, written by Pál Telegdy to his wife, asking her to copy a letter that he had written previously and to send it to Anna Losonczy. [...]

Neither Pál Telegdy, nor Kata Várday is particularly fond of Anna Losonczy—but now stakes are high and all the risks are on their side. Therefore, Telegdy has recourse to an age-old strategy that always does the trick: he "over-addresses" Anna Losonczy, using *nagyságod* 'your Honour' or *nagyságos* 'Honourable' instead of *kegyelmed* 'your Worship' that she is entitled to. In the long and roundabout form of address all possible ways of influencing people can be found: *nagyságod* is a token of maximal social respect; but at least equally important is the family relationship, also respectfully emphasised ("nekem Berelmes Aßoniomnak nenemnek" 'to my beloved lady aunt'; we do not know how deliberate the order of social and kinship terms may have been in the 16th century in a form of address but this particular order in this particular letter cannot be a matter of mere chance). The construction *szerelmes asszonyom néném* of the form of address is immediately repeated as part of an appositive-augmentative sequence introduced by *mint* 'as': "Szolgálatomat írom kdnek mint Berelmes Aßoniomnak Nenemnek" 'allow me to express my deep respect to you as my beloved lady aunt'; in addition, two other forms replacing a personal pronoun are found in that elaborate formula. It is also characteristic that, whereas Pál Telegdy usually "expresses his thanks" in the introductory formulae of his letters to his wife, here Kata Várday is to "express her deep respect" (literally, her service) to her relative. [...]

That age-old and never-failing trick of over-addressing puts the addressee into a higher social position than what she is actually entitled to. The effect is enhanced by the writer depicting herself as helpless, small, and exposed to danger. Pál Telegdy knows this and makes good use of it: "ne igjekezik ßeginj arua attiafiat meg niomoritanj" 'do not proceed to ruin your poor defenceless relative'. The letter closes on a tone of complete confidence but, to be on the safe side, Pál Telegdy composes a

subservient formula to finish with: “Ngod ßeginj attiafia ßolgaloja Vardaj Kata” ‘Your Honour’s poor relative and servant Kata Várdaj’.

Its writers had high expectations of this [...] letter. Stages of hope and gradual loss of hope are clearly shown by the few references to Anna Losonczy that Pál Telegdy’s covering letter and further letters contain. Letter 11 to Kata Várdaj mentions “Vgnotne aßoniom” ‘My lady Mrs Ugnot’ with confidence and full respect as befits her status and person. In letter 12, he still tells his wife not to be reluctant to call Anna Losonczy “your Honour”, adding that once the possessory action is successfully over, she can call her whatever she likes. This letter is by far less respectful about “Ngos neuü” ‘the one with the honourable name’ than the previous one but since their action is still pending, it is not offensive, either. Then, in letter 13, Pál Telegdy tells his wife that Anna Losonczy, in reply to their letter, sent armed men to their estates. Without knowing what the letter is about, the first (two-part) reference could be taken as reflecting a tender family relationship: “az mj ßerelmes atiankfa [...] Vgnotne aßoniom” ‘our beloved relative [...] my lady Mrs Ugnot’. However, that reference is filled with anger and irony here. This restrained anger and embitterment erupts in the second reference of the same letter where Telegdy calls Mrs Ugnot “az hituan aßonj” ‘that perfidious woman’.

When it comes to Anna Losonczy, István Báthory is even more vehement than Pál Telegdy is. He usually refers to his sister-in-law as “Vgnotné” ‘Ugnot’s wife’, but often he does not even put down her name. The word *asszony* ‘woman’ was used in that period (among other uses) as a term of the highest esteem—Báthory uses that word referring to Mrs Ugnot twice, but both cases are filled with contempt and hatred in the actual context. Báthory loses his temper especially when he has to admit that he himself is powerless as against Anna Losonczy having duped his relatives: “igen alnak kuruane az” ‘that one is a deceitful strumpet’, “alnak kurua” ‘deceitful whore’, “cigani ez lotio” ‘this gypsy slut’. [...]

It is worth noting that although Báthory does write letters to Kata Várdaj about Anna Losonczy, he never uses indelicate words in these; hot-tempered words not fit for a lady are exclusively found in his letters to Pál Telegdy[...].” (Sárosi 1984, 132–7).

A historical sociopragmatic investigation of the same source would be conducted, among others, by using the following concepts and approaches: social roles and facework (Goffman 1955), words of power and solidarity (Brown–Gilman 1968), positive and negative politeness, face

threatening acts (Brown–Levinson 1978), language use and social gender, implicatures, the theory of presuppositions, etc.

As another example, consider the following passage from Ferenc Pusztai's paper analysing spoken Middle Hungarian on the basis of records of evidence in witchcraft trials: interjections, modifiers and adverbs that occur in the records "use lexical means to give an idea of acoustic, intonational, etc. characteristics of spoken language (whose representation in writing continues to be difficult or incomplete in later periods, too).— Separate and detailed documentation would also be required of the fact that such words (whether used by the prosecution or by the defence) often occur initially (or at least early) in an utterance as quoted in the records; thus serving as a "key signature", as it were, for what follows: the pejorative or ameliorative, conciliatory or offensive etc. tone of what is said. In that respect, they are close parallels of forms of address (and partly of forms of greeting), too. For instance: 1728: "amidón a madarak csevegését hallotta, Rehu reájok pökdösvén mondotta nekik: – *piha kutyák*, hiába dicsíritek az istent, hiába, mert nem ad esőt, nem" 'when she heard the twitter of birds, Rehu spat at them and said, "*phooey you dogs*, in vain do you praise God, in vain, he will not give rain, no"; 1747: "Harmad nap múlván az Isten megadván a fatensnek az magzatot, mingyárt azon éjjel reáment a fatensre Gulyásné, az gyermekét akarta elvenni, mondván: – *hoc ide*, te kutya" 'Three days later, when God gave the child to the attestant, Mrs Gulyás rushed at the attestant that very same night wanting to take the child away, saying "*chuck it across*, you dog"; 1729: "Varga Jánosné [...] mondja a fatensnek: – *lelkem szomszéd asszony*, ihon vagyon egy táska" 'János Varga's wife [...] tells the attestant, "*listen, darling*, here's a bag", etc." (Pusztai 1999, 382).

By developing the author's claims in terms of pragmatics, sociolinguistics, conversation and interaction analysis, not only would we get a more elaborated idea of the relationship between the italicised lexical items and forms of address/greeting as indicated in the quote but we could also reveal a historical aspect of discourse markers (expletive elements, particularizers), frequently studied in pragmatics-based synchronic terms but largely neglected so far in a diachronic perspective (at least within Hungarian historical linguistics).

In the papers we have looked at and in other similar papers, there are numerous observations on spoken language (or related varieties) that are in harmony with one another and complement one another in a number of ways—however, for lack of a broader perspective of interpretation

that has not yet taken shape in the Hungarian literature, they remain unrelated pieces of evidence (even in spite of mutual cross-references), hence they are prone to be overlooked. It would be pity to lose sight of them altogether. . .

It is perhaps evident from these few and asymmetrical examples that two different approaches or paradigms are involved here.

1. One of them continues to be a **system-centred** view of a relatively new area of inquiry. The area is new because (a) the period investigated (Middle Hungarian) differs from that of previous studies; (b) the corpus studied is also different as new text types (e.g., protocols, records of evidence) are involved; consequently (c) the direction of research changes, too, in that more attention is devoted to phenomena of the spoken language. The investigation of context is also inevitably introduced but mainly as an illustrative interpretation of (“some extralinguistic reasons for”) phenomena within the language system—the framework remains to be system-centred even if, due to the peculiarities of the topic studied, its scope for action is somewhat wider. Studies of a lexicological, semantic, or stylistic nature (that are relatively easier to accommodate in a system-centred overall framework) may now benefit from data on the circumstances of some communicative events that took place in the past, data that can be used more confidently for confirmation, interpretation and justification (in as much as such data do exist at all, unlike with respect to earlier periods).

2. The other—pragmatic—approach starts out from the functionality of language and explores the interface between language and language use, the systematic aspects of **usage**, given that language is realised in everyday verbal interactions and has a role not only in conveying information but also in creating social relationships in a community (that is, language use is a socio-communicative act). Thus a description and explanation of linguistic phenomena is unimaginable without approaching them from the direction of language use.

This is not merely a matter of shifting emphases: this is a completely distinct point of view that, once the linguist comes round to it, will make it impossible for her to ignore the influential theories and methodologies based on it that are employed in synchronic linguistics.

Two questions remain to be answered: 1. Is it possible for researchers starting out from the two different directions to say the same things, to draw the same conclusions? 2. What is the most essential difference between the two approaches?

I will return to these questions further below; let us now consider the other question that I raised at the beginning of this paper.

2. What is historical sociopragmatics?

Pragmatics itself is not easy to define. Kugler and Tolcsvai Nagy (2000), for instance, write that it is “a branch of linguistics that investigates the relationship between linguistic utterances (sentences, portions of texts) and speech situations”. Andreas Jucker, whose papers—as well as the volumes (co)edited by him—will be referred to several times in what follows, defines pragmatics more generally as “the study of language in use” (Jucker 1995, ix). Jef Verschueren, on the other hand, claims that pragmatics is a “large, loose, and disorganized collection of research efforts” (cited in Jacobs–Jucker 1995, 3). It is certainly beyond my purpose here to go into terminological debates; therefore, even though the latter definition is perhaps a more telling description of the state of the art, I will base what follows on Jucker’s definition (and, at various points, on his actual ideas). In particular, I will present the outlines of the discipline known as historical pragmatics/sociopragmatics on the basis of two recent collections of papers, Jucker (1995) and Jucker et al. (1999).

Jucker (1994) starts from contrastive pragmatics that compares linguistic and language-use characteristics of distinct languages and arrives at historical pragmatics that performs that comparison with respect to various historical periods of the same language.

I have to make a short terminological digression here. In this paper (as in its title) I often use the term *historical sociopragmatics*. This covers exactly the same ground as *historical pragmatics* does. The reason why I prefer the longer term with *socio-* in it is that I want to make clear where the place of this approach is within pragmatics. The whole discipline of pragmatics—including its historical aspects—is a relatively new and unsettled branch of linguistics, yet it has so many trends and so many terms for those trends that it may facilitate orientation if we point out that historical pragmatics, due to its historical—hence: empirical—perspective, belongs to what Leech (1983, 10–1) calls sociopragmatics or pragmalinguistics rather than to theoretical or general pragmatics (ibid. 10). That is, in what follows, *historical pragmatics* and *historical sociopragmatics* mean the same thing: the study of the relationship between language and language use in a historical perspective, with special emphasis on interactions of two or more participants and the contexts of those interactions.

2.1. The nature of historical pragmatics

One of the volumes referred to above (Jucker et al. 1999) bears the title *Historical dialogue analysis*. This is not the name of yet another discipline but rather the same as historical pragmatics—with its contents made more specific. The editors make this clear right at the beginning of their introductory paper saying that essentially all language use goes on in dialogues since speakers or writers use language in order to communicate with an actual, a potential, or an imaginary addressee (ibid. 1). Although this is a rather loose interpretation of the notion of dialogue, there being quite a difference between a text that can only be called a dialogue in a rather indirect sense and an actual interaction—for instance, between a will and a judge–witness dialogue at a witchcraft trial—it goes without saying that such an approach may open up new vistas in historical linguistics where it has hardly ever been taken, if at all.

In their introduction to Jucker (1995), Jacobs and Jucker make an attempt to capture the essence of historical pragmatics. The fact that this is no easy task (and that this discipline can be approached from a number of angles) is demonstrated by the abundance of terms occurring in the first four pages of the introduction: historical pragmatics, diachronic pragmatics, pragmatic historical linguistics, historical linguistic pragmatics, pragmatic perspective to historical linguistics, pragmahistorical linguistics, pragmahistorical linguistic perspective, historical dimension to pragmatics, historical pragmatic perspective, pragmaphilology. This bewildering proliferation is not as bad as it seems, though, if we consider the fact that this is a young area of study still trying to find its place and identity.

