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# Back-formation, forward-formation, and cross-formation in the same construction

## The case of Hungarian compound verbs

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### 1 Introduction

Hungarian compound verbs have become more and more productive in the last few decades, analyses have shed light on the great number of hapaxes as well as conventional verbs that represent this pattern (Pusztai 1999; Ladányi 2017: 647). Hungarian compound verbs have traditionally been considered as the outcomes of  $V \leftarrow N$  back-formation (Lengyel 2000: 344–345), created by removing an affix (typically the nominalizer suffix *-ás/-és*), as illustrated below.

(1)	utas-tájékoztat-ás	→	utas-tájékoztat <sup>1</sup>
	passenger-inform-NLZR		passenger-inform
	‘passenger information’		‘provide passengers with information’
			(lit. ~ ‘to passenger-inform’)

Productivity of this pattern challenges the view that back-formation has only diachronic relevance (see Marchand 1969). However, Hungarian back-formation cannot be considered a reversal of a word-formation rule either (cf. Aronoff 1976) because not only compound nouns containing a productive nominalizer suffix can function as input. Some studies see morphological reanalysis behind back-formation in Hungarian (Ladányi 2017: 646; cf. Mel’čuk 2001: 532). Under this approach, the above mentioned compound verb *utastájékoztat* ‘provide passengers with information’, back-formed from the compound noun *utastájékoztatás* ‘passenger information’, requires a process in which the head-modifier structure becomes a head-complement structure. According to this explanation, the reanalysis illustrated below makes the removal of the nominalizer *-ás* possible.

(2)	[[utas] <sub>N</sub> tájékoztat-ás] <sub>N</sub>	→	[[utas-tájékoztat] <sub>V</sub> ás] <sub>N</sub>
	[[passenger] <sub>N</sub> inform-NLZR] <sub>N</sub>		[[passenger-inform] <sub>V</sub> NLZR] <sub>N</sub>

The present research on Hungarian compound verbs argues that appeals to back-formation as a particular morphological process (cf. Bauer 1983: 232; Lieber 2005: 375; Štekauer 2015) only scratches the surface of a phenomenon whose formal realization is of secondary importance. It rejects the notion of morphological reanalysis and demonstrates that the same associative and analogical relations might result in back-formation, forward-formation, and cross-formation. This diversity raises the issue of generalizations in derivation, and motivates a typology of derivational processes according to which Hungarian compound verbs can be characterized.

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<sup>1</sup> All examples are from HNC (Hungarian National Corpus) (Oravecz et al. 2014)

## 2 Findings

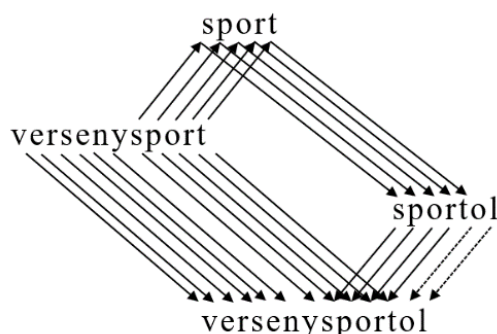
Previous research on the field did not detect that Hungarian compound verbs can arise not only by back-formation. They can be created in rather diverse ways, as shown by (3a) and (3b). Example (3a) exhibits forward-formation, (3b) exhibits cross-formation.

- |        |  |   |   |
|--------|--|---|---|
| (3) a. | verseny-sport<br>competition-sport<br>'competitive sport'        | → | verseny-sport-ol<br>competition-sport-VLZR<br>'do competitive sport'<br>(lit. to competitive-sport) |
| b.     | gén-manipul-áció<br>gene-manipul-ation<br>'genetic modification' | → | gén-manipul-ál<br>gene-manipul-ate<br>'modify genetically'<br>(lit. to gene-manipulate)             |

The Hungarian compound verbs *versenysportol* and *génmanipulál* are problematic for the account based on morphological reanalysis as the head component of the nominal compound should be a zero morpheme (4a) and a segment subjected to deletion (4b), respectively.

- |        |   |   |  |
|--------|---|---|--|
| (4) a. | *[[verseny] <sub>N</sub> sport-Ø] <sub>N</sub><br>[[competition] <sub>N</sub> sport-Ø] <sub>N</sub> | → | [[verseny-sport] <sub>V</sub> Ø] <sub>N</sub><br>[[competition sport] <sub>V</sub> Ø] <sub>N</sub> |
| b.     | *[[gén] <sub>N</sub> manipul-áció] <sub>N</sub><br>[[gene] <sub>N</sub> manipul-ation] <sub>N</sub> | → | [[génmanipul] <sub>V</sub> áció] <sub>N</sub><br>[[gene manipul] <sub>V</sub> ate] <sub>N</sub>    |

As for forward-formation in example (3a), it is remarkable that the productivity of the verbalizer suffix *-(V)l* does not per se explain suffixation, as this suffix is typically added to foreign words and monosyllabic nouns (Ladányi 2017: 555). However, the existing simple verb *sport-ol* 'do sport' derived from *sport* 'sport' might explain the use of suffix *-(V)l* in *verseny-sport-ol* 'do competitive sport'. The word-based (see Blevins 2006) associative network behind the compound verb in question is illustrated below. The nominal head of *verseny-sport* 'competitive sport', i.e. *sport* 'sport' evokes the derivative *sport-ol* 'do sport', which is why *verseny-sport-ol* 'do competitive sport' emerges via forward-formation.



