

Grammaticalization without Feature Economy: Evidence from the Voice Cycle in Hungarian*

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The present paper is a corpus-based study of the Voice Cycle in Hungarian. Based on data from the Old Hungarian Corpus and the Hungarian Historical Corpus, I will argue that while in Old Hungarian, middle voice was encoded through a separate inflectional paradigm (contextual allomorphy in the subject agreement suffix conditional on the feature content of a silent Voice head), in Modern Hungarian, middle voice is encoded through dedicated middle voice suffixes (i.e., the Voice head is spelled out overtly). I will claim that the underlying grammaticalization process involved the reanalysis of frequentative suffixes (v heads) as middle voice suffixes (Voice heads). I will show that this reinterpretation was not based on shared abstract features, but rather, on a principled correlation between middle voice and frequentative aspect: since some types of middles (antipassives and dispositional middles) were likelier to be associated with a frequentative or habitual reading than actives, frequentative suffixes were susceptible to be reanalyzed as middle suffixes in the course of language acquisition. I will thus claim that in addition to Feature Economy (Gelderen 2011), reinterpretation based on correlation between featurally independent grammatical markers should also be regarded as a mechanism of grammaticalization.

1 INTRODUCTION

Middle voice in Modern Hungarian (including anticausatives, reflexives, dispositional middles, mediopassives and antipassives) is encoded in a complex manner. With a handful of verbs, we witness contextual allomorphy in the subject agreement suffix conditional on voice:

- | | | | | |
|-----|----|-----------------------------|----|------------------|
| (1) | a. | <i>tör-Ø</i> | b. | <i>tör-ik</i> |
| | | break-3SGINDEF ¹ | | break-3SGMID |
| | | ‘sy breaks sg’ | | ‘sg gets broken’ |
| | | ACTIVE | | ANTICAUSATIVE |

However, with the great majority of verbs, middles obligatorily involve a dedicated middle suffix, in addition to displaying the contextual allomorphy in the subject agreement suffix:

- | | | | | | | |
|-----|----|-----------------|----|--------------------|----|--------------------|
| (2) | a. | <i>old-Ø</i> | b. | <i>*old-ik</i> | c. | <i>old-ód-ik</i> |
| | | loosen-3SGINDEF | | loosen-3SGMID | | loosen-MID-3SGMID |
| | | ‘sy loosens sg’ | | ‘sg gets loosened’ | | ‘sg gets loosened’ |
| | | ACTIVE | | ANTICAUSATIVE | | ANTICAUSATIVE |

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1 Glosses are provided in adherence to the Leipzig Glossing Rules (Bickel, Comrie and Haspelmath 2008). The most important glosses are as follows: 1SG = first person singular, 3SG = third person singular, 3SGDEF = third person singular definite conjugation (=third person singular subject, definite object), 3SGINDEF = third person singular indefinite conjugation (=third person singular subject, indefinite object or no object), 3SGMID = third person singular (middle conjugation), ACC = accusative, ACT = active voice, COND = conditional, DAT = dative, IPST = imperfective past, MID = middle voice, PRES = present, PST = past, POS = modal possibility, PRT = verbal particle (telicizing/directional), SUBJ = subjunctive.

With some verbs, optional suffix stacking can be observed:

(3)	a. <i>lát-Ø</i> see-3SGINDEF 'sy sees sg' ACTIVE	b. <i>*lát-ik</i> see-3SGMID 'sg can be seen / is visible/ seems' DISP. MIDDLE	c. <i>lát-sz-ik</i> see-MID-3SGMID 'sg can be seen / is visible/ seems' DISP. MIDDLE	d. <i>lát-sz-ód-ik</i> see-MID-MID-3SGMID 'sg can be seen / is visible/ seems' DISP. MIDDLE
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I will argue that this picture reflects an intermediate stage in an ongoing grammaticalization process which can be characterized as a cycle. Based on data from related languages and fossils attested in Old Hungarian, an overt middle suffix (-*v*) has been reconstructed for Proto-Hungarian (see Section 3). This suffix was later lost, and in Old Hungarian, middle voice was encoded via a separate inflectional paradigm (contextual allomorphy in AgrS conditional on the feature content of a silent Voice head): verbs such as *tör* 'break' in (1) are relics from this stage. As this separate paradigm collapsed, the functional load of encoding middle voice was taken over by other elements: frequentative suffixes (v heads) were reanalyzed as middle voice suffixes (Voice heads). Crucially, this reinterpretation was not based on shared abstract features (Feature Economy), but rather, on a principled correlation between middle voice and frequentative aspect. This reanalysis resulted in the currently dominant system, where middle voice is encoded via a separate middle voice suffix (an overt spellout of the Voice head), cf. *old* 'dissolve' in (2). To summarize:

	<u>middle voice suffix</u>	<u>middle inflectional paradigm (AgrS allomorphy)</u>
Proto-Hungarian	yes	yes
Old Hungarian	no (silent Voice head)	yes
Modern Hungarian	yes	no

Table1

The cyclical nature of this set of changes is clear. While Proto-Hungarian had a dedicated overt middle voice suffix, this was lost in the transition to Old Hungarian. However, moving from Old Hungarian to Modern Hungarian, frequentative suffixes were reanalyzed as middle voice suffixes, and as a result, Modern Hungarian has overt middle suffixes again. This makes the cycle full. Naturally, we are not in exactly the same position as when we started: while Proto-Hungarian had a single middle voice suffix, Modern Hungarian has several middle voice suffixes. This fragmentation gives rise to suffix stacking (3): the reinforcement of semi-productive middle suffixes with a productive and thus more transparent middle suffix.

While grammaticalization cycles concerning subject and object agreement, case, tense-mood-aspect and negation have been discussed extensively in the literature, cyclical diachronic changes of voice and argument structure in general have received comparatively less attention until recently (cf. Heine and Kuteva 2002, Gelderen 2011, Ahn and Yap 2017, Gelderen 2018 a.o.). The detailed study of the Voice Cycle in Hungarian offered here therefore has cross-linguistic relevance in terms of contributing to our understanding of linguistic cycles.

In addition to shedding light on a somewhat neglected corner of the grammaticalization landscape, the results in this paper also have broader implications concerning the general mechanisms underlying grammaticalization. As I will show below, the Voice Cycle cannot be described in terms of Gelderen's (2011) Feature Economy (since the reinterpretation is not based on shared abstract features), nor is it motivated by principles such as Head Preference (Gelderen 2004) or Late Merge (Chomsky 1995, Gelderen 2004). Rather, I will argue that what made reinterpretation possible was the relatively high correlation between middle voice and frequentative aspect (Section 6). Since language learners were exposed to a sample where verbs in middle voice were very likely to also carry a frequentative suffix, these frequentative suffixes were in prime position to be reinterpreted as middle voice suffixes. I will thus claim that besides Feature Economy, reinterpretation based on correlation

between featurally independent grammatical markers should also be regarded a mechanism of grammaticalization.

