LEXEME DERIVATION AND MULTI-WORD PREDICATES IN HUNGARIAN*

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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)

"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 $\langle$SUBJ$\rangle$'

     (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 $\langle$SUBJ, OBL$_{CAUSE}\rangle$'
                                    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 **lexicality** 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.

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[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), Komlósy (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 derivates 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

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[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-

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[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

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[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($\langle$L,$\sigma\rangle$). 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,$\sigma\rangle$	$\Leftrightarrow$	x	$=$	y
RULES OF PARADIGM LINKAGE			REALIZATION RULES	
$\langle$THROW, $\{1$ sg indef$\}\rangle$		dob		$dobok$
$\langle$THROW, $\{2$ sg indef$\}\rangle$		dob		$dobsz$
$\langle$THROW, $\{3$ sg indef$\}\rangle$		dob		dob
etc.		etc.		etc.

Fig. 1

As can be seen, the realization for $\{3$ 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.

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[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 $\phi_{der\lambda}\langle L^{13}\rangle x = \langle L'\rangle x'$, where $\langle L'\rangle x'$ is a cell in the derivational paradigm of L occupied by a root x'. So, if $\lambda =$ causative and is available to the Hungarian lexeme THROW with a root dob, then $\phi_{\text{caus}}\{\text{MOVE}\}$ $dob = \{\text{MAKE MOVE}\}$ $dobat$ is the cell in the derivational paradigm of the basic verb $\langle$THROW$\rangle$ 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

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[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.

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[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
     beleőszül   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

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[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 derivates of phrasal predicates?

(b) What will account for the semantics of derivates 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."

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[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 $\langle S \rangle$, 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 do-
bat* '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 for-
mation: $\phi_{caus}\langle$MOVE$\rangle$ *dob* = $\langle$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 ex-
ponence 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 Appli-
cation Principle and the semantic effects of the lexeme-formation operation
together yield the discrepencies between form and meaning typically associ-

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[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 [*bele* [*dobat*]]   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-occurences are presented in (12) and (13):

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[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

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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 redupli-
cation 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) $\phi_{\text{causal}}\langle[\text{BLIND, V (SUBJ)}]\rangle$ *vakul* $= \langle[\text{'GET BLIND FROM', V, (SUBJ)(OBL}_{\text{caus}})]\rangle$ *bele vakul*
$$\text{OBL} = \text{ILL}$$

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) ϕ_{IRA} $\langle[\text{'GET BLIND FROM', V, (SUBJ) (OBL}_{\text{caus}})]\rangle$ *bele vakul* $= \langle\text{'PERIODICALLY GET BLINDED FROM'}\rangle$ *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

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   szomszédhoz[25]
         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.'

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[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 circumlocution, 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]

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[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 mindenhonnan
     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 sep-
arable elements serve as bases for IRA predicate formation and whereas the
exponence of the base input is periphrastic, the exponent of the derived pred-
icate is synthetic. Since the input and output of reduplicated phrasal pred-
icates 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

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[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   szeretnek[30]
      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:

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[29] While inflected reduplicated preverbs are quite infrequent, the judgements of my consul-
tants 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* nominaliza-
tion, e.g., (*beleun a főzésbe/a munkába/tévézésbe* 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
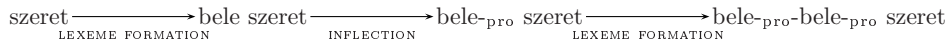nature of the phrasal predicate operations examined here.

szeret $\xrightarrow[\text{LEXEME FORMATION}]{}$ bele szeret $\xrightarrow[\text{INFLECTION}]{}$ bele-$_{\text{pro}}$ szeret $\xrightarrow[\text{LEXEME FORMATION}]{}$ bele-$_{\text{pro}}$-bele-$_{\text{pro}}$ szeret

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

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[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 character-istic 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 bustled about.'

    (b) Nem követem   lótását-futását[35]
         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 re-spect in which they demonstrably differ, namely, their surface exponence.

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[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.

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