**Figure 1** Associative network underlying *verseny-sport-ol* (competition-sport-VLZR) 'do competitive sport'

In fact, the verb associated with the head of the compound noun predicts the form of the verbal head in all cases. The diversity of morphological processes can be traced back to the diversity of noun $\leftrightarrow$ verb relationships in Hungarian, where the evoked verb can be simple as well as denominal. The nominal head of *utastájékoztatás* ‘passenger information’ (see example (1)) is *tájékoztatás* ‘(providing people with) information’, which evokes the base verb *tájékoztat* ‘inform’. This is why *utastájékoztat* ‘provide passengers with information’ emerges via back-formation. By the same token, the nominal head of *génmanipuláció* ‘genetic manipulation’ is *manipuláció* ‘manipulation’, which evokes its sister verb *manipulál* ‘manipulate’, and motivates the emergence of *génmanipulál* ‘modify genetically’ via cross-formation.

It is remarkable that the morphological transparency of compound verbs is based on the associative network of words and not that of morphemes. A morpheme-based approach can hardly posit a plausible rule that might be accompanied by affix deletion (cf. (1)), affixation (cf. (3a)), and affix substitution (3b) alike. Even if the structure of the derivatives is highly varied, Hungarian compound verbs represent the same productive way of derivation that can be described as an analogical process (with analogy considered here as a domain-general cognitive process responsible for productivity, see Bybee 2010). As it is shown below, four lexical clusters contribute to the formation of compound verbs in Hungarian. A simple noun relates to a simple verb just like a compound noun to a compound verb. The principles of mapping are as follows: a simple noun is to a simple verb as a compound noun is to a compound verb. This analogical operation may trigger back-formation, forward-formation, and cross-formation.

Simple nouns	:	Simple verbs	~	Compound nouns	:	Compound verbs
N	:	N-VLZR	~	N-N	:	(FF) <sup>2</sup> N-N-VLZR
sport		sport-ol		verseny-sport		verseny-sport-ol
V-NLZR	:	V	~	N-V-NLZR	:	(BF) N-V
tájékoztat-ás		tájékoztat		utas-tájékoztat-ás		utas-tájékoztat
X-NLZR	:	X-VLZR	~	N-X-NLZR	:	(CF) N-X-VLZR
manipul-áció		manipul-ál		gén-manipul-áció		gén-manipul-ál

Figure 2 Analogical relations motivating the formation of compound verbs

### 3 Discussion

The investigation of Hungarian compound verbs leads us to the issue of generalizations in word-formation. It is crucial to describe how Hungarian compound verbs can be treated as instances of the same morphological pattern.

In order to handle the word-based nature of the pattern, we consider the Hungarian compound verb as a construction, i.e., a systematic pairing of meaning and form (cf., Booij and Audring 2017). We assume that derivational constructions are based on source-oriented and product-oriented generalizations (cf., Bybee 2001; Kapatsinsky 2013). Source-oriented generalizations are based on the associative relationship between distinct constructions, they involve information about the scope (word-class, phonological structure, lexical group, etc.)

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<sup>2</sup> In Figure 2, “FF”, “BF”, and “CF” are used as abbreviations for “forward-formation”, “back-formation”, and “cross-formation”.

and the way of (analogical) mapping between the base and the derivative. Product-oriented generalizations, for their part, provide information about the schematic meaning and form of a construction. These types of generalizations are obviously not mutually exclusive, they are typically interrelated in most derivational constructions. However, derivational constructions also vary in the relative prominence of source-oriented and product-oriented generalizations. For instance, diminutive constructions and many onomatopoeic verbal constructions in Hungarian can only be characterized by product-oriented formal generalizations. The former do not provide any information about the way of mapping, and the latter do not define any scope (which means that the derivatives do not have bases). In terms of this classification of constructions, Hungarian compound verbs represent the other end of the scale. They can be characterized by purely source-oriented formal generalizations that concern the scope and the way of mapping (see Figure 1 and 2). This conclusion partly confronts the notion that “many, if not all, schemas are product-oriented rather than source-oriented” (Bybee 2001: 128).

The account outlined above might have theoretical implications for the analysis of back-formation in other languages as well. It can be hypothesized, for example, that back-formation depends on schemas for which mainly source-oriented formal generalizations are responsible.

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