The paper is structured as follows: in Section 2, I clarify the exact sense in which I use ‘middle voice’ in this paper. In Section 3, the Old Hungarian system of middle voice marking is introduced. Section 4 is a more detailed discussion of the syntax and semantics of middle voice. The collapse of the Old Hungarian system of middle voice marking over the Middle Hungarian period is discussed in Section 5. In Section 6, I describe the Modern Hungarian system of overt middle suffixes, and provide a formal analysis for the grammaticalization process. Section 7 spells out the theoretical consequences of this analysis. Section 8 is dedicated to a discussion of the breakdown of Voice syncretism and the rise of middle suffix stacking. In Section 9, a conclusion is provided.

2 MIDDLE VOICE: A NOTE ON TERMINOLOGY

Throughout this paper, I will use ‘middle voice’ in a specific and somewhat restricted sense to refer to a particular systematic and morphologically marked transitive-intransitive alternation pattern. Consider the Modern Hungarian examples below:

- | | | | | |
|-----|----|--|------------------------------|----------------------|
| (4) | a. | <i>János be-csuk-Ø</i> | <i>egy ajtót.</i> | TRANSITIVE |
| | | John PRT-close-3SGINDEF | a door.ACC | |
| | | ‘John closes a door.’ | | |
| | b. | <i>Egy ajtó be-csuk-ód-ik.</i> | | ANTICAUSATIVE |
| | | a door PRT-close-MID-3SGMID | | |
| | | ‘A door gets closed. / A door closes.’ | | |
| (5) | a. | <i>Anna épít-Ø</i> | <i>egy házat.</i> | TRANSITIVE |
| | | Anne build-3SGINDEF | a house.ACC | |
| | | ‘Anne builds a house.’ | | |
| | b. | <i>A ház épít-őd-ik.</i> | | MEDIOPASSIVE |
| | | the house build-MID-3SGMID | | |
| | | ‘The house is being built.’ ² | | |
| (6) | a. | <i>Feri meg-mos-Ø</i> | <i>egy almát.</i> | TRANSITIVE |
| | | Frank PRT-wash-3SGINDEF | a apple.ACC | |
| | | ‘Frank rinses (lit. washes) an apple.’ | | |
| | b. | <i>Feri meg-mos-akod-ik.</i> | | REFLEXIVE |
| | | Frank PRT-wash-MID-3SGMID | | |
| | | ‘Frank washes himself.’ | | |
| (7) | a. | <i>Eszter lát-Ø</i> | <i>minden csúcsot innen.</i> | TRANSITIVE |
| | | Esther see-3SGINDEF | every summit.ACC here.from | |
| | | ‘From here, Esther sees all the summits.’ | | |
| | b. | <i>Minden csúcs lát-sz-ik</i> | <i>innen.</i> | DISPOSITIONAL MIDDLE |
| | | every summit see-MID-3SGMID | here.from | |
| | | ‘From here, all the summits are visible / can be seen.’ | | |
| (8) | a. | <i>András épít-Ø</i> | <i>egy házat.</i> | TRANSITIVE |
| | | Andrew build-3SGINDEF | a house.ACC | |
| | | ‘Andrew is building a house.’ | | |
| | b. | <i>András épít-kez-ik.</i> | | ANTIPASSIVE |
| | | Andrew build-MID-3SGMID | | |
| | | ‘Andrew is building. (Andrew is involved in an unspecified building project.)’ | | |

² While prescriptive grammars of contemporary Hungarian discourage the use of this mediopassive form (regarding it as an illicit use of the anticausative), it has in fact been well-established for a long time. (Cf. Simonyi 1878:412)

The phenomena in (4) to (8) share the following characteristics:

- (i) there is a transitive-intransitive alternation
- (ii) the transitive form of the verb is identical to its stem form (both in Old Hungarian and in Modern Hungarian)
- (iii) the intransitive form is derived by adding a suffix (MID) right after the stem (in Modern Hungarian)
- (iv) the intransitive form follows a special inflectional paradigm (also known as the *ik*-paradigm after the allomorph of the 3SG subject agreement suffix)

It should be noted that the middle domain (the set of verbs involved in middle voice syncretism) is variable across languages. In many languages, some inherently unaccusative and inherently unergative verbs display middle voice morphology and are classified as middles.³ However, as far as Hungarian is concerned, inherently unergative and unaccusative verbs never carry the dedicated middle voice suffixes (MID), which means that treating them as middles would be unjustified.

While middle voice in Hungarian always involves detransitivization, an important distinction is to be made between anticausatives, mediopassives, reflexives and dispositional middles, which all involve the suppression of the external argument; and antipassives, which involve the suppression of the internal argument (see Section 4).⁴

3 LATE OLD HUNGARIAN: AGRS ALLOMORPHY CONDITIONAL ON VOICE

Old Hungarian had two verbal conjugation paradigms: the active paradigm (which survives in Modern Hungarian as the regular paradigm) and the middle paradigm (which survives in Modern Hungarian as the irregular *-ik* paradigm, so named after the allomorph of the 3SG suffix characteristic of this paradigm, see (11b)). As has been noted by historical linguists (see E. Abaffy 1992:213-237 and references therein), verbs followed the active paradigm in active voice and the middle paradigm in middle voice.⁵ Consider (the relevant suffixes are underlined, see Appendix 1 for a list of the suffixes in the two paradigms):

- (9) a. *venen az öt keñerekèt ... m̃g-ald-a* 7 *meg-zeg-e*
 taking the five breads ... PRT-bless-PST.3SGDEF and PRT-cut-PST.3SGDEF
 ‘Having taken the five loafs of bread, he blessed them and cut them up.’
 Munich Codex (1466), 21a [Matthew 14:19]
- b. *jstenj akaratbol harom rezre zeg-ek* *az oszja*
 divine will.from three part.into cut-PST.3SGMID the host
 ‘By divine will, the host (sacramental bread) got cut into three parts.’
 Érsekújvár Codex (1529-1531), 410

3 In her monograph on middle voice, Kemmer (1993) points out that in many languages, (many) verbs concerning a change of body posture, verbs of motion, of cognition, of speech and verbs describing spontaneous events carry middle marking. In her work on voice mismatch phenomena in Indo-European languages, Grestenberger (2014) characterizes (non-alternating) statives, (some) verbs of motion and (some) verbs of cognition as canonical cases of middle (or non-active) voice.

4 The antipassive is syncretic with anticausatives/reflexives/reciprocals/dispositional middles in various other languages such as Chukchi (Kozinsky et al. 1988), Halkomelem (Gerdtts and Hukari 2005, 2006), Kiowa (Watkins 1984) and several Pama-Nyungan languages (Dixon 1972, 1977, Austin 1981, Terrill 1997) (Cf. Polinsky 2017 for an overview.)