In fact, then, historical pragmatics includes both historical linguistics employing the point of view and methods of pragmatics and pragmatics submerged in historicity as a new dimension—these two paths differ in their point of departure and in where the emphases are put during the investigation but eventually lead to one and the same point. In particular, “Historical pragmatics deals with changes in the linguistic structure resulting from altered communicative needs which are due to changes in the social structure” (Jacobs–Jucker 1995, 6).

2.2. The place of pragmatics within a complex historical investigation of language

This is still a rather general formulation. One possible way of making it more precise is to find the place of historical pragmatics within the historical study of language; this can be done as in Mattheier's model, referred to above (cf. Maitz 2000, 507–8).

Archer and Culpeper (2003) see the differences of pragmatics, sociolinguistics, historical linguistics, and corpus linguistics as follows. Pragmatics traditionally studies language use in context, whereas sociolinguistics is primarily interested in language variation and the relationship between a language and the community that speaks it, paying less attention to the dynamic interaction of language and context. The focus of historical linguistics, in turn, is on reconstructed linguistic forms. Finally, corpus linguistics concentrates on text and co-text, as well as relationships between linguistic forms as in collocations, for instance.

It is perhaps worth trying to formulate what in my view is the essence of historical sociopragmatics as seen from the point of view of traditional historical linguistics—using, for the time being, the not-quite-felicitous terms *external* vs. *internal*.

If we maintain that the history of the system of a language is the subject-matter of “internal” historical linguistics and the cultural, historical, social influences that the speech community is exposed to, including the mutual influence of several communities of speakers on one another, constitute “external” historical linguistics, then historical (socio)pragmatics is whatever there is between the two. This discipline studies the everyday verbal interaction of speakers—in the case of historical linguistics, this of course means “written spoken language” (Ferenc Pusztaï's term)—and traces how the linguistic system and the factors determining language use converge and are realised in the language user, how these interact and work together. That is, optimally, it includes both “external” and “internal” historical linguistics—and in exactly the way they are related in real life: embedded in the everyday practice of communicating parties, in an organic unity.

2.3. Areas of application

Where and how historical pragmatics can be put to use includes the following areas.

Somewhat different from an explicitly linguistic-pragmatic investigation of texts is what is called *pragmaphilology*, studying the context of historical texts (documents): this includes the function and aim of a text, the physical and social background and ways of producing and perceiving it; as well as the exploration of the speaker's and the addressee's circumstances of life, social status and personal relationship. (Consider the following titles of contributions from Jucker (1995): "Punctuation: and—'pragmatics'"; "Wills and will-making in 16th and 17th century England: Some pragmatic aspects".)

Linguistic-pragmatic studies fall into two groups that are often not easy to distinguish in terms of whether their point of departure is linguistic form or function. The former type, known as *form-to-function mapping*, can start from relative pronouns, lexical items, or discourse markers, i.e., from various grammatical categories that constitute the basis of comparison, and end up with their period-dependent pragmatic functions. (Examples: "Pragmatic constraints to word order and word order change in English"; "Diachronic analysis of Japanese discourse markers".)

The latter approach, *function-to-form mapping*, on the other hand, can start from a specific speech act or, say, the concept of politeness, use these as the basis of comparison, and have the aim of exploring diverse ways of fulfilling those functions (often grammatical ones, e.g., the use of pronouns) in a diachronic perspective. (Examples: "Linguistic politeness strategies in Shakespeare's plays"; "Discourse strategies in Early Modern English travelogues"; "Constraints on politeness: The pragmatics of address formulae in early English correspondence".)

Of course, whichever perspective is taken, it may turn out to be the case that form and function both undergo changes in time—therefore, it is not possible to draw a sharp dividing line between the two approaches.

2.4. Possibilities of merging the history of the language system with pragmatics

How can the history of the language system (or grammar) and the study of the everyday "natural workings" of language be coupled in actual historical sociopragmatic research?

Whether we consider *form-to-function* or *function-to-form* studies in historical pragmatics, the language system has an important role in both: either as a point of departure or as a destination, any level of the system, down to morphemes, may be the focus of investigation. Explo-

ration of and familiarity with the language system is a *sine qua non* of further research. Usage-based approaches may of course classify linguistic items in a way that does not correspond to traditional part-of-speech categories: for instance, the class of discourse markers includes modifiers, adverbs, conjunctions, interjections, verbs, etc.—but it is exactly such flexible regroupings and the conclusions that can be drawn from them that may provide us with new possibilities of interpretation. That is, a question that has but rarely been raised so far emerges as a fundamental issue: How do the changes of grammatical structure depend on and bear upon pragmatic factors?

In sum, the history of the system and the history of language use cannot do without one another—they are built upon and built into one another, each helps us make sense of the other.

2.5. Sources and data

The most problematic issue in historical sociopragmatics is that of data. First of all: what counts as a source?

Most researchers studying historical aspects of language use do not regard written documents as imperfect imitations of “real”—i.e., spoken—language but rather as “stand-alone” embodiments of communication. Thus, they take the subject-matter of pragmatic investigation to include not only witnesses’ testimonies and (especially private) letters but also plays and other works of fiction, wills, old grammar books, manuals of etiquette, conversation guides and foreign-language textbooks.

Synchronic pragmatics deals primarily with spoken language. The student of historical pragmatics, on the contrary, cannot rely on anything but written sources. Although that fact doubtlessly puts her into a disadvantageous position as compared to synchronic linguists, the situation is not as hopeless as it might seem from what Péter Maitz and Anna Molnár write about it: “[...] absolutely none of oral communication or its texts survived in their original form” (Maitz–Molnár 2001, 333); and “[...] all we may get to know about the history of conversation can only be based on an analysis of the few types of conversation, not even prototypical ones (e.g., dramatic dialogues, parliamentary debates), that have been committed to writing for some reason (like their intention, their predictable significance, etc.)” (ibid. 334). Strangely enough, the authors do not even mention minutes of the court or records of evidence—even though, for instance, talking of records of evidence in medieval witchcraft

trials, “We can say that some of the records appear to be so authentic and directly corresponding to the spoken words of the witness to such an extent that we could refer to them as ‘spoken language (put down in writing)’ rather than written language (that preserves some features of spoken language)” (Pusztai 1999, 358). Of course, no matter how life-like these texts are, several factors (like the writer of the record who—intentionally or unintentionally but—necessarily “filters” what has been said) make it impossible for them to be a match for present-day data based on video recordings and published in the form of transcripts—but such equivalence is not required, either. It is clear that some components of modern conversation analysis and the completeness of the picture it is able to provide have to be automatically given up by someone who studies historical sociopragmatics. Nevertheless, it is by no means a Utopian enterprise in my view to obtain a substantial body of knowledge about the oral communication of the Middle Hungarian period, for instance; that knowledge may be incomplete but will be necessarily and significantly more extended than what we have today. (In that respect, metalinguistic and metapragmatic hints and remarks that are often found, especially in records of lawsuits, will be of great help to the researcher.)

Another problem is how to ascertain the situational context of the text we are studying as it is usually but meagre data that we have in that respect. Collecting as many, as exact and as detailed data about the context as possible is a demanding task but not a hopeless one, even in the case of historical materials. For instance, electronic corpora are available even of relatively early periods of English. Although the compilation of a similar corpus for Hungarian is not more than a matter of hope today, a number of the methods invented for electronic data management can be replicated manually, too; therefore it is worth looking at some of them.

Archer and Culpeper (2003) present a computer program of sociopragmatic annotation that handles not only traditional sociolinguistic variables like age, gender, and social status, but also introduces the category of pragmatic role. They treat speaker-related and addressee-related data with equal emphasis. Since they work with historical material, they define categories like ‘social status’ in a way that reflects the general notions and beliefs of contemporary observers, the actual situation of the period.

In determining a person’s age, for instance, they take the milestones of an average course of life in the Early Modern English period into account. Thus, they rely on the time of first marriage (cca. mid-

twenties) or the time of some important turn in a person's career (e.g., judicial appointment—this could not have happened before the person turned middle-aged), etc. They also make the category of 'role' more detailed than usual, distinguishing activity roles (like 'witness'), kinship roles (like 'wife'), social roles (like 'servant'), and dramatic roles (like 'seducer'). They insist that during the investigation—with the help of their annotation—the interaction between speaker and addressee(s) should be traceable "utterance by utterance".

In sum, it is certain (and demonstrated by actual studies) that speech acts, discourse markers, politeness phenomena (including facework), implicatures and presuppositions, the issue of the cooperative principle, etc. can be studied on a historical material, too.

3. Does historical sociopragmatics give us more than system-oriented historical linguistics does?

We have good reasons to assume that the study of language use will throw new light upon the history of grammatical changes or, more broadly, of changes in the system of a language. It is likely that in a number of matters (of historical morphology, historical syntax, etc.) we will come closer to possible (possibly correct) answers. This can be expected to happen, for instance, with respect to an in-depth interpretation of the statistics of occurrence/frequency that are also included in *A historical grammar of the Hungarian language* (Benkő et al. 1991; Benkő–Abaffy 1992; Benkő–Rác 1995).

It is an old problem often referred to that we know next to nothing about the spoken language—the genuine language, to put it that way—of earlier ages (like Old Hungarian). This is because our claims concerning Old Hungarian are almost exclusively based on texts that were directly meant to be instances of written language. We only guess that this might differ considerably from the spoken language of the period as used by large masses of speakers. The gravity of this problem is certainly alleviated by what Ferenc Puztai puts as follows: "Of course, spoken-language phenomena that can be pinned down in Middle Hungarian documents are to be projected back to earlier synchronic stages of the language since it is beyond reasonable doubt that most of these did not come into being in that period. Rather, it was only then that they found their way,

in large numbers and variety, to written documents whose text type (e.g., record of evidence) made this possible" (Pusztai 1999, 381).

In view of the foregoing, and specifically of what is widely known as the "uniformitarian principle" (see, e.g., Romaine 1982, 122; Sándor 1998b, 66)—saying that linguistic changes in the past must have proceeded just like present-day ongoing changes do, except that the latter can be clearly observed and described, hence it is perfectly legitimate to use the analogy of claims and conclusions of synchronic sociolinguistics for understanding historical change—no further explanation is needed with respect to why historical sociopragmatics may open up promising new vistas in historical linguistics as a whole.

As was pointed out at the beginning of this paper, I do share the view that the competence of historical linguistics by all means includes looking for reasons and explanations—just like in the case of the human body and mind, it is also in human language that "everything is connected to everything else".

After all, what is the most essential difference between studies of Middle Hungarian spoken language that are based on a systemic approach and those based on pragmatic considerations?

The former may go some way in asking why things are the way they are but then they stop doing that at a point where further inquiry would force them to leave the realm of system-bound issues. In order to be able to continue to ask such questions, they would have to assume a different point of view, a different way of looking at things. Let me add here two little examples taken from a paper on letters written by 16–17th-century politicians: "the communicative situation (who writes to whom) can be seen to influence the use of phrasemes"; and—writing about the use of milder terms of abuse—"phraseology involving *eb* 'dog' seems to have been in use indiscriminately, irrespective of who the writer or the addressee was" (Gergely 2002, 195–6). Both statements would naturally be followed by asking why this is so—but in a paper whose approach is basically non-pragmatic, neither asking the question nor trying to find an answer would be consistent with the author's intentions.

If we adopt a pragmatic perspective in our research on the history of a language, we can more confidently ask questions beginning with 'why', simply because we stand a better chance of getting closer to the answer than in a purely systemic or a purely "external" approach. Klára Sándor paraphrases Labov saying that "our results are necessarily distorted if we try to analyse a linguistic phenomenon in two parts: the sum of results

yielded by “external” and by “internal” linguistics do not add up to be equivalent to results that a linguist arrives at by studying language in its natural course of operation” (Sándor 1998a, 58).