5 E. Abaffy (1992) claims that the original function of the middle paradigm was the morphological marking of anticausatives, and its function of marking reflexives and antipassives is a later development. I believe this assumption is not supported by the available data: it is not the case that anticausatives following the middle paradigm are attested earlier than reflexives or antipassives following the middle paradigm (see E. Abaffy (1992, 218-220). Also, voice syncretism (the situation where anticausatives, reflexives, antipassives etc. have identical morphological marking) is cross-linguistically widely attested: this means that in the absence of any supporting evidence, it would be purely speculative to assume that anticausative use is somehow more original than the reflexive or antipassive use.

- (10) a. *haněčac bog labait mof-la*
 rather:only that foot.3SG.PL.ACC wash-3SGDEF
 ‘Rather that he washes only his feet.’
 Munich Codex (1466), 100ra [John 13:10]
- b. *meg-mof-d-ik uala*
 PRT-wash-FREQ-3SGMID be.PST.3SG
 ‘He washed himself.’
 Vienna Codex (mid-15th C), 35 [Judith 7:12]
- (11) a. *gyonn-ya megh ... býneeth*
 confess-3SGDEF PRT ... sin.3SG.ACC
 ‘He confesses his sin.’
 Jordányszky Codex (1516-1519), 127 [Numbers 5:7]
- b. *mert pokol nem gyovon⁶-ik neked*
 because hell not confess-3SGMID you.DAT
 ‘Because hell does not make its confession to you.’
 Döbrentei Codex (1508), 123r⁷

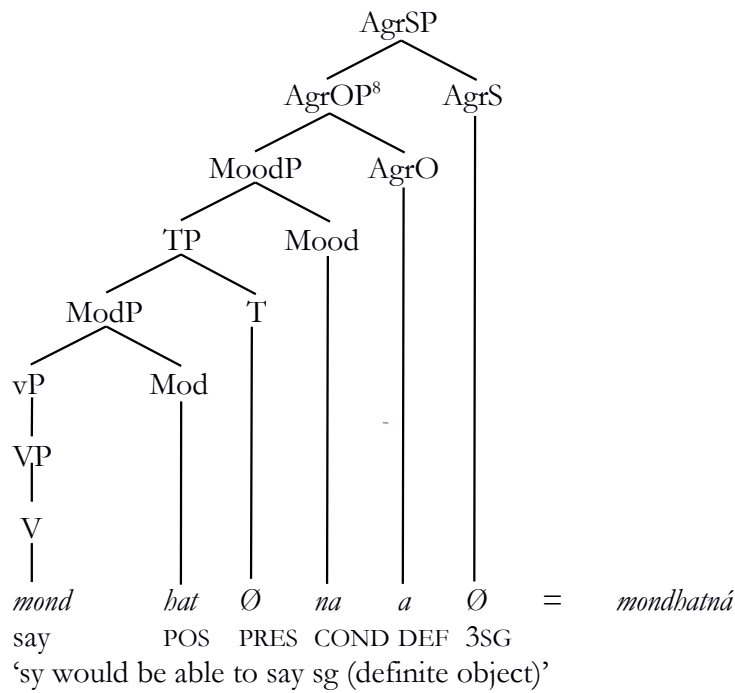
(9) is an instance of transitive-anticausative alternation, (10) shows a transitive-reflexive alternation, and (11) displays a transitive-antipassive alternation. While the pattern above has been noted by historical linguists, no formal morphosyntactic analysis has been provided so far for the active-middle paradigm split in Old Hungarian. In the remainder of this section, I will propose such an analysis.

The inflectional domain of the verb has been remarkably stable since the Old Hungarian period up until today: while a number of tenses disappeared, the basic order and function of suffixes has remained mostly unchanged. Therefore, the models proposed for Modern Hungarian can be straightforwardly applied to the Old Hungarian data too. Following Bartos (1999), den Dikken (1999), É. Kiss (2002) a.o., I assume the following structure for the vP and the inflectional domain:

⁶ *gyovon* ‘confess’ is a dialectal variant of *gyón* ‘confess’, cf. Benkő (1967: I/1132) and Deme and Imre (1968-77: 594)

⁷ My main data sources were the Old Hungarian Corpus (Old Hungarian period: 12th to 16th century, 2.2 million word tokens, cf. Simon and Sass 2012, Simon 2014), the Historical Vernacular Corpus of Hungarian (17th to 18th century, 850 thousand word tokens, cf. Dömötör 2013, Novák et al. 2013) and the Hungarian Historical Corpus (late 18th to 20th century, 30 million word tokens). Note that there are only a handful of texts dating from the 12th to 14th centuries and all of them are very short. These contained no data useful for our purposes: this is why the earliest texts that are referenced in the paper date from the 15th century. No sources are provided in case of uncontested Modern Hungarian data. For a full list of the data sources, see Appendix 3.

(12)

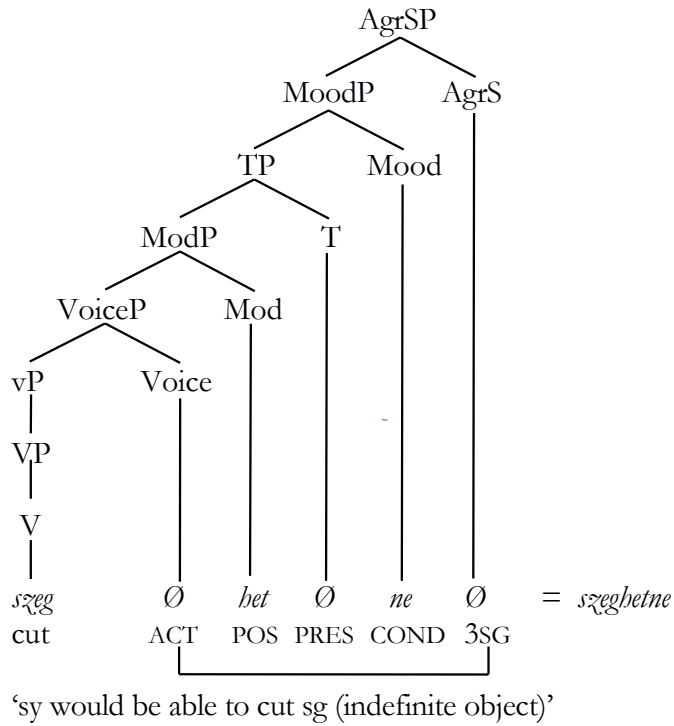


Bartos (1999) in fact assumes a left-branching structure and derives the surface order of suffixes by assuming that the functional heads are joined to V via an operation called morphosyntactic merge, with the result that the surface order of the suffixes is the mirror image of the morphosyntactic order (Baker 1985). For ease of presentation, these are presented as right-branching structures in this paper, but nothing hinges on this choice. In what follows, I will explore and evaluate two possible ways to model the active-middle paradigm split: contextual allomorphy and sequential spanning.