One more question remains to be answered. When it comes to the historical investigation of spoken language, do representatives of the two different paradigms, the system-oriented and the pragmatics-based ones, really say the same things or come to the same conclusions—indeed, is it possible for them to say the same things, come to the same conclusions, or reveal the same potential consequences, despite the fact that their points of departure and their methods are not the same?

This is a real issue, and an open one. Research on Middle and Early Modern Hungarian spoken language—either that of the type rooted in the traditions of Hungarian historical linguistics and based on a systemic approach, or that of the relatively more recent type in terms of historical sociopragmatics—has not yet produced a sufficient amount of actual results for us to be able to give a well-founded answer to that question (the former type has produced precious little, while the latter, as far as I know, none at all).

I can only speculate that research starting from those two directions will probably not arrive at the same point. If one starts exploring an essentially functional issue, using pragmatics as a theoretical and practical basis, then one knows and accepts from the very start that one’s current problem is part of the network of correspondences that—since the “turn”, i.e., over the past 30–40 years—synchronic pragmatics has revealed and substantiated concerning language use. That embeddedness of a problem to be explored makes it possible for us to draw conclusions that are not better or worse than the ones that can be drawn in terms of the traditional systemic approach: they are simply different.

My answer to the question raised at the beginning of this paper—of whether a new approach to the study of the history of Hungarian is needed—is in the positive. But what I have in mind is not a **change** of perspective: it is an **additional** angle to view things from. The more so since I think that historical pragmatics would—or could—mean just that. That is: it should not mean adopting a trendy new discipline and discarding the old one but rather a great new chance. The chance of unrestricted traffic, going to and fro, between two paradigms, two approaches to linguistics.

This is obviously a matter of one’s view of what linguistics is all about. What is more important for us: keeping our paradigms or ap-

proaches “uncontaminated”, that is, using them consistently and in an exclusive manner; or else the questions we may ask one after the other that open up new perspectives and carry us over to new schools of thought—even if this entails a certain mix-up of viewpoints and aspects, and we cannot be sure if that mix-up would lead us to chaos or rather to a new order?

In the present age of interdisciplinarity this may sound like a simple-minded or belated query; but as far as I can see, it is not. Linguistics struggles with the embarrassing contradiction that, on the one hand, being a branch of science, it appreciates fair, thorough, and objective exploration as well as clear, consistent, and unambiguous argumentation more than anything else; but on the other hand, its subject-matter is a complex, (on a common-sense level) inconsistent, rarely if ever clear-cut (or clearly interpretable) human facility: language. Thus, we often find ourselves in a fairly grotesque situation: each school of linguistics “keeps telling its own story”, consistently using its own technical parlance that differs from everybody else’s, while the various parties sometimes fail to understand what the others are saying and the outsider does not realise that they all speak about the same thing, after all, except they approach it from diverse directions. In this respect, a really satisfactory solution will probably not become available as long as it is more important for us to stick to a reassuring unanimity and consistency coming from our steady and exclusive application of the tools of our own paradigm than to admit that our single and common subject-matter, human language, is anything but clear and unanimous and that we will never come close to “explaining” it if we insist on a single point of view—indeed there is no paradigm of linguistics that would be able to embrace the whole network of connections that, taken together, define human language.

What I think is important is the question we ask about language and language use (that are organically bound up with one another), in order to get as far as possible in answering it. To be able to do that, the researcher who wants to keep asking ‘why’ and who is familiar with and feels comfortable in both paradigms, will employ exactly the tools taken from either, or indeed any combination of tools taken from both, that help her in the particular task she is working on and make it possible for her to achieve the aim of it all: the deepest possible understanding of the given problem.

References

- Archer, Dawn – Jonathan Culpeper 2003. Sociopragmatic annotation: New directions and possibilities in historical corpus linguistics. In: Andrew Wilson – Paul Rayson – Tony McEnery (eds): *Corpus linguistics by the lune: A Festschrift for Geoffrey Leech*, 37–58. Peter Lang, Frankfurt am Main.
- Bárczi, Géza 1963. *A magyar nyelv életrajza* [The biography of the Hungarian language]. Gondolat Kiadó, Budapest.
- Benkő, Loránd 1988. *A történeti nyelvtudomány alapjai* [Fundamentals of historical linguistics]. Tankönyvkiadó, Budapest.
- Benkő, Loránd – Erzsébet E. Abaffy – Endre Rácz (eds) 1991. *A magyar nyelv történeti nyelvtana. 1. kötet: A korai ómagyar kor és előzményei* [A historical grammar of Hungarian. Volume 1: Early Old Hungarian and its antecedents]. Akadémiai Kiadó, Budapest.
- Benkő, Loránd – Erzsébet E. Abaffy (eds) 1992. *A magyar nyelv történeti nyelvtana. 2/1. kötet: A kései ómagyar kor: morfológia* [A historical grammar of Hungarian. Volume 2/1: Late Old Hungarian: morphology]. Akadémiai Kiadó, Budapest.
- Benkő, Loránd – Endre Rácz (eds) 1995. *A magyar nyelv történeti nyelvtana. 2/2. kötet: A kései ómagyar kor: mondatnyelv, szövegnyelv* [A historical grammar of Hungarian. Volume 2/2: Late Old Hungarian: syntax, text grammar]. Akadémiai Kiadó, Budapest.
- Brown, Penelope – Stephen Levinson 1978. Universals in language usage: politeness phenomena. In: Esther N. Goody (ed.): *Questions and politeness: strategies in social interaction*, 56–289. Cambridge University Press, Cambridge.
- Brown, Roger – Albert Gilman 1968. The pronouns of power and solidarity. In: Joshua A. Fishman (ed.): *Readings in the sociology of language*, 252–275. Mouton, The Hague.
- Gergely, Piroska B. 2002. A közéleti és a beszélt nyelv viszonya az erdélyi fejedelemségben [Public vs. private language in the Principality of Transylvania]. In: Hoffmann et al. (2002, 31–115).
- Goffman, Erving 1955. On face-work. In: *Psychiatry* 18: 213–231.
- Herman, József 1982. Szociolingvisztika és nyelvtörténet [sociolinguistics and historical linguistics]. In: *Magyar Nyelv* 78: 1–8.
- Hoffmann, István – Dezső Juhász – János Péntek (eds) 2002. *Hungarológia és dimensionális nyelvészlelet. Előadások az V. Nemzetközi Hungarológiai Kongresszuson* [Hungarology and a dimensional view of language. Papers presented at the Fifth International Congress of Hungarology]. Debrecen & Jyväskylä.
- Jacobs, Andreas – Andreas H. Jucker 1995. The historical perspective in pragmatics. In: Jucker (1995, 3–33).
- Jucker, Andreas H. 1994. The feasibility of historical pragmatics. In: *Journal of Pragmatics* 22: 529–547.
- Jucker, Andreas H. (ed.) 1995. *Historical pragmatics. Pragmatic development in the history of English*. John Benjamins, Amsterdam & Philadelphia.

- Jucker, Andreas H. – Gerd Fritz – Franz Lebsanft (eds) 1999. Historical dialogue analysis. John Benjamins, Amsterdam & Philadelphia.
- Juhász, Dezső 2002. Magyar nyelvjárástörténet és történeti szociolingvisztika: tudományselejtési kérdések [Hungarian historical dialectology and historical sociolinguistics: issues of scholarly attitudes]. In: Hoffmann et al. (2002, 165–72).
- Kugler, Nóra – Gábor Tolcsvai Nagy 2000. Nyelvi fogalmak kisszótára [A pocket dictionary of linguistics]. Korona Kiadó, Budapest.
- Leech, Geoffrey N. 1983. Principles of pragmatics. Longman, Harlow.
- Maitz, Péter 2000. A nyelvtörténetírás elvi kívánalmairól a német nyelv magyarországi története kapcsán [On some desiderata of principle in historical linguistics, with respect to the history of German in Hungary]. In: Magyar Nyelvőr 124: 501–513.
- Maitz, Péter – Anna Molnár 2001. Nyelvtörténetírás és történeti szövegnyelvészet [Historical linguistics and historical text linguistics]. In: Péter Csatár – Péter Maitz – Krisztián Tronka (eds): A nyelvtantól a szövegtanig. Tanulmányok Kocsány Piroska tiszteletére [From grammar to textology. Papers in honour of Piroska Kocsány], 322–35. Kossuth Egyetemi Kiadó, Debrecen.
- Pusztai, Ferenc 1999. Beszélt nyelv a középmagyarban [Spoken Middle Hungarian]. In: Névtani Értesítő 21: 380–6.
- Romaine, Susan 1982. Socio-historical linguistics. Cambridge University Press, Cambridge.
- Sándor, Klára 1998a. Amiért a szinkrón elemzés foszladozik [Why synchronic analysis frays]. In: Klára Sándor (ed.): Nyelvi változó – nyelvi változás [Linguistic variables and linguistic change], 57–84. JGyF Kiadó, Szeged.
- Sándor, Klára 1998b. A magyar–török kétnyelvűség és ami körülötte van [Hungarian–Turkish bilingualism and what is around it]. In: István Lanstyák – Gizella Szentmihályi (eds): Nyelvi érintkezések a Kárpát-medencében [Language contacts in the Carpathian Basin], 7–26. Kalligram Könyvkiadó, Pozsony (Bratislava).
- Sárosi, Zsófia 1984. Magyar nyelvű megszólítás és említés XVI. századi misszilisekben [Hungarian forms of address and names mentioned in 16th-century letters]. Doctoral dissertation, ELTE, Budapest.
- Zelliger, Erzsébet 1999. Gondolatok a magyar nyelvtörténet szociolingvisztikai szempontú megközelítéséhez [Remarks on a sociolinguistic approach to Hungarian historical linguistics]. In: Magyar Nyelvjárások 38: 505–12.
- Zelliger, Erzsébet 2002. A történeti szociolingvisztika egyetemi oktatása [Historical sociolinguistics as a university course]. In: Hoffmann et al. (2002, 303–7).

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HUNGARIAN YOD

PÉTER SIPTÁR

Abstract

This paper argues that the segment /j/ in Hungarian is neither a fricative (as traditionally claimed) nor a glide (as it is usually classified in the international literature). The arguments adduced involve syllabification patterns, processes of *j*-obstruentisation, phonetic details of hiatus resolution, as well as phonotactic phenomena. Additional problems that are touched upon include the question whether Hungarian has diphthongs, the behaviour of /j/ with respect to vowel ~ zero alternation, voicing assimilation and final devoicing, the analysis of imperative forms of *t*-final verbs, as well as the relationship between the Duke of York gambit and the principle of Proper Inclusion Precedence.

1. Introduction

In this squib, we will discuss the phonological status, representation, and behaviour of the Hungarian phonological segment /j/ (henceforward, ‘yod’). The traditional definition, still widely assumed in Hungary, says that yod is a “palatal voiced fricative” in this language (see, for instance, Kassai 1998, 130). In that definition, the term ‘palatal’ is to be understood as usual; however, ‘voiced’ and ‘fricative’ both deserve a short digression in this context.

If by ‘voiced’ we simply mean segments during the articulation of which the vocal cords are vibrating, then the usual phonetic realisation of yod, as occurs e.g., in *jó* ‘good’, is undoubtedly voiced, just like those of /a:/, /m/, or /b/. But this simple interpretation of what ‘voiced’ means is not quite adequate either in (articulatory) phonetic, or (especially) in phonological terms. As it is now widely known, a given laryngeal configuration can produce either vibration or no vibration of vocal cords, depending on a number of factors (see Hayes 1984 and the literature cited there). In particular, it is possible for the same laryngeal configuration to produce ‘voicelessness’ (lack of vocal cord vibration) in obstruents, but ‘voicing’ (vocal cord vibration) in sonorants, owing to the difference in pressure drop across the glottis in the two cases. Therefore, a simple

articulation-based phonological definition of voicing will give us different results than a simple acoustics-based phonological definition will (with sonorants taking sides with voiceless obstruents in the first, but with voiced obstruents in the second, case).¹ In other words, whether sonorants count as ‘voiced’ or ‘voiceless’ depends on whether an acoustic or an articulatory definition is chosen; and that choice, in turn, depends on phonological considerations in any particular language.

Phonologically speaking, then, in Hungarian at least (but also in a number of other languages), vocal cord vibration in sonorants and that in voiced obstruents are two entirely different things. In Hungarian, (nearly) all obstruents come in voiced/voiceless pairs; and since the members of those pairs are in phonological opposition with each other, this property of theirs (i.e., whether they are voiced or voiceless) is a phonologically relevant one. On the other hand, **all** sonorants are produced with vocal cord vibration, but in their case this phonetic property (just because of that fact) is phonologically irrelevant. We could say that the category of voicing is simply not interpretable for sonorants (including vowels): they are neither voiced nor voiceless in this sense.² The only remaining issue to decide is whether yod, in Hungarian, is a sonorant or an obstruent—since, strictly speaking, it can only be defined as ‘voiced’ in the latter case.

Turning to “fricative”, if this term is interpreted as an equivalent of the traditional Hungarian term *részhang*, it cross-classifies the obstruent/sonorant dichotomy (see e.g., Kassai 1998, 112–9; Szilágyi 2000, 26–46). Along with segments that would be fricatives on any interpretation, it further includes yod (“central palatal fricative”) and even /l/ (“lateral dental fricative”). However, if we wish to restrict the term “fricative” to a subclass of obstruents (as is usual in the literature, cf. Siptár 1994, 199–201 for discussion), the question we are faced with reduces to “Is Hungarian yod a fricative in this narrower sense, too?”. In other words, we are back where we were at the end of the previous paragraph: is yod a sonorant, or is it an obstruent?

Phonetically, yod (in most positions, e.g., in *jó* [jo:] ‘good’, *hajó* [hojo:] ‘ship’, *haj* [hoj] ‘hair’; *rajta* [rojtɔ] ‘on it’, *rakja* [rokjo] ‘puts it’)

¹ For details and discussion, see Halle–Stevens (1971); Hayes (1984); Durand (1990, 54–7); Durand–Siptár (1997, 54–6), and further references cited there.

² On some phonological consequences of this, cf. Hayes (1984); Lombardi (1995a;b). A description of the Hungarian consonant system in these terms can be found e.g., in Siptár (2003, 320–48).

is a palatal approximant since no friction is produced when it is articulated. It is only in a single type of cases where a proper fricative is found: postconsonantly, in word final position (before a pause or another consonant). Here, if the preceding consonant is voiceless,³ a voiceless (fortis) palatal fricative ([ç]) is pronounced: *kapj* [kəpç] 'get (imp)', *rakj* [rəkç] 'put (imp)', *döff* [døfç] 'stab (imp)'; if the preceding consonant is voiced, a lenis palatal fricative ([j]) occurs. This fricative is fully voiced if a consonant-initial word follows (except where the following consonant is a voiceless obstruent: voice assimilation applies to the whole word-final cluster in this case: *vágj ki* [kçk] 'cut out (imp)'); before pause, [j] loses much of its voicing due to a very general and very late (possibly non-language-specific) process but does not become fortis: *férj* [fe:rj] 'husband', *szomj* [somj] 'thirst', *dobj* [dobj] 'throw (imp)'.⁴

Thus, it is phonetically quite unjustified to call the usual variety of yod (*jó* 'good', *hajó* 'ship', *haj* 'hair'; *rajta* 'on it', *rakja* 'puts it') a fricative. But perhaps, phonologically, this segment nevertheless behaves as an obstruent? If that were the case, its phonetic nature that usually (i.e., in almost all cases) contradicts that behaviour would not be a decisive factor since, as we have just seen, fricative variants can also be found (even if in a rather restricted range of cases). But yod cannot be an obstruent in phonological terms either; if it were, it should participate in voice assimilation. In fact, however—except for the case just mentioned where it is obstruentised first and then becomes [ç] either through progressive voice assimilation as in *kapj* etc. or through the general rule of (regressive) voice assimilation as in *vágj ki* etc.—this segment neither undergoes nor triggers voice assimilation (cf. *ajtó* [ɔjto:], *[ɔçto:] 'door'; *fáklya* [fa:kjɔ], *[fa:gjɔ] 'torch').

But if yod is not a fricative, what is it? The major subclasses of sonorants are nasals, liquids, and glides (semivowels). Given that yod is obviously not a nasal, there are three possibilities: either open a new class for them within sonorants (call it "approximants", say), or take it to be a liquid, or take it to be a glide. All three solutions have been proposed in the literature.

³ Except where its effect is overridden by that of a subsequent voiced obstruent as in *lépj be* [le:bjβe] 'step in (imp)', cf. section 4.

⁴ For more details, see Siptár (2003, 335–8); Siptár–Törkenczy (2000, 205–6); and further below (section 4). Cf. also Kassai (1996) for some phonetic background and an attempted historical explanation.

The option involving a new category has been taken in Dressler–Siptár (1989, 44), on the grounds that there is no general phonetic or phonological reason to classify yod as belonging to the natural class containing /l/ and /r/ (we will see that this claim is not supported by the facts; cf. also Dressler–Siptár 1998, 51). Another account where yod is claimed to be an approximant (as a separate phonological category) is given by Szende (1992); cf. also Cser–Szende (2002).⁵ It is classified as a liquid e.g., in Nádasy–Siptár (1989, 15–6); Siptár (1993; 1994; 1995; 2001); and that will be argued here, too, to be the best option. However, in an overwhelming majority of the relevant literature (e.g., Vago 1980; Olsson 1992; and all current element-based accounts, cf. Ritter 2000; Szigetvári 1998; 2001, as well as the copious literature referred to there) yod is claimed to be a glide (semivowel).

2. Diphthongs?

Now if yod is a glide, the first issue that presents itself is this: Are there diphthongs in (Standard) Hungarian? The offhand answer to that question is “No, of course not.” Yet, it has been suggested (see Kylstra–de Graaf 1980; Kylstra 1984) that the initial portions of e.g., *ajtó* ‘door’ and *autó* ‘car’ should both be analysed as diphthongs (the case of *au* will be ignored here). That claim was argued against by Kassai (1982; 1984), the really important counter-arguments, in my view, are as follows (some of them are based on Kassai’s arguments; for more details, see Siptár 1994, 172–4, 200; Siptár–Törkenczy 2000, 16–8).

First of all, we have to make a distinction between phonetic and phonological diphthongs. The former undoubtedly do occur in Hungarian speech: the issue is whether they are to be interpreted as diphthongs (branching nuclei) in phonological terms as well. Briefly, the following arguments can be adduced against this conclusion: (i) yod occurs before and after practically all Hungarian vowels, be they short or long, hence there would be roughly twice as many diphthongs involving yod in this language as there are vowels; (ii) Hungarian “diphthongs” never alternate with short monophthongs (and even variation of the type *ilymódon* [ijmo:don] ~ [i:mo:don] ‘in this way’ is not monophthongisation proper but yod-drop with compensatory lengthening); (iii) the definite article *a*

⁵ Unless both of the other two solutions turn out to be untenable in what follows, Occam’s razor suggests that this is the least preferable option of the three.

~ *az* 'the' occurs before *jV*-initial words (e.g., *játék* 'toy') as *a*, rather than *az*, that is, such words begin with a consonant rather than with a rising diphthong; (iv) similarly, given that the initial consonant of the suffix *-val/-vel* 'with' gets assimilated to stem final consonants but appears as [v] after vowel-final stems (cf. *láb-bal* [la:b:ɔl], *[la:bvɔl] 'with foot' vs. *szó-val* [so:vɔl], *[so:ɔl] 'with a word'), the fact that e.g., 'with butter' is *vajjal* [vɔj:ɔl] rather than **vajval* [vɔjvɔl] suggests that yod is a consonant; (v) and finally, the mere fact that yod can occur long as in *vajjal* [vɔj:ɔl] 'with butter' is in itself enough to render any kind of diphthong interpretation impossible.⁶

But these arguments against the interpretation of yod as the non-head constituent of a diphthong do not exclude its being a glide in onset/coda position. The facts that there are no cooccurrence restrictions between a yod and a following/preceding vowel or that there are no diphthong/monophthong alternations are quite reconcilable with the view (going back to Szépe 1969) that yod is a glide. Furthermore, the fact that *jV*-initial words select the 'preconsonantal' allomorph of the definite article does not necessarily entail that yod should be consonantal: actually, *hV*-initial words select the same alternant and /h/ is (usually analysed as) [- cons]. Hence, this allomorph of the definite article is more properly called 'pre-onset'. Similarly, forms like *vajjal* 'with butter', although they constitute evidence against a branching nucleus interpretation, have nothing to say about the feature content of yod as long as it occupies the coda (or, if long, a coda and a subsequent onset).

Nevertheless, I wish to maintain the claim that Hungarian yod is not a glide ([– cons, + son]) but a liquid ([+ cons, – son]). Part of the reason resides in the fricative allophones I mentioned above; these are technically easier to derive if yod is [+ cons] to begin with. But the claim that yod is not simply 'the vowel melody /i/ occurring in a nonnuclear syllable position' (= a glide) can be supported by empirical evidence, too.

⁶ András Cser (p.c.) points out to me that an alternative account that explains the long occurrence of yod but is not an argument against the existence of diphthongs would be to assume that e.g., *vaj* 'butter' contains a diphthong in the nucleus plus a yod in the coda (the latter being geminated in a form like *vajjal* 'with butter'). He adds that a similar (similarly ambiguous) situation obtains in Ancient Greek. However, whether we assume a diphthong in *vaj* or not, the existence of yod (as distinct from part of a diphthong) is not made superfluous on this account, and that is what matters here.

3. Syllabification

Part of this evidence concerns syllabification. On the assumption that syllable structure is assigned in the course of derivation rather than listed in the lexicon,⁷ the minimal pairs and near-minimal pairs in (1) cannot be properly syllabified if the vowel /i/ and yod are melodically identical.⁸

- | | | | | | | | |
|-----|-------|-------------------------|----------------------|-----|--------|-----------|---------|
| (1) | mágia | [ma:gi. ^j ɔ] | ‘magic’ _N | vs. | máglya | [ma:g.jɔ] | ‘stake’ |
| | ion | [i. ^j on] | ‘id.’ | vs. | jön | [jøn] | ‘come’ |
| | fiú | [fi. ^j u:] | ‘boy’ | vs. | fjord | [fjord] | ‘id.’ |

As can be seen from the examples, prevocalic *i/j* (i.e., a putatively uniform underlying segment that may surface either as a vowel or as yod depending on the syllabic position it finds itself in) will be syllabified either as another nucleus or as an onset: the choice is more or less arbitrary.⁹ With postvocalic *i/j*, we find a similar—or even higher—degree of arbitrariness (concerning whether it will be a nucleus or a coda):

- | | | | | | | | |
|-----|--------|--------------------------|-------------------|-----|--------|-----------|------------------|
| (2) | laikus | [lɔ. ^j i.kuf] | ‘layman’ | vs. | pajkos | [pɔj.kɔf] | ‘naughty’ |
| | fáit | [fa:. ^j it] | ‘his trees (acc)’ | vs. | fájt | [fa:jt] | ‘it hurt (past)’ |
| | női | [nø:. ^j i] | ‘feminine’ | vs. | nőj | [nø:j] | ‘grow (imp)’ |

Since there are suffixes consisting of a sole *-i* and the imperative marker consists of a sole *-j*, it is easy to construct examples in which post-consonantal word final /i/ and yod contrast; also, both segments constituting a morpheme in themselves in these cases, it cannot even be claimed that different position in terms of morphological boundaries should be the reason for the different syllabification, cf. *kéri* ‘ask (3sg def)’ vs. *kérj* ‘ask (imp)’, *fali* ‘wall (adj)’ vs. *falj* ‘devour (imp)’, *Mari* ‘Mary (dim)’ vs. *marj* ‘bite (imp)’. Pairs like *síel* [ʃi:^jɛl] ‘ski_v’ vs. *milyen* [mijɛn] ‘what kind’ and *leír* [lɛ:^ji:r] ‘write down’ vs. *tejig* [tɛjig] ‘to milk’ indicate that an *i/j* associated to two timing slots can be syllabified as either a branching

⁷ Of course, in any framework where syllable structure is lexically given, this argument becomes invalid.