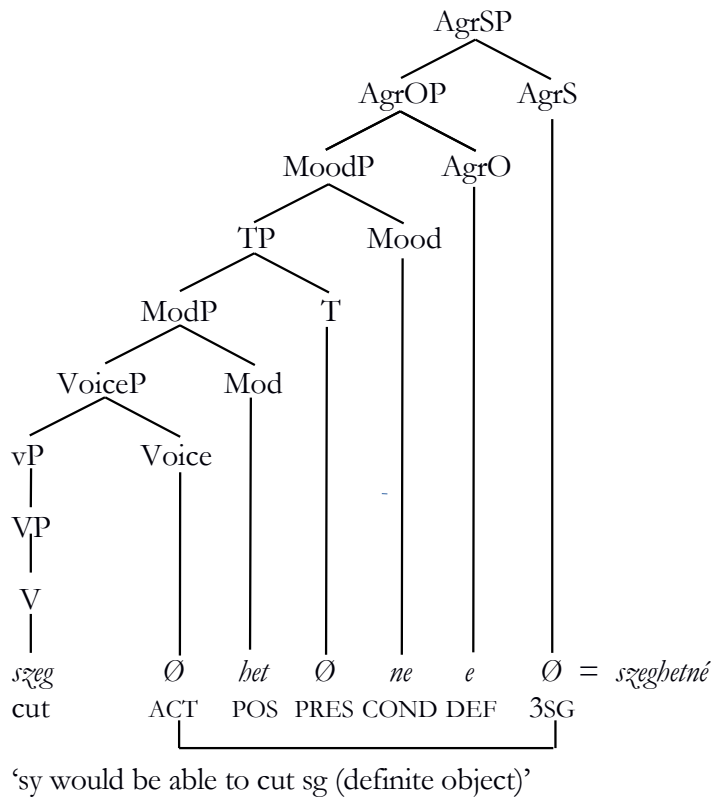
The most straightforward way to analyze the pattern is to assume that what we witness is allomorphy of the AgrS head conditioned by the feature content of the lower silent Voice head (ACT/MID) (i.e., I assume with Alexiadou, Anagnostopoulou and Schäfer 2015 and Schäfer 2008 that VoiceP is projected, but SpecVoiceP is crucially not, in so-called marked anticausatives, and in middles in general):

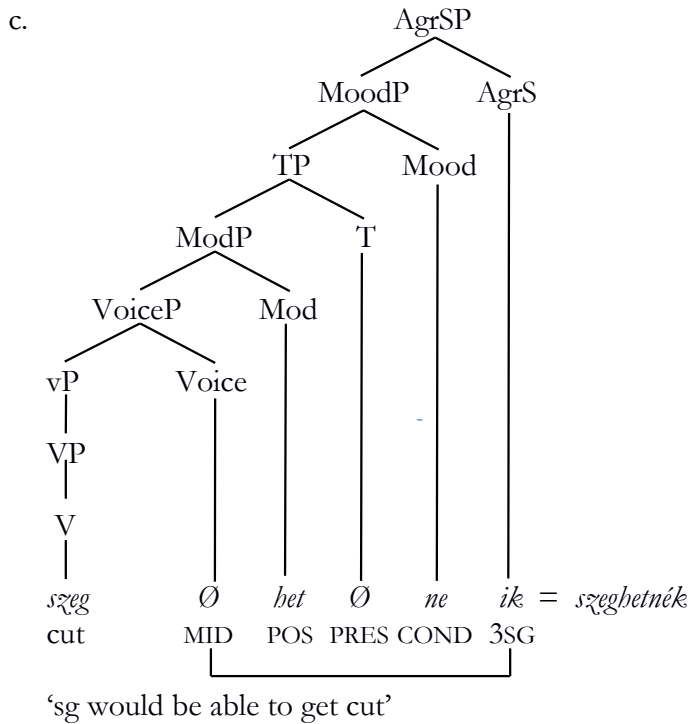
8 AgrOP is only projected in transitives with a definite object, it is not projected in unergatives, unaccusatives and transitives with an indefinite object, cf. Bartos (1999: 91-118).

(13) a.



b.





This analysis is compatible with several current proposals on the nature of contextual allomorphy, such as Merchant’s (2015) Span Adjacency Hypothesis, where allomorphy is conditioned by an adjacent span (i.e., a sequence of heads in a single extended projection, Svenonius 2012), locality within the same maximal projection (Bobaljik 2012, Bobaljik and Harley 2017) or linear adjacency/concatenation in single spellout domain (Embick 2010, Arregi and Nevins 2012).

In terms of directionality, this is an instance of inwardly-sensitive allomorphy: the allomorphy of AgrS is conditioned by the feature content of a head situated between AgrS and V. Note that on the assumption that vocabulary insertion eliminates the morphosyntactic features of a head (Halle 1990, Noyer 1992), such inwardly sensitive allomorphy triggered by a syntactically relevant feature has been predicted to be impossible by Bobaljik (2000): if the morphosyntactic features are used up upon vocabulary insertion, then they are no longer available as potential triggers of allomorphy.⁹ Thus, these data from Hungarian support the alternative hypothesis, i.e., that morphosyntactic features remain intact and are retained after vocabulary insertion (Halle and Marantz 1993, Noyer 1997).¹⁰

9 The precise claim of Bobaljik (2000) is that inward-sensitive allomorphy is possible in case it is conditioned by syntactically irrelevant morphophonological features (such as class marking), but impossible in case it is conditioned by syntactically relevant morphosyntactic features (such as tense or agreement). Since Voice is clearly a morphosyntactically relevant feature, the pattern exhibited in Old Hungarian represents a counterexample to Bobaljik’s (2000) claim.

10 A potential alternative to the analysis above would be to assume that the Voice head is spelled out together with the AgrS head in a non-terminal spellout configuration (as a portmanteau morpheme). (On non-terminal spellout, cf. Weerman and Evers-Vermeul (2002), Williams (2003), Neeleman and Szendrői (2007), Ramchand (2008), Newson (2010), Dékány (2011) and Márkus (2015) a.o.). This would naturally require that Voice⁰ be adjacent to AgrS⁰. Since whether or not AgrOP is projected at all depends on the feature content of Voice⁰, VoiceP needs to be projected earlier than AgrOP. This means that minimally AgrOP has to intervene between VoiceP and AgrSP in active transitive sentences such as (10ab); however, in middles, due to the absence of AgrOP, adjacency of Voice⁰ and AgrS⁰ is technically possible as long as one is willing to contemplate a structure where vP is separated from VoiceP by the TAM layer:

(i) a. [[[[[[[V_{VP}]_{VP}] POS_{ModP}] PRES_{TenseP}] COND_{MoodP}] ACT_{VoiceP}] 3SG_{AgrSP}]
szeg -het- Ø -ne- Ø Ø
 ‘sy would be able to cut sg (indefinite object)’
 b. [[[[[[[V_{VP}]_{VP}] POS_{ModP}] PRES_{TenseP}] COND_{MoodP}] ACT_{VoiceP}] INDEF_{AgrOP}] 3SG_{AgrSP}]
szeg -het- Ø -ne- Ø e Ø

Interestingly, while Late Old Hungarian does not have an overt voice suffix, it has been argued that Proto-Hungarian probably had a middle suffix (-*v*-), which, however, was lost by the time of the earliest written sources (the Late Old Hungarian period):

- (14) *tör-v-ik* (reconstructed Proto-Hungarian)
 break-MID-3SGMID
 ‘gets broken (anticausative)’

The evidence for this -*v*- middle suffix comes from data from related languages such as Mansi, Mordvin and Finnish and a handful of fossils from Late Old Hungarian (Simonyi 1878:483-484, Budenz 1884:252-269, Simonyi 1905:5, D. Bartha 1991:96). This reconstructed suffix can be straightforwardly analyzed as the overt spellout of the Voice head.

4 EXCURSION: A FINER-GRAINED SYNTAX AND SEMANTICS

Above, I have implicitly assumed that the Voice head has a single feature with two possible values. If the value is [ACT], no valency reduction takes place, if the value is [MID], the valency of the transitive predicate denoted by the verb is reduced. This is a simplification in two respects: it glosses over the question whether valency reduction is interpreted in syntactic terms (i.e. whether the position housing the external argument is projected or not) or semantic terms (whether an external argument is present in the semantic interpretation); and it also neglects the difference between those middles where the external argument is suppressed (anticausatives, mediopassives, dispositional middles and reflexives) and those where the internal argument is suppressed (antipassive). In this subsection, we will very briefly address these questions.

In anticausatives, mediopassives, dispositional middles and reflexives, the external argument is syntactically suppressed: this can be modelled by assuming that Spec,VoiceP is not projected (cf. Alexiadou, Anagnostopoulou and Schäfer 2015). In terms of semantics, however, there are crucial differences. While with mediopassives, there is typically an understood agent which can actually be overtly reintroduced as an oblique argument (a *by*-phrase), this is not the case with anticausatives: these fully lack an agent role. Dispositional middles on the other hand are understood as modal-generic statements: (7b) means that generally speaking, everyone can see all the summits from here. In reflexives, there is an implicit external argument which is coreferential with the internal argument (cf. Alexiadou 2014). These differences can be formally modelled by assuming that the Voice head has features which affect whether (i) the agent role is suppressed in the semantic representation and (ii) if not, how the argument slot associated with the agent role is valued (e.g. in dispositional middles, it is straightforward to assume that the argument slot is filled with a variable which is bound by a possibility modal operator, cf. Alexiadou and Doron 2014). In antipassives, on the other hand, it is the internal

-
- c. ‘sy would be able to cut sg (definite object)’
 [[[[[[[[V_{VP}]_{VP}] POS_{ModP}] PRES_{TenseP}] COND_{MoodP}] [MID_{VoiceP}] 3SG_{AgrSP}]
szeg *-het-* *Ø* *-ne-* *-ik*
 ‘sy would be able to get cut’

While technically, both contextual allomorphy and non-terminal spellout can be used to account for the relevant facts, there are strong arguments for the former and against the latter. In order for the non-terminal account to work, one would need to assume that VoiceP is merged unusually late, so that the whole tense-mood-modality layer intervenes between vP and VoiceP. Such a configuration is crosslinguistically very atypical. Also, as we will see later on, in addition to capturing the Old Hungarian facts, conditional allomorphy can also be straightforwardly used to describe the situation in Modern Hungarian (where the AgrS allomorphy is conditional on either V or v) and the grammaticalization process affecting the middle paradigm (which is, in essence, a series of changes in the conditioning factors of AgrS allomorphy). Therefore, in what follows, I will adopt the contextual allomorphy analysis.

argument which is syntactically suppressed, while in terms of semantics, there is typically an understood object which can often be overtly introduced as an oblique argument.¹¹¹²

To summarize, instead of having a simple feature with the two values ACT/MID, it is more realistic to assume a bundle of features which encode (i) whether it is the external or internal argument that is syntactically suppressed and (ii) to what extent the syntactically suppressed argument is semantically available and how it receives its value (see Section 7).

Discussing the formal semantics of middles is beyond the scope of this paper. (Cf. Alexiadou and Doron 2014 and references.) In terms of syntax, I will assume that anticausatives, mediopassives, dispositional middles and reflexives can be analyzed along the lines of Alexiadou, Anagnostopoulou and Schäfer (2015): the feature content of the Voice head specifies that Spec, VoiceP, the structural position of the agent, should not be projected.

There is less consensus in the literature on the syntax of antipassives (see Polinsky 2017 for an overview and evaluation of the various proposals). In addition to lexicalist models, the syntactic accounts fall into broadly two camps. It has been proposed (cf. Baker 1988 and subsequent work) that in antipassives, the internal argument position is saturated by a syntactically abstract and semantically vacuous nominal element which absorbs accusative case. Because of this, the true object of the predicate cannot receive accusative case and is therefore either left unrealized or is reintroduced as an oblique argument with lexical case. The major analytical alternative, explored mainly in the context of

11 Hungarian has two reflexive constructions: in addition to morphologically marked intransitive reflexives (our main concern here), it is also possible to create a reflexive with a transitive predicate with a reflexive pseudo-object. The fact that there is only one syntactic argument position in the morphologically marked reflexives can be easily shown using the standard tests of Sells, Zaenen and Zec (1987): the comparative ellipsis test and the statue test (whether an event of John washing his own statue can be jokingly described using a reflexive):

- (i) a. *János alaposabban meg-mos-sa magát mint az édesanyja.*
 John more.thoroughly PRT-wash-3SGDEF himself-ACC than the mother.3SG
 'John washes himself more thoroughly than his mother washes herself.'
 'John washes himself more thoroughly than his mother washes him.'
- b. *János alaposabban meg-mos-akod-ik mint az édesanyja.*
 John more.thoroughly PRT-wash-MID-3SGMID than the mother.3SG
 'John washes himself more thoroughly than his mother washes herself.'
 *'John washes himself more thoroughly than his mother washes him.'
- (ii) a. *János mos-sa magát.*
 John wash-3SGDEF himself-ACC
 'John is washing himself.'
 'John is washing a statue which depicts John.'
- b. *János mos-akod-ik.*
 John wash-MID-3SGMID
 'John is washing himself.'
 *'John is washing a statue which depicts John.'