⁸ In the examples, syllable boundaries are indicated by ‘.’ and superscript [j] stands for an epenthetic yod that resolves a hiatus. For hiatus resolution by yod-epenthesis, see section 5 below.

⁹ Although it must be admitted that *jön* and *fiú* are the expected patterns as opposed to *ion* and *fjord*—i.e., word initially, if another possible onset consonant is not present, the *i/j* will be an onset rather than a nucleus, whereas if there is such a consonant, the *i/j* will be nucleus rather than onset—the word medial cases like *mágia* vs. *máglya* are strictly unpredictable.

nucleus or a nucleus plus an onset, respectively an onset plus a nucleus. Finally, the nouns *íj* [i:j] ‘bow’, *díj* [di:j] ‘prize’, *szíj* [si:j] ‘strap’ would contain the common melody of *i/j* associated to three timing slots and multiple ambiguity would arise as to how to syllabify them: *íj* could in principle be *[ji:], *[jjj], *[ijj], or [ij:] as well (the last version actually does occur as an alternative pronunciation for *íj* ‘bow’). All these complications are avoided if the vowel /i/ and yod are segmentally represented in two different manners.

Further considerations supporting the conclusion that yod is consonantal (i.e., a liquid) include processes in which yod acts as a (consonantal) trigger, e.g., *l*-palatalisation as in *alja* [ɔj:ɔ] ‘its bottom’ (see Siptár–Törkenczy 2000, 178–82), or as a (consonantal) target, e.g., *j*-assimilation as in *moss* [mof:] (< *mos* + *j*) ‘wash (imp)’, cf. Vago (1980, 36); Siptár (1994, 254–5); Zsigri (1997); Siptár–Törkenczy (2000, 185), or *j*-obstruentisation (see Siptár–Törkenczy 2000, 186–7, 205–6; Siptár 2003, 335–8) that we now turn to.

4. Obstruentisation

Hungarian has two *j*-obstruentisation rules: a lexical and a postlexical one. The former plays a role in the derivation of imperative forms of *t*-final verbs. Classical generative tradition has it (ever since Szépe 1969; for a full discussion of the relevant analysis, see Vago 1980) that such forms involve a kind of palatalisation process whereby stem-final /t/ gets palatalised into [ʃ], respectively [tʃ], followed by full assimilation of the yod of the imperative morpheme to that [ʃ] or [tʃ], as well as to underlying stem-final sibilants (thus, *üt* ‘beat’ /yt/ + /j/ → yʃ + j → [yʃ:], *tanít* ‘teach’ /tɔni:t/ + /j/ → tɔni:tʃ + j → [tɔni:tʃ:]; cf. *mos* ‘wash’ /mof/ + /j/ → [mof:], *hoz* ‘bring’ /hoz/ + /j/ → [hoz:]). This analysis can be restated in autosegmental terms as well (see Siptár 1994, 252–5). However, in Siptár–Törkenczy (2000, 183–8), a different analysis has been proposed in which it is the yod that is affected first: it changes into [j] (this is the first *j*-obstruentisation rule of the two mentioned earlier in this paragraph); what subsequently happens in cases of the *taníts* ‘teach (imp)’ type is due to an independently motivated affrication rule, one that also applies in e.g., *hátsó* ‘rear’ /t/ + /ʃ/ → [tʃ:]. That new analysis is superior to the old one in a number of respects, though it must be admitted that it requires a separate *t*-assimilation rule in the *üt*-type cases (thus, /yt/ + /j/ → yt + j → [yʃ:]).

The *j*-obstruentisation rule itself that the previous paragraph hinges upon is a kind of progressive voicing assimilation: it says that between a /t/ and a morpheme boundary¹⁰ yod turns into a voiceless palatal fricative. Technically, the rule has to do nothing but change the [+son] of the yod into [-son], i.e., obstruentise the yod. As we saw above, sonorants are not specified as voiced—hence, if you do nothing to a sonorant but turn it into an obstruent, it will automatically come out as a **voiceless** obstruent. But why is it that the output of the rule will be [ʃ], rather than [ç]? The reason is that the rule at hand is subject to the principle of Structure Preservation in that it is unable to produce a segment type that is not a member of the underlying (lexical) segment inventory of the language. Therefore, the actual output will be the segment type that is phonetically closest to [ç] but is a member of the underlying inventory of Hungarian, that is, [ʃ].¹¹ However, that principle is no longer in force in the postlexical component; therefore, if a similar rule (or the same rule) turned the yod into a voiceless obstruent postlexically, its output would be [ç], not [ʃ].

Is there such a rule in Hungarian? Yes, there is: it is the other *j*-obstruentisation rule referred to above. Earlier on in this paper, that rule has already been mentioned in passing: it is the obstruentisation of the yod of word-final *Cj* clusters. The most often quoted case—*lopj* [pç] ‘steal (imp)’, *rakj* [kç] ‘put (imp)’, *döfj* [fç] ‘stab (imp)’—appears to be quite simple. All we seem to need is a generalised postlexical counterpart of the rule discussed in the previous paragraph, i.e., a rule along the lines sketched in (3) and we get the devoicing effect for free: /j/, being a sonorant, has no voicing specification; turn it into an obstruent without adding one and you end up with a **voiceless** obstruent.

(3) /j/ → [-son]/C ___]w

However, the issue is rather more complex than that.

¹⁰ There is, of course, another morpheme boundary **between** the stem-final *t* and the suffixal yod; but that boundary need not be mentioned in the rule since morpheme internal /tj/ sequences do not occur in Hungarian. On the other hand, the morpheme boundary **after** the yod has to be mentioned in order to exclude all other cases in which a suffix **begins with** yod (as opposed to the present case in which the suffix **consists of** a yod).

¹¹ For details on how this is technically done, cf. Siptár–Törkenczy (2000, 186–7).

There are twelve logical possibilities in terms of context (disregarding cases where a vowel follows—in the next word—and the /j/ is realised as [j]). These are displayed in (4). The columns stand for right context, the rows for left context.¹²

(4)

	SONORANT	VOICED OBSTRUENT	VOICELESS OBSTRUENT	NOTHING
SONORANT	j ~ ∅	j ~ ∅	ç ~ ∅	j
VOICED OBSTRUENT	j ~ ∅	j ~ ∅	ç ~ ∅	j
VOICELESS OBSTRUENT	ç ~ ∅	j ~ ∅	ç ~ ∅	ç

One possibility for each case except the last column (i.e., if anything follows) is to have the reflex of yod deleted (e.g., *nyomj le* [ɲomlɛ], *nyomj be* [ɲombɛ], *nyomj ki* [ɲomki], *dobj le* [doblɛ], *dobj be* [dobɛ], *dobj ki* [dopki], *lépj le* [le:pɛ], *lépj be* [le:bɛ], *lépj ki* [le:pki]). This applies in fast/casual speech and does not bear on the analysis of the rest of the possibilities.

The three cases in which we get [j] before a voiced obstruent (*nyomj be* [ɲomjbɛ], *dobj be* [dobjbɛ], *lépj be* [le:bjbɛ]), could involve the usual rule of voicing assimilation assuming, as above, that the yod is simply obstruentised first. The five cases in which [ç] is produced before a voiceless obstruent, before a sonorant, or utterance finally (*nyomj ki* [ɲomçki], *dobj ki* [dopçki], *lépj ki* [le:pçki], respectively *lépj le* [le:pçɛ], *lépj* [le:pç]), could be analysed with no additional process, simply as suggested in the previous paragraph. However, in the remaining cases we have to account for the voiced realisation of the palatal fricative. In *dobj* [dobj] and *dobj le* [dobjlɛ], we could, if pressed, assume **rightward** voice assimilation, but in cases of the *nyomj* [ɲomj] and *nyomj le* [ɲomjlɛ] type even this unusual assumption would not help. Therefore, we have to give up the simple idea sketched above and conclude that the yod is not merely obstruentised: it is turned into a **voiced** obstruent.

The voiced fricative thus obtained behaves **almost** exactly like any voiced fricative does: it gets devoiced before a voiceless obstruent (*nyomj ki* [ɲomçki], *dobj ki* [dopçki], *lépj ki* [le:pçki]), and remains unaffected (or is deleted) in most other cases (*nyomj le* [ɲomjlɛ] ~ [ɲomlɛ], *nyomj*

¹² Examples, going across the table (all verbs are 2sg imperative): *nyomj le* 'push down', *nyomj be* 'push in', *nyomj ki* 'push out', *nyomj* 'push'; *dobj le* 'throw down', *dobj be* 'throw in', *dobj ki* 'throw out', *dobj* 'throw'; *lépj le* 'step down', *lépj be* 'step in', *lépj ki* 'step out', *lépj* 'step'.

be [nomjbe] ~ [nombɛ], *nyomj* [nomj]; *dobj le* [dobjlɛ] ~ [doblɛ], *dobj be* [dobjbe] ~ [dob:ɛ], *dobj* [dobj]; *lépj be* [le:bjbe] ~ [le:b:ɛ]). But there are two cases (*lépj le* [le:pçlɛ], *lépj* [le:pç]) where we need an extra rule to remove the voicing specification that the obstruentisation rule has just supplied. On the other hand, the devoicing rule required may be a rather general one: first, in addition to the *lépj le* and *lépj* cases that directly motivate its introduction, it can be made to cover the *lépj ki* and *lépj be* type cases as well, i.e., it need not say anything about the right context; and second, it does not have to be restricted to yod: it can simply say that all word final voiced fricatives be devoiced if preceded by a voiceless segment. Consider these two properties of the rule more in detail.

What happens if that devoicing rule applies to the yod of *lépj ki* and *lépj be*, too? In the *lépj ki* type case, it does not really matter if this rule or the general rule of voice assimilation applies: whether it is the preceding [p] or the following [k] that causes the devoicing of the yod, the result is [le:pçki] in either case and the other rule has no more chance to apply (they are in what is called a mutual bleeding relationship). But in the *lépj be* type case, even though the result will be unique again ([le:bjbe]), we get that result in two different ways depending on which of the two rules is considered for application first. If we apply the word final devoicing rule first, the derivation proceeds like this, with two iterations of voicing assimilation: [le:pjbe] → [le:pçbe] → [le:pjbe] → [le:bjbe] (feeding order). On the other hand, if voicing assimilation is applied first, the [j] voices the /p/, and the final result is arrived at in a single step, thus: [le:pjbe] → [le:bjbe] (the word final devoicing rule has no chance to apply: bleeding order). It would appear that the latter assumption makes more sense as it does not involve “the Duke of York gambit” (Pullum 1976). But appearances are deceptive: there are as many as two good reasons for us to choose the former, apparently more complicated procedure.