As Rákosi (2008:434-439) has shown, the single argument position which is syntactically realized in morphologically marked reflexives is the internal position: these reflexives systematically pattern with anticausatives in the following tests: association with a resultative predicate, availability in attributive perfect participles, availability in stative participles:

- (iii) *A katonák száraz-ra töröl-köz-t-ek.*
 the soldier-PL dry:onto towel-MID-PST-3PLMID
 'The soldiers towelled themselves dry.'
- (iv) *az alaposan meg-töröl-köz-ött katonák*
 the thoroughly PRT-towel-MID-PTCP soldier-PL
 'the soldiers who have towelled themselves thoroughly'
- (v) *A katonák meg van-nak tör-öl-köz-ve.*
 the soldier-PL PRT be-3PL towel-MID-PTCP
 'The soldiers have towelled themselves.' Lit.: 'The soldiers are in the state of having towelled themselves.'

- 12 (i) *János ki-próbál-Ø egy új megközelítés-t.*
 John PRT-try-3SGINDEF a new approach-ACC
 'John tries out a new approach.'
- (ii) *János próbál-köz-ik (egy új megközelítés-sel).*
 John try-MID-3SGMID a new approach-INS
 'John is trying. / John is trying out a new approach.'

ergative languages, is to assume that transitive objects and antipassive objects have different licensing positions (cf. Bok-Bennema 1991 and subsequent work). There are two reasons why the facts from Hungarian favour the first type of analysis. Both object drop and the possibility of reintroducing the internal argument as an oblique are hallmarks of the antipassive in Hungarian, and as Polinsky (2017) points out, these phenomena receive a better explanation in the case absorption approach. A third possibility would be to analyze antipassives in a similar fashion to so-called deponent verbs known from various Indo-European languages (verbs which have an agent subject but obligatorily surface with non-active morphology). Grestenberger (2014, 2018) argues that the subjects of deponents are introduced lower than agents in general, in a position below the Voice layer. Proposing a similar structure to antipassives would certainly have a major advantage: one could maintain that Spec, VoiceP in general is not projected in middles in Hungarian. Note, however, that in stark contrast with middles in Hungarian, deponents can be transitive with an accusative-marked object. In other words, while in Hungarian, middle voice signals a transitive-intransitive alternation, this is not in general the case with deponents. This suggests that using a deponency-style analysis for Hungarian may be problematic. In this paper, we will follow a Baker-style analysis of antipassives in Hungarian, but more research is needed into this issue (which is beyond the scope of this particular paper).

5 THE COLLAPSE OF THE MIDDLE PARADIGM

The collapse of the Old Hungarian middle paradigm as the reliable marker of middle voice (ongoing by the time of our earliest written sources and virtually complete by the beginning of the 19th century) can be reconstructed as follows (cf. Simonyi 1878, 1905, D. Bartha 1992 and E. Abaffy 1992).

In the initial stage, the middle paradigm was strictly associated with middle voice: AgrS allomorphy was conditioned by the feature content of the silent Voice head (see Section 3). This association between middle voice and the middle paradigm gradually loosened, however, as a result of three simultaneous changes: (i) the spread of the middle paradigm onto some inherently unaccusative verbs, (ii) the spread of the middle paradigm onto some inherently unergative verbs and (iii) the spread of the middle paradigm onto a handful of transitive verbs.

The spread of the middle paradigm onto unaccusatives is illustrated below:

- (15) a. *až en ellenségimnek kemén tőre alath fekez-ök*
 the I enemy.PL.1SG.DAT hard dagger.3SG under lie-1SGINDEF
 ‘I am lying under the hard dagger of my enemies.’
 Nagyszombat Codex (1512-1513), 67
- b. *mert eeth alkalmas tisztesseeg nélkül fekez-óm*
 because here appropriate propriety without lie-1SGMID
 ‘Because I am lying here lacking all appropriate dignity.’
 Érdy Codex (1526), 300a
- (16) a. *megh feketjile nekőm až nap*
 PRT blacken.PST.3SGIND I-DAT the sun
ees ez velagb megh fogj-a
 and this light PRT diminish-PST.3SGIND
 ‘My sun has darkened and the light has diminished.’
 Winkler Codex (1506), 217
- b. *vr Isten keresőknek nem fog-jék megh mjnden jo*
 lord God seeker.PL.DAT not diminish-3SGMID PRT all good
 ‘For those who seek the Lord God, nothing good will diminish.’
 Érsekújvár Codex (1529-1531), 108r
- (17) a. *Felec raita, hogy hazánknac až kichin maradekia is*

fear.1SGIND it.on that homeland.1PL.DAT this little leftover.3SG too
az többi után chufsz-Ø
 the rest after slip-3SGIND

‘I am afraid that what little is left of our country will slip after the rest.’
 Telegdi Miklós: Az evangéliumoknak magyarázata (1577-1580), I 109

- b. *Hamar csusz-ik és szörnyen es-ik gyarlóságunk...*
 soon slip-3SGMID and terribly fall-3SGMID frailty.1PL
 ‘Our frailty slips soon and falls terribly.’

Faludi Ferenc: Szent ember vagyis szent életre vezető istenes oktatások (1773), 550

This change can be analyzed as a reanalysis of the conditional allomorphy: for those speakers who started to conjugate unaccusatives in the middle paradigm, the conditioning factor was no longer whether the Voice head had the feature MID, but rather, whether Spec,VoiceP was projected or not (independently of whether the non-projection of VoiceP is due to the inherent unaccusativity of the verb or the MID value of the Voice head). This change was probably due to the similarity of certain middles (anticausatives and dispositional middles) and inherent unaccusatives: since all of these verb classes lacked a syntactically realizable external argument, it was easy for language learners to reinterpret the conditioning factor of allomorphy (‘suppression of external argument due to middle voice’ → ‘lack of external argument (no matter the reason’).

As can be seen from the examples, unaccusative verbs following the middle paradigm can be attested in the earliest available written sources. In other words, our earliest available picture already shows the system in motion: while the original paradigm is still functional (the middle paradigm encodes middle voice), an innovation to this original system (unaccusatives following the middle paradigm) is starting to spread. That this is indeed an innovation is indicated by the following: the conjugation of unaccusatives in the middle paradigm is optional, irregular (i.e., only attested with some unaccusative verbs but not others) and subject to strong dialectal variation (e.g. *fogy* ‘diminish’ does not follow the middle paradigm in most dialects of Modern Hungarian). Note also that this change was slow and gradual: some unaccusative verbs that follow the middle paradigm in Modern Hungarian are attested as such as early as the start of the 16th century (*feküsz* ‘lie’), whereas others are first attested as such as late as the end of the 18th century (such as *csúsz* ‘slip’).

The spread of the middle paradigm onto unergatives is illustrated below:

- (18) a. *es dauid ... zoc-Ø vala teljes ereyenel,*
 and David jump-3SGIND be.PST.3SG full force.3SG.INS
 ‘And King David was jumping around with full force.’
 Teleki Codex (1525-1531), 171
- b. *egybaztoknak kenczet nyind el lopa*
 church.2PL.DAT treasure.3SG.ACC all PRT steal.PST.3SG
Es vele el zok-ek.
 and it.INS PRT jump-PST.3SGMID
 ‘He stole all the treasures of your church and escaped with it.’
 Érsekújvár Codex (1529-1531), 523:
- (19) a. *ees magammak een magamrol hazud-jak.*
 and myself.DAT I myself.from lie (deceive)-SUBJ.1SGINDEF¹³
 ‘and that I should lie to myself about myself’
 Festetich Codex (1492-1494)
- b. *hazud-Ø*
 lie (deceive)-3SGINDEF
 ‘She/he/it lies (gives false information knowingly).’
 Miklós Révai: Elaborator grammatica Hungarica (1803) 953, 1029

13 The subjunctive is morphologically identical to the imperative. For the imperative paradigm, see Appendix.

- c. *hazud-iké*¹⁴
 lie (deceive)-3SGMID
 ‘She/he/it lies (gives false information knowingly).’
 Miklós Révai: *Elaborator grammatica Hungarica* (1803) 953, 1029

This change was probably due to the similarity of antipassives and inherent unergatives: since both of these verb classes lack a syntactically realizable internal argument, it was easy for language learners to reinterpret the conditioning factor of allomorphy (‘suppression of internal argument due to middle voice’ → ‘lack of internal argument (no matter the reason)’).

The spread of the middle conjugation onto unergatives has been a slow and incomplete process. E.g., while in Modern Hungarian, *hazud* ‘climb’ follows the middle conjugation, the first such attestations are relatively late (from the end of the 17th century) and the active conjugation of *hazud* has been dialectally attested up until at least the end of the 19th century (see Simonyi 1905, 341-349).

In addition to the two general changes described above (spread of the middle paradigm to unaccusatives and unergatives), a more isolated but still significant change is also to be noted: the spread of the middle paradigm to a handful of transitive verbs such as *esz* ‘eat’ and *isz* ‘drink’. Simonyi (1905, 9-10) argues that in Old Hungarian, *esz* ‘eat’ and *isz* ‘drink’ exhibited the regular active-middle alternation:

- (20) a. *a’ki engemet esz-en¹⁵, él-Ø is az én általam*
 who I.ACC eat-3SGINDEF live-3SGINDEF too that I through.1SG
 ‘Whoever eats me shall also live by me.’
 Károli Bible (1589), John 6:57
- b. *Ha valaki esz-ik e’ kenyérben, él-Ø örökké.*
 If someone eat-3SGMID this bread.in live-3SGINDEF forever
 ‘Whoever eats of this bread shall live forever.’
 Károli Bible (1589), John 6:51

(20b) is an antipassive construction: the verb is in middle voice and the demoted theme argument is reintroduced as an oblique argument. In Modern Hungarian, however, *esz* ‘eat’ follows the middle paradigm in the active transitive sentence too:

- (21) a. *aki engem esz-ik, él-Ø én általam*
 who I.ACC eat-3SGMID live-3SGINDEF I through.1SG
 ‘Whoever eats me shall live by me.’
 Revised Károli Bible (1905), John 6:57
- b. *Ha valaki esz-ik e’ kenyér-ből, él-Ø örökké.*
 If someone eat-3SGMID this bread-from live-3SGINDEF forever
 ‘Whoever eats of this bread shall live forever.’
 Revised Károli Bible (1905), John 6:51

14 Révai (1803, 953) notes that both variants are attested, however, in prescriptive fashion, he opines that the active conjugation is the original and correct usage, whereas the middle conjugation is an unwarranted innovation:

Aliqua recentiorum vitio augentur ik pronomine, nullo prorsus veterum exemplo: foly-ik, hazud-ik, úsz-ik, tsúsz-ik, mász-ik, asz-ik, külömböz-ik. Horum forma genuina est nuda.

‘Some of these are latterly erroneously augmented with the suffix *ik*, even though such usage is not supported by earlier examples: *foly-ik* (‘flow-3SGMID’), *hazud-ik* (‘lie-3SGMID’), *úsz-ik* (‘swim-3SGMID’), *tsúsz-ik* (‘slip-3SGMID’), *mász-ik* (‘climb-3SGMID’), *asz-ik* (‘wither-3SGMID’), *külobböz-ik* (‘differ-3SGMID’). The genuine form of these is the bare one.

This shows that in Révai’s time, the two paradigms were in competition as far as these verbs were concerned, with the middle paradigm gaining ground.

15 *-en* is an archaic overt form of the 3SGINDEF suffix.

It is probably no coincidence that the handful of transitive verbs which follow the middle conjugation in Modern Hungarian all happen to exhibit ‘prototypical object drop’:

- (22) a. *Mari esz-ik* \emptyset_{OBJ} .
 Mary eat-3SGMID n¹⁶
 ‘Mary is eating.’
 b. *János isz-ik* \emptyset_{OBJ} .
 John drink-3SGMID n
 ‘John is drinking.’

That is, following Ruda (2017) and others, I assume that in Modern Hungarian, apparently object-less sentences such as (22) in fact have a null object. (In other words, *esz* ‘eat’ is a strictly transitive verb in Modern Hungarian, even though it follows the middle conjugation.)

Interestingly, such null object constructions may well have been the actual locus where the reinterpretation took place. Consider:

- (23) *Mire esz-ik ti mestertec a bűnösöcckel?*
 what.to eat-3SGMID 2PL master.2PL the sinner.PL.INS
 ‘Why does your master eat with sinners?’ (antipassive, middle voice, theme object suppressed)
 Munich Codex (1466), 15ra [Matthew 9:11]

(23) displays the canonical transitive-intransitive alternation typical of Old Hungarian: the middle conjugation signals that this is an antipassive construction, that is, the internal argument has been suppressed. However, because of the existence of prototypical null objects in Hungarian, (23) may in fact be parsed in a different fashion too:

- (24) *Mire esz-ik \emptyset_{OBJ} ti mestertec a bűnösöcckel?*
 what.to eat-3SGMID n 2PL master.2PL the sinner.PL.INS
 ‘Why does your master eat with sinners?’ (transitive, active voice, prototypical null object – hypothetical reanalysis)
 Munich Codex (1466), 15ra [Matthew 9:11]

It is quite conceivable that language learners might have reinterpreted (23) as (24): an active transitive sentence with a phonologically null prototypical object. Such a reanalysis was made especially easy by the fact that the active and the middle paradigms were surface-identical in all plural forms (and in fact, also in the singular forms in many tenses and moods, see Appendix 1):

- (25) a. *foc ieles bűnösöc es-nec uala egbe iezüffal*
 many notorious sinner.PL eat-3PLMID be.PST together Jesus.INS
 ‘Many notorious sinners ate together with Jesus.’ (antipassive, middle voice, theme object suppressed)
 b. *foc ieles bűnösöc es-nec uala \emptyset_{OBJ} egbe iezüffal*
 many notorious sinner.PL eat-3PLACT be.PST n together Jesus.INS
 ‘Many notorious sinners ate together with Jesus.’ (transitive, active voice, prototypical null object – hypothetical reanalysis)
 Munich Codex (1466), 15ra [Matthew 9:10]

16 Ruda (2017) argues that in sentences such as (22), the non-anaphoric indefinite null object is an indefinite which is either closed existentially (in an episodic context) or bound by a generic operator (in a generic context), and its interpretation is restricted pragmatically by the verb and the actual context. For an overview of alternative proposals, cf. Ruda (2017, 4-21).