First: actually, we have no choice at all. The principle of Proper Inclusion Precedence makes the choice a forced one. A classical formulation of that principle runs as follows:

(5) PROPER INCLUSION PRECEDENCE

For any representation R, which meets the structural description of each of two rules A and B, A takes applicational precedence over B with respect to R if and only if the structural description of A properly includes the structural description of B.¹³ (Koutsoudas et al. 1974, 8)

In our case, rule A (the more specific rule) is word final devoicing and rule B (the more general rule) is voicing assimilation. The structural description of our rule A is “a word final sequence of voiceless obstruent plus voiced fricative”; that of our rule B (in the case at hand) is “a sequence of voiceless obstruent plus voiced obstruent”. The two bits of the structural description of rule A that are “left over” are *word final* and *fricative* (as opposed to any obstruent). Note that the presence of the rule of final devoicing in our grammar would be totally superfluous if voicing assimilation turned all [p_j], [k_j], [f_j] sequences into [b_j], [g_j], [v_j] before devoicing had a chance to apply: in that case, final devoicing would have absolutely no input to operate on at all.

Secondly, and on the empirical side: although in the case of *lépj be* and *lépj ki* there is no difference between the two orders in terms of the final output, in cases like *lépj le* and *lépj*, on the contrary, it becomes vital that the two rules be applied in the correct order as dictated by the principle of Proper Inclusion Precedence. If the general rule of voicing assimilation was to be applied first, the result would be *[le:bjle] and *[le:bj], respectively, wherefrom we could by no means make our way to the correct final output.

Let us now consider the other property of the word final devoicing rule: the property that it does not have to mention yod specifically but may apply indiscriminately to any word final voiceless obstruent + voiced fricative sequence. The reason is simple: such sequences do not occur elsewhere in the language.

¹³ “The structural description of a rule B is PROPERLY INCLUDED in the structural description of a rule A if and only if the structural description of B can be placed upon the structural description of A with some part of the structural description of A left over” (Koutsoudas et al. 1974, 9). As the authors additionally point out, (i) “the structural description of any rule of the form $X \rightarrow Y / W_Z$ [...] is the symbol string WXZ and not merely X”; (ii) “the proposed precedence principle subsumes as a special case the familiar ordering of a context-sensitive rule before its corresponding context-free ‘elsewhere’ rule”; (iii) “if a structural description X properly includes a structural description Y, then the set of representations which meet structural description X is properly included in the set of representations that meet structural description Y” (ibid.).

Morpheme internal obstruent clusters are always homogeneous in terms of voicing (they are either voiceless or voiced throughout, cf. Siptár–Törkenczy 2000, 76–8); and the only single-consonant suffix that is a voiced obstruent (and is able, therefore, to yield a word final voiceless + voiced obstruent sequence if added to a stem ending in a voiceless consonant) is *-d* as in *rakd* [rɔgd] ‘put it (imp)’. Specifying the target of word final devoicing as a [+cont] obstruent—i.e., a fricative—is enough to exclude *-d* as possible input to this rule; having escaped devoicing, the *-d* then causes voicing of the stem final voiceless obstruent as usual.

5. Hiatus

Another argument supporting the claim that yod is a liquid, rather than a glide, can be based on the phenomenon of hiatus resolution (cf. Nádasdy–Siptár 1994, 174–5; Siptár–Törkenczy 2000, 282–6; Siptár 2002a,b). Some languages resolve each and every hiatus (or do not make it possible for hiatuses to come about in the first place; or else get rid of them in some other way, notably, by vowel deletion of various sorts: cf. Casali 1997), whereas others, like Hungarian, exhibit both resolved and unresolved hiatuses (e.g., *díó* [di^jo:] ‘walnut’, *tea* [tɛɔ] ~ %[tɛ^jɔ] ‘tea’, *fáraó* [fa:ɾo:] ~ *[fa:ɾ^jo:] ‘pharaoh’ (where % identifies a form that is not accepted by all—in the present case, by most—Hungarian speakers, whereas * identifies one that no native speaker of that language accepts as correct).

What determines which hiatus is resolved and which one is not? The presence vs. absence of morpheme boundary or even word boundary plays no role (cf. *kiált* [ki^ja:lt] ‘shout’, *kiállít* [ki^ja:lit] ‘exhibit, lit. out-stand-caus’, *ki áll itt* [ki^ja:lit:] ‘who’s standing here’, all three with hiatus resolution, as opposed to *Bea* [bɛɔ] ⟨a first name⟩, *beadom* [bɛɔdom] ‘I hand it in, lit. in-give-1sg.def’, *be a domba* [bɛɔdo:mbɔ] ‘into the cathedral’ all without). What matters is the quality of the two vowels involved: if one or both is/are either /i/ or /i:/, resolution is obligatory; if one or both is/are /e:/, resolution is optional; in all other cases (i.e., if both vowels are either low or rounded or both) there is no resolution: more exactly, no spreading of the melody of an adjacent /i/ or /i:/, or of part of the melody of an adjacent /e:/, to the empty onset position takes place since there is no such melody present on either side).

The fact that makes this phenomenon relevant to our present purposes is that the intrusive yod-like sound that resolves hiatus is (or may be) weaker, more transitional, than the implementation of an underlying yod. Compare pairs of forms like those in (6): the difference indicated is clearly observable in guarded speech—although it may be blurred in more colloquial renderings.

- (6) *kiáll* [ki^ha:l] ‘stand out’ vs. *kijár* [kija:r] ‘go out (repeatedly)’
baltái [bɒlta:ɰi] ‘his hatchets’ vs. *altáji* [ɒlta:ji] ‘Altaiic’
kávé után [ka:ve:ɰuta:n] ‘after coffee’ vs.
kávé jut ám [ka:ve:juta:m] ‘there will be coffee’

If we now assume that yod is a liquid (as we have been trying to prove) whereas the inserted element involved in hiatus resolution is obviously a glide (on the spreading account referred to above, it cannot be anything else), this potential phonetic difference is explained in a simple and elegant manner.

6. Conclusion

Thus, we have a number of good reasons to think that yod is a liquid, just like /l/ and /r/. This conclusion makes it easier to account for processes in which these three consonants behave in a uniform manner. Such processes include optional nasal assimilation (as in *olyan lassú* [ɒjɒl:ɰf:u] ‘so slow’, *olyan rossz* [ɒjɒr:ɒs] ‘so bad’, *olyan jó* [ɒjɒj:ɒ:] ‘so good’, cf. Siptár–Törkenczy 2000, 209–10), and liquid deletion (with compensatory lengthening if the vowel involved is originally short, see *ibid.* 212–3), a process that is also optional, or rather rate- and register-dependent. It is true that the latter process does not apply to the three liquids with equal ease, but this does not prevent us from saying that it is basically the same process. Of the three liquids, the one that gets deleted the most easily is /l/, e.g., *balra* % [bɒ:rɒ] ‘to the left’, *elvisz* % [ɛ:vis] ‘carry away’, *el kell menni* % [ɛ:kɛ:mɛni] ‘one must go away’. The deletion of /r/, e.g., *egyszer csak* % [ɛts:ɛ:ɰɔk] ‘suddenly’, is usually restricted to casual speech, although it occurs even in formal situations in the items *arra* [ɒ:rɒ] ‘that way’, *erre* [ɛ:rɛ] ‘this way’, *merre* [mɛ:rɛ] ‘which way’. Finally, yod gets deleted the most readily after (high or mid) front vowels as in *gyűjt* [jy:t] ‘collect’, *szíjra* [si:rɒ] ‘strap-onto’, *mélység* [me:fɛ:g] ‘abyss’, *éjszaka*

[e:səkɔ] ‘night’. But despite these minor asymmetries, the three liquids can be seen as behaving as a class with respect to this process, too.¹⁴

However, one empirical argument has been adduced in the literature against the claim that Hungarian /l r j/ constitute a single natural class, that of liquids (Dressler–Siptár 1989, 44). It is based on vowel epenthesis in *Cl*- and *Cr*-final stems. For instance, stems like /lepl/, /pokl/, /ba:tr/, /ʃøpr/ occur with an inserted vowel word finally and before a consonant (*lepel* ‘shroud’, *pokol* ‘hell’, *bátor* ‘brave’, *söpör* ‘sweep’), whereas in *kapj* [kəpç] ‘get (imp)’, *rakj* [rəkç] ‘put (imp)’, etc. such epenthesis does not take place.¹⁵

But that counter-argument is not a particularly compelling one, for two reasons. First, it is not true that there are no epenthetic *Cj*-final stems, cf. /bɔgʝ/ *bagoly* ‘owl’, /fɔgʝ/ *fogoly* ‘partridge’.¹⁶ Secondly, most /rk/, /lk/, /sk/, /tk/, /tʃk/, /tsk/-final stems exhibit epenthesis (e.g., *árok* ‘ditch’, *telek* ‘plot of land’, *piszok* ‘dirt’, *reték* ‘radish’, *csücsök* ‘tip’, *vacok* ‘den’), whereas /rt/, /lt/, /st/, /ft/, /kt/, /tt/-final ones do not (e.g., *kert* ‘garden’, *pult* ‘counter’, *koszt* ‘food’, *rest* ‘lazy’, *akt* ‘nude’, *ott* ‘there’)—yet no one would wish to claim that /k/ and /t/ belong to two distinct classes of the consonant inventory (apart from place of articulation). Similarly, the above difference between the behaviour of /l r/ and /j/ can be attributed to a number of other factors (place of articulation being perhaps the most straightforward choice), whereas their unitary classification as liquids can be maintained. Therefore, the contrast between *lepel* ‘shroud’ vs. *lepj* (**lepej*) ‘overlay (imp)’ is not a legitimate argument against the uniform classification of /l r j/ proposed here.

All in all: Hungarian yod is neither a fricative, nor a glide: it is a liquid.

¹⁴ Further evidence (dialectal and historical) for the claim that /l r j/ exhibit parallel behaviour in a number of respects is provided by Lőrinczy (1972).

¹⁵ It is to be noted that the whole issue of vowel ~ zero alternation in Hungarian is now analysed in a completely different manner (cf. Törkenczy–Siptár 1999; 2001); but this does not bear on the validity of the argument in the text.

¹⁶ In final *Cj* clusters that surface without an epenthetic vowel, either the *C* must be a sonorant (cf. *szomj* ‘thirst’) or the *j* must be the imperative marker (cf. *fogj* ‘grab (imp)’ vs. *fogoly* ‘partridge’). Note that the fact that yod is spelt either *ly* or *j* (in these examples, and in Hungarian in general) does not bear on the issue; it is a mere coincidence—at least synchronically speaking—that epenthetic *bagoly*, *fogoly* are spelt with *ly* whereas non-epenthetic *szomj*, *fogj* are spelt with the letter *j*.

References

- Casali, Roderic F. 1997. Vowel elision in hiatus contexts: which vowel goes? In: *Language* 73: 493–533.
- Cser, András–Tamás Szende 2002. The question of [j]: systemic aspects, phonotactic position and diachrony. In: *Sprachtheorie und germanistische Linguistik* 12: 27–42.
- Dressler, Wolfgang U.–Péter Siptár 1989. Towards a natural phonology of Hungarian. In: *Acta Linguistica Hungarica* 39: 29–51.
- Dressler, Wolfgang U.–Péter Siptár 1998. A magyar nyelv természetes fonológiája felé [Towards a natural phonology of Hungarian]. In: *Általános Nyelvészeti Tanulmányok* 19: 35–59.
- Durand, Jacques–Péter Siptár 1997. Bevezetés a fonológiába [Introduction to phonology]. Osiris Kiadó, Budapest.
- Durand, Jacques 1990. *Generative and non-linear phonology*. Longman, London.
- Halle, Morris – Kenneth N. Stevens 1971. A note on laryngeal features. In: *MIT Quarterly Progress Report* 101: 198–213.
- Hayes, Bruce 1984. The phonetics and phonology of Russian voicing assimilation. In: Mark Aronoff–Richard T. Oehrle (eds): *Language sound structure*, 318–28. MIT Press, Cambridge MA.
- Kassai, Ilona 1982. A magyar köznyelvben nincsenek diftongusok [There are no diphthongs in Standard Hungarian]. In: *Nyelvtudományi Közlemények* 84: 395–97.
- Kassai, Ilona 1984. Kell-e a magyar köznyelvben diftongusnak lennie? [Do there have to be diphthongs in Standard Hungarian?]. In: *Nyelvtudományi Közlemények* 86: 152–54.
- Kassai, Ilona 1996. A szóvégi /j/ zöngétlen változatáról [On the voiceless variant of word-final /j/]. In: István Terts (ed.): *Nyelv, nyelvész, társadalom. Emlékkönyv Szépe György 65. születésnapjára barátaitól, kollégáitól, tanítványaitól* [Language, linguist, and society. A Festschrift for György Szépe from his friends, colleagues, and disciples on the occasion of his 65th birthday], 84–91. Janus Pannonius Tudományegyetem, Pécs.
- Kassai, Ilona 1998. *Fonetika* [Phonetics]. Nemzeti Tankönyvkiadó, Budapest.
- Kiefer, Ferenc (ed.) 1994. *Strukturális magyar nyelvtan 2. Fonológia* [A structural grammar of Hungarian 2. Phonology]. Akadémiai Kiadó, Budapest.
- Koutsoudas, Andreas–Gerald Sanders–Craig Noll 1974. The application of phonological rules. In: *Language* 50: 1–28.
- Kylstra, Andries Dirk 1984. Még egyszer a magánhangzó + j kapcsolatról a magyarban [Once more on vowel + j combinations in Hungarian]. In: *Nyelvtudományi Közlemények* 86: 148–51.
- Kylstra, Andries Dirk–Tjeerd de Graaf 1980. Vannak-e diftongusok a magyar köznyelvben? [Are there diphthongs in Standard Hungarian?]. In: *Nyelvtudományi Közlemények* 82: 313–17.
- Lombardi, Linda 1995a. Laryngeal features and privativity. In: *The Linguistic Review* 12: 35–59.

- Lombardi, Linda 1995b. Laryngeal neutralization and syllable wellformedness. In: *Natural Language and Linguistic Theory* 13: 39–74.
- Lőrinczy, Éva B. 1972. Az *l*, *r*, *j* hangok azonos magatartásformái a magyar nyelv bizonyos kételemű magánhangzó-kapcsolódásaiban [The similar behaviour of *l*, *r*, *j* in some consonant clusters of Hungarian]. In: *Magyar Nyelv* 73: 20–30.
- Nádasdy, Ádám – Péter Siptár 1989. Issues in Hungarian phonology: preliminary queries to a new project. In: *Acta Linguistica Hungarica* 39: 3–27.
- Nádasdy, Ádám – Péter Siptár 1994. A magánhangzók [Vowels]. In: Kiefer (1994), 42–182.
- Olsson, Magnus 1992. *Travaux de l'Institut de Linguistique de Lund* 26. Lund University Press, Lund.
- Pullum, Geoffrey 1976. The Duke of York gambit. In: *Journal of Linguistics* 12: 93–103.
- Ritter, Nancy A. 2000. Hungarian voicing assimilation revisited in Head-Driven Phonology. In: Gábor Alberti – István Kenesei (eds): *Approaches to Hungarian 7. Papers from the Pécs Conference*, 23–49. JATEPress, Szeged.
- Siptár, Péter 1993. Marginalia in Hungarian phonology. In: *Eurasian Studies Yearbook* 65: 73–84.
- Siptár, Péter 1994. A mássalhangzók [Consonants]. In: Kiefer (1994), 183–272.
- Siptár, Péter 1995. A magyar mássalhangzók fonológiája [The phonology of Hungarian consonants]. MTA Nyelvtudományi Intézet, Budapest.
- Siptár, Péter 2001. Három felemás magyar mássalhangzó [Three asymmetrical consonants in Hungarian]. In: *Magyar Nyelv* 97: 385–404.
- Siptár, Péter 2002a. Hiátus [Hiatus]. In: László Hunyadi (ed.): *Kísérleti fonetika, laboratóriumi fonológia 2002* [Experimental phonetics, laboratory phonology 2002], 85–97. Debreceni Egyetem Kossuth Egyetemi Kiadója, Debrecen.
- Siptár, Péter 2002b. Optimális hiátustöltés [Hiatus resolution by epenthesis: an optimality theoretic account]. In: Mária Gósy (ed.): *Beszéd kutatás 2002* [Speech research 2002], 70–82. MTA Nyelvtudományi Intézet, Budapest.
- Siptár, Péter 2003. Hangtan [Phonology]. In: Katalin É. Kiss – Ferenc Kiefer – Péter Siptár (eds): *Új magyar nyelvtan* [A new Hungarian grammar]. 3rd edition, 285–384. Osiris Kiadó, Budapest.
- Siptár, Péter – Miklós Törkenczy 2000. *The phonology of Hungarian*. Oxford University Press, Oxford.
- Szende, Tamás 1992. Phonological representation and lenition processes. MTA Nyelvtudományi Intézet, Budapest.
- Szépe, György 1969. Az alsóbb nyelvi szintek leírása [The description of the lower levels of linguistic structure]. In: *Általános Nyelvészeti Tanulmányok* 6: 359–468.
- Szigetvári, Péter 1998. Kormányzás a fonológiában [Government in phonology]. In: *Általános Nyelvészeti Tanulmányok* 19: 165–213.
- Szigetvári, Péter 2001. Szótagtalan fonológia [Phonology without syllables]. In: Péter Siptár (ed.): *Szabálytalan fonológia* [Phonology without rules], 37–75. Tinta Könyvkiadó, Budapest.

- Szilágyi, N. Sándor 2000. Világunk, a nyelv [Language, our world]. Osiris Kiadó, Budapest.
- Törkenczy, Miklós – Péter Siptár 1999. Hungarian syllable structure: arguments for/against complex constituents. In: Harry van der Hulst – Nancy Ritter (eds): The syllable: views and facts, 249–84. Mouton de Gruyter, Berlin & New York.
- Törkenczy, Miklós – Péter Siptár 2001. Magánhangzó ~ semmi váltakozások a magyarban [Vowel ~ zero alternations in Hungarian]. In: Nyelvtudományi Közlemények 97: 64–130.
- Vago, Robert M. 1980. The sound pattern of Hungarian. Georgetown University Press, Washington D.C.
- Zsigri, Gyula 1997. Posztalveoláris összeolvadás [Postalveolar assimilation]. In: László Büky (ed.): Nyíri Antal kilencvenéves [Antal Nyíri is 90], 179–186. József Attila Tudományegyetem, Szeged.

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BOOK REVIEW

Jakab Máté: A 19. századi nyelvtudomány rövid története [A short history of linguistics in the 19th century]. Nemzeti Tankönyvkiadó, Budapest, 1997, 216 pp.

Jakab Máté: A 20. századi nyelvtudomány történetének főbb elméletei és irányzatai [The main theories and trends of the history of linguistics in the 20th century]. Nemzeti Tankönyvkiadó, Budapest, 1998, 359 pp.

Jakab Máté: A nyelvtudomány (vázlatos) története az ókortól a 19. század elejéig [An outline of the history of linguistics from antiquity to the beginning of the 19th century]. Nemzeti Tankönyvkiadó, Budapest, 2003, 357 pp.

It is by now a commonplace that the history and historiography of linguistics has been enjoying a kind of vogue in recent decades. Many distinguished scholars have turned their attention or devoted their entire career to the study of linguistic thought in the past. Several journals and series of books have started appearing whose main or sole concern was the history of the linguistic sciences; one need only mention the *Amsterdam Studies in the Theory and History of Linguistic Science*, *Historiographia Linguistica*, *Histoire épistémologique langage*, Lepschy's *History of Linguistics*, and the list could be continued. Publications in languages other than the major ones have been somewhat slow to follow—as is natural in any scientific field, but some Hungarian linguists, e.g., Zsigmond Telegdi, István Szathmári, János Balázs or Éva Jeremiás have made significant contributions, and the late 1980's and the following decade saw a definite surge in interest (see Kiss–Szűts 1990). The revised edition of Robins' now classic *A Short History of Linguistics* (1997) was translated into Hungarian and published in 1999; in 1996, Imre H. Tóth's short survey came out (*A nyelvtudomány története a 20. század elejéig. Csomópontok és átvezető szálak [The history of linguistics up to the beginning of the twentieth century. Focal points and channels of transmission]*, Szombathely), when Jakab Máté (1926–2001) had already been engaged in a project of a greater scope, the writing of an all-encompassing history of linguistics. This was eventually published by Nemzeti Tankönyvkiadó in three volumes, the last of them only after the untimely death of the author. In sheer length (c. 900 pages combined) the three volumes are more than three times as copious as Robins (1999), which shows that the enterprise as well as its execution was of a different nature, more ambitious than a readable single-volume historical survey.

Here we shall discuss the three volumes in the chronological order of their contents, not in the chronological order of their publication. The volume on the nineteenth century was published first, followed immediately by volume 2 on the twentieth century. Volume 3 on pre-nineteenth century linguistics only appeared some five years later. It is because of this that two introductory chapters can be found in the volumes: one at the beginning of volume 1 and one at the beginning of volume 3. The two introductions discuss, with some overlap, issues pertaining to the nature and the recent fate of the historiography of science in general and of linguistics in particular. Máté

presents and discusses the views of several modern philosophers of science, ranging from Kedrov to Kuhn in order to place his own approach within a comparative framework. In these chapters we also find a useful summary of the history of linguistics in Hungary as well as outside it. After the introduction, volume 3 proceeds in a standard chronological fashion. The titles of the chapters are: *A nyelvészkedés kezdetei [The beginnings of linguistics]*, *Az ókori görög nyelvészet fejlődési útja [The development of ancient Greek linguistics]*, *A római nyelvészet kialakulása és eredményei [The evolution and achievements of Roman linguistics]*, *A kínai nyelvtudomány kezdetei és eredményei [The beginnings and the achievements of linguistics in China]*, *Az ókori (görög-római) nyelvtudomány utóélete [The legacy of classical (Graeco-Roman) linguistics]*, *A középkor nyelvtudománya (az 5. századtól a 12. századig) [Linguistics in the Middle Ages, 5th to 12th centuries]*, *Az európai nyelvtudomány a 12. századtól a reneszánsz, a humanizmus és a reformáció koráig [European linguistics from the 12th century to the Renaissance, Humanism and Reformation]*, *Nyelvészeti vizsgálódások a reneszánsz, a humanizmus és a reformáció korában [Linguistic investigations during the Renaissance, Humanism and Reformation]*, *A racionalizmus és az empirizmus (a 17. és a 18. század nyelvtudománya) [Rationalism and Empirism (linguistics in the 17th and 18th centuries)]*, *Az összehasonlító-történeti nyelvészet forrásai és közvetlen előzményei [The sources and predecessors of comparative-historical linguistics]*, *A magyar nyelv a 17–18. századi összehasonlító nyelvészetben [The Hungarian language in comparative linguistics in the 17th and 18th centuries]*, *Rövid kitekintés a magyar nyelvújító mozgalomra [A bird's eye view of the Hungarian neologist movement]*. Máté conveniently summarises mostly what is found in a couple of rather general works, such as Robins (1999), H. Tóth (1996) and Graur – Wald (1977). The reader will hardly find any attempt at original insight, the purpose of the work is largely reproductive and comprehensive in nature. The author shows high erudition and evidence of being well-read, though his secondary sources and references are largely confined to works published in Hungary and east of it. Describing and discussing ancient linguistics without a single reference to the works of Karl Barwick (esp. 1922; 1957) or P. H. Matthews (esp. 1994) and medieval linguistics without reference to Vivien Law (e.g., 1997 for an overview) or Louis Holtz (e.g., 1992) and with one single reference to Pinborg (1967), let alone without consulting the actual sources in the original languages, is definitely not unknown in professional circles, but certainly limits the author's capacity of contributing to historiography. Of course, his selection of secondary works has good sides as well: Graur – Wald (1977), for instance, would have otherwise remained unknown to readers not competent in Rumanian.

Volume 1 is a survey of linguistics in the nineteenth century. As said above, this volume also begins with an introductory chapter devoted to general questions, then a four-page summary of pre-nineteenth century linguistics follows (*A nyelvészeti gondolkodás kezdetei [The beginnings of linguistic thought]*). The nineteenth century itself is introduced with a chapter on language comparison from Renaissance times to the end of the eighteenth century (*Az összehasonlító-történeti nyelvészet kialakulásának előzményei és forrásai [The predecessors and sources of comparative-historical linguistics]*). The bulk of the discussion in this volume falls into three chapters roughly on pre-Neogrammarians, Neogrammarians and their opponents or non-Neogrammarian contemporaries, respectively (*Az összehasonlító-történeti nyelvészet mibenléte [The essence of comparative-historical linguistics]*, *Az újgrammatikus irányzat kialakulása, elméleti és módszertani alapelvei [The appearance of the Neogrammarian doctrine, its*

theoretical and methodological underpinnings], *Új utak keresése a századforduló éveiben és a 20. század első évtizedeiben* [*Searching for new ways around and after 1900*]). It is a merit on Máté's part that he includes discussion of significant Russian linguists (Potebna, Vostokov, Shakhmatov etc.) besides the standard list of outstanding figures, such as Bopp, Humboldt, Grimm, Rask, Schleicher and Steintal. His discussion of the Moscow and Kazan schools ranks among the most valuable parts of volume 1. Máté is a generally content-oriented historian of linguistics, and therefore devotes much more space to the development of ideas than to the development of institutional frameworks within which linguistics became a profession and an academic discipline in the course of the 19th century. This distinguishes him from certain other historiographers of the field (e.g., Morpurgo-Davies for the nineteenth or Murray for the twentieth century).

It is perhaps volume 2 that the majority of readers will approach with the most eager interest, and indeed it seems it is to this volume that Máté devoted most of his time and energy. He distinguishes three major periods in twentieth-century linguistics and it is to his credit that he devotes enough space to all the three instead of just discussing "structural" and then "generative" linguistics (in fact, the chapter on generative linguistics is the shortest). The three chapters are *A nyelvtudomány viszonylagos önállóságának (autonómiájának) korszaka* [*The period of the relative autonomy of linguistics*], *A generatív grammatika kialakulása és térhódítása* [*The emergence and spread of generative linguistics*], *A tudományközi kapcsolatok elmélyülése, a hagyomány és újítás egysége a hetvenes-nyolcvanas-kilencvenes évek nyelvtudományában* [*The deepening of interdisciplinary contacts, the unity of tradition and innovation in linguistics in the 1970's-80's-90's*]. The volume naturally begins with an ample, but not superfluous discussion of Saussure's views followed by a description of the major currents of mainstream structuralism. The discussion of glossematics (pp. 69–86) is especially enlightening and certainly useful for those who wish to understand this rather arcane and actually little-known theory. The forty-odd years of generative linguistics have been the object of a great deal of discussion in a variety of historiographical works, some of them reliable (Matthews 1993, Murray 1994), others highly partial and unmethodical (Newmeyer 1980), so it is with relief that the reader only finds a useful and interesting thirty-two page long discussion of this theory (or set of theories) and Máté moves on to further topics in the much longer third chapter. Here we find a detailed discussion of text linguistics, stylistic studies, sociolinguistics, mathematical linguistics and ethnolinguistics. While these do not necessarily cover the whole of what has been done outside mainstream generative and structuralist linguistics, they certainly represent fields to which Máté personally contributed throughout his career. The preponderance of Eastern European protagonists and references to their works on these pages is perhaps even more spectacular than in volume 3; on page 276, for instance, the author explicitly claims to have described the international sociolinguistic scene on the basis of Shvejtser (1976), a choice that is likely to raise sociolinguists' eyebrows.

Perhaps the single greatest contribution of these three volumes, but especially volume 2, is that they make the reader aware of the immense variety of the field, since hardly anyone is nowadays likely to understand the scope of the activities that all run under the name of linguistics. Professional linguists tend to engage in narrower and narrower domains and read less and less of what does not pertain to their immediate concerns. We hope that Máté's three-volume enterprise will help widen the horizons of the practitioners of this discipline and make the field appear more interesting to outsiders as well.

András Cser

References

- Barwick, Karl 1922. *Remmius Palaemon und die römische Ars Grammatica*. Dieterich, Leipzig.
- Barwick, Karl 1957. *Probleme der stoischen Sprachlehre und Rhetorik*. Akademie Verlag, Berlin.
- Graur, Alexandru – Lucia Wald 1977. *Scurtă istorie a lingvisticii*. București.
- H. Tóth, Imre 1996. *A nyelvtudomány története a 20. század elejéig. Csomópontok és átvezető szálak [The history of linguistics up to the beginning of the twentieth century. Focal points and channels of transmission]*. Savaria, Szombathely.
- Kiss, Jenő – László Szűts (eds) 1991. *Tanulmányok a magyar nyelvtudomány történetének témaköréből [Studies on the history of Hungarian linguistics]*. Akadémiai Kiadó, Budapest.
- Law, Vivien 1997. *Grammar and grammarians in the Early Middle Ages*. Longman, Harlow.
- Holtz, Louis 1992. *La grammaire carolingienne*. In: Sylvain Auroux (ed.): *Histoire des idées linguistiques 2. Le développement de la grammaire occidentale*, 96–106. Mardaga, Liège.
- Matthews, Peter H. 1993. *Grammatical theory in the United States from Bloomfield to Chomsky*. Cambridge University Press, Cambridge.
- Matthews, Peter H. 1994. *Greek and Latin linguistics*. In: Giulio C. Lepschy (ed.): *History of linguistics*. Vol II. 1–133. Harlow, Longman.
- Murray, Stephen 1994. *Theory groups and the study of language in North America: a social history*. John Benjamins, Amsterdam & Philadelphia.
- Newmeyer, Frederick J. 1980. *Linguistic theory in America*. Academic Press, New York.
- Pinborg, Jan 1967. *Die Entwicklung der Sprachtheorie im Mittelalter*. Münster, Kopenhagen.
- Robins, R. H. 1997. *A short history of linguistics*. Longman, Harlow.
- Robins, R. H. 1999. *A nyelvészet rövid története [A short history of linguistics]*. Osiris Kiadó, Budapest.
- Shveytser, A. D. 1976. *Sovremennaya sociolingvistika. Teoria, Problemi, Metodi*. Moscow.

HUNGARIAN BOOKS ON LINGUISTICS

Katalin É. Kiss – Ferenc Kiefer – Péter Siptár: *Új magyar nyelvtan* [A New Hungarian Grammar], 3rd edition. Osiris, Budapest, 2003, 410 pp.

This grammar of Hungarian is based on the results of the past three decades of linguistic research investigating the structure of Hungarian. It relies to a considerable extent on the three bulky volumes of *Strukturális magyar nyelvtan I. Mondattan, II. Fonológia, III. Morfológia* [A Structural Grammar of Hungarian I. Syntax, II. Phonology, III. Morphology, Akadémiai Kiadó, Budapest, 1992–2000]; however, it is a lot less technical, a lot more concise, and its coverage is also partially different.

The description of Hungarian provided by *A New Hungarian Grammar* is comprehensive, but, naturally, is not complete. It focusses on the core elements of Hungarian syntax, morphology, and phonology. The syntax part of the book begins with the discussion of what syntax is, what categories it works with, and how syntactic categories can be identified. The Hungarian sentence is described as a structure consisting of a topic part, representing the logical subject of predication, and a predicate part. The predicate is analysed as a verb-initial VP optionally preceded by a series of operators, among them a focus, the negative particle, and any number of distributive quantifiers, the surface order of which corresponds to their scope order. The constituents of the predicate phrase: the noun phrase, the adjective phrase, the postpositional phrase, the various types of non-finite verb phrases, and the subordinate clause are described in separate chapters. A chapter is devoted to the phenomenon traditionally called sentence intertwining, and analysed in the generative framework as long operator movement. The last chapter of the syntax section deals with binding, i.e., the distribution and the interpretation of anaphors and personal pronouns. The morphology part is devoted to a detailed account of inflectional morphology, to the discussion of productive derivational patterns and to rule-governed compounding. The section on derivational morphology makes a distinction between actual and potential words and between rule-governed and productive derivation. Productive derivation is always rule-governed. Derivational rules are formulated for all productive patterns. In the section on compounding special attention is paid to compounds with deverbal heads. It is argued that deverbal compounds have a thematic structure but no argument structure. The fact that nonheads can be interpreted as subject-like arguments in the case of intransitive bases and as object-like in the case of transitive bases is due to thematic structure. The phonology part has four major chapters, discussing vowels, consonants, syllable structure, and stress and intonation, respectively. With respect to vowels, the major areas covered include vowel harmony, length alternations, as well as the insertion/deletion of vowels. The analysis is element-based, and broadly autosegmental in flavour. The section on consonants surveys the most important processes, lexical as well as postlexical, that consonants undergo in this language, devoting separate subsections to the thorny issues of the behaviour of /h/ and /v/, as well as to whether there is a phonological segment /d͡z/ in this language. The section on syllable structure surveys the structure and types of syllables found in Hungarian, and

discusses issues like the existence or otherwise of branching onsets/codas or of complex nuclei. Phonotactic regularities and phonological processes referring to syllable structure are also treated in detail. The phonology part closes with a brief overview of the suprasegmental structure of this language.

A New Hungarian Grammar not only gives a coherent description of Hungarian syntax, morphology, and phonology, but also wants to acquaint the reader with the methodology of modern linguistics, demonstrating its way of argumentation based on the formulation of hypotheses and the testing of their predictions on a wider and wider range of linguistic facts. Thus, instead of merely presenting conclusions, the grammar often also demonstrates the way in which they have been arrived at.

A New Hungarian Grammar is said by the authors to integrate the results of the cooperation, the discussions and the debates of a whole generation of linguists working in Hungary and abroad. Their individual contributions can be identified on the basis of the lists of essential references following the syntax, morphology, and phonology sections, and the extensive bibliography of the research of the structure of Hungarian at the end of the book. Nevertheless, the grammar is not the outcome of a consensus but reflects the personal views of the authors which evolved as a result of the cooperation and the debates going on in the field. It also contains many new results. The comprehensive nature of the description made it necessary to fill in several gaps, and the testing of existing theories also often led to the discovery of new evidence and the formulation of new hypotheses—e.g., in the analysis of the interaction of negation and quantification, or in the analysis of the noun phrase, the postpositional phrase, the inflected infinitive, the case system, the verbal compounds, the productive derivational patterns, the distribution of /h/-type segments, etc.

A New Hungarian Grammar provides an explicit description of the structure of the Hungarian language with a minimal amount of technical apparatus and new terminology. Although it requires more intellectual effort of its reader than a traditional taxonomic grammar does, it can be understood also without any previous knowledge of generative theory. As such, *A New Hungarian Grammar* will hopefully promote interaction between linguists cultivating traditional Hungarian linguistics and those working in a current theoretical framework.

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- Brockhaus, Wiebke 1995. Skeletal and suprasegmental structure within Government Phonology. In: Jacques Durand - Francis Katamba (eds): *Frontiers in phonology: Atoms, structures, derivations*. 180-221. Longman, Harlow.
- Cole, Jennifer 1995. The cycle in phonology. In: Goldsmith (1995): 206-44.
- Goldsmith, John A. (ed.) 1995. *The handbook of phonological theory*. Blackwell, Cambridge MA and Oxford.
- Kaye, Jonathan - Jean Lowenstamm - Jean-Roger Vergnaud 1990. Constituent structure and government in phonology. In: *Phonology 7*: 301-30.
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- (1) (a) A sólymaid elszálltak
 the falcon-gen-pl-2sg away-flew-3pl
 'Your falcons have flown away.'

Examples can be referred to in the text as (1a), (1a-d), etc.

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