This change has been slow and incremental: the first examples of the middle conjugation of transitive *esz* ‘eat’ date from the Late Old Hungarian period, and the active conjugation of transitive *esz* ‘eat’ is still attested in Modern Hungarian (especially with 1SG and 2SG objects and indefinite objects).

As a result of these changes, the connection between the middle paradigm and middle voice became increasingly blurred. While the middle paradigm retained its function of encoding middle voice on transitive verbs (*tör-ik* break-3SGMID ‘gets broken’), it also spread to some unaccusatives (*fekeüsz-ik* lie-3SGMID ‘lies’), some unergatives (*bazud-ik* lie-3SGMID ‘lies (gives false information knowingly)’) and a few transitives (*esz-ik* eat-3SGMID ‘eats’). While only a handful of transitives started to follow the middle paradigm, these all had a high frequency of use (e.g. *esz* ‘eat’ or *isz* ‘drink’) and thus had an outsize influence in the linguistic input of language learners. The endpoint of these developments was that by the end of the 18th century, the middle paradigm has lost its original function of encoding middle voice, and was reinterpreted as an irregular conjugation paradigm (Simonyi 1905, R. Hutás 1972). In other words, the AgrS contextual allomorphy was no longer morphosyntactic (i.e., dependent on some morphosyntactic feature such as the feature content of Voice⁰, or the presence/absence of SpecVoiceP or AgrOP), rather, it has become a function of V, with some verbs specified in the lexicon as following the active paradigm and other verbs as following the middle paradigm.

This collapse of the Old Hungarian active-middle paradigm system as a reflex of active vs. middle voice was facilitated by two factors. Firstly, the active and the middle paradigms contrasted only in the following moods / tenses: the present singular, the present conditional singular, the imperative singular and the archaic imperfect past singular (see Appendix 1). In all plural persons and in all persons in the perfect past, the two paradigms were surface-identical: this meant that the paradigm split was unstable in terms of learnability (Clark and Roberts 1993). Also, middle voice had no separate marker: it was only visible through the allomorphy of AgrS which, in addition to subject phi-features, also (indirectly) encoded the feature content of Voice⁰. Such ‘feature syncretism’, where one lexical item spells out the features of more than one head, has been argued to be especially susceptible to reanalysis (Roberts and Roussou 2003, Faarlund 2008).

6 THE EMERGENCE OF MIDDLE VOICE SUFFIXES

In modern Hungarian, mediality is overtly encoded by middle suffixes:¹⁷

(26)	a.	-sz-	<i>lát-sz-ik</i>	(see-MID-3SGMID)	‘it seems’	DISP. MIDDLE
	b.	-d-	<i>mos-d-ik</i>	(wash-MID-3SGMID)	‘she washes herself’	REFLEXIVE
	c.	-(V)kVsz-	<i>imád-koz-ik</i>	(worship-MID-3SGMID)	‘she prays’	ANTIPASSIVE
	d.	-(V)kVd-	<i>ver-eked-ik</i>	(beat-MID-3SGMID)	‘she fights’	ANTIPASSIVE
	e.	-Vd-	<i>kever-ed-ik</i>	(mix-MID-3SGMID)	‘it gets mixed’	ANTICAUSATIVE
	f.	-V:d-	<i>üt-őd-ik</i>	(hit-MID-3SGMID)	‘it gets hit’	ANTICAUSATIVE ¹⁸

As has been noted, these middle suffixes are all derived from originally frequentative-iterative suffixes (Simonyi 1878, E. Abaffy 1978, D. Bartha 1991, 1992).

(27)	a.	<i>ki von-sz-on¹⁹</i>	<i>le engemet földre?</i>
		who draw-FREQ-3SGINDEF	PRT me ground.onto
		‘Who drags me down to the ground?’	
		Vienna Codex (mid-15th C), 235 [Obadiah 1:3]	
	b.	<i>A kutyá az orrával</i>	<i>bök-öd-t-e a kezemet.</i>

17 In addition to having an overt middle suffix, middles also obligatorily follow the original ‘middle’ inflectional paradigm.

18 V stands for ‘short vowel’ and V: for ‘long vowel’. The actual realization of the vowel depends on the vowel quality of the stem. For a recent overview of Vowel Harmony in Hungarian, cf. Rebrus and Törkenczy (2015).

19 Modern Hungarian *von-sz* ‘attract’ derives from *von-sz* ‘draw regularly, repeatedly, continuously’ (cf. Simonyi 1880:243-244).

- the dog the nose.3SG.INS poke-FREQ-PST-3SGDEF the hand.1SG.ACC
 ‘The dog kept poking my hand with its nose.’
- c. *Le-köp-köd-t-e* *rajongóit* *tampai* *koncertjén* *Miley Cyrus*.
 PRT-spit-FREQ-PST-3SGDEF fan.PL.3SG.ACC Tampa.ADJ concert:3SG.on Miley Cyrus
 ‘Miley Cyrus repeatedly spat at her fans during her performance in Tampa.’

However, as far as Modern Hungarian is concerned, these suffixes lost the function of encoding a frequentative-iterative reading; their original function only survives in few isolated fossils such as *bök-öd* ‘poke repeatedly’ and *köp-köd* ‘spit repeatedly’ (27b-c). In other words, in the Middle Hungarian period, a systematic reanalysis took place: several frequentative-iterative suffixes were reinterpreted as markers of middle voice (this also affected the structural position of the elements concerned, see later).

What is the morphosyntactic position of frequentative suffixes? The (productive) frequentative suffix *-gat/-get* in Modern Hungarian has functions related to causativity alternations and verb-formation from category-neutral roots:

- (28) a. *for-og*
 √turn-FREQ
 ‘turn-inchoative’
- b. *for-gat*
 √turn-FREQ
 ‘turn-causative’

Note also that the unproductive frequentative suffixes *-kVd-* and *-Vd-* also have a verbalizing function:

- (29) a. *erős-köd-ik*
 strong-FREQ-3SGINDEF
 ‘keeps on insisting strongly’
- b. *erős-öd-ik*
 strong-FREQ-3SGINDEF
 ‘gains strength’

Based on this, I assume that frequentatives in Hungarian (Old Hungarian as well as Modern Hungarian) are merged in little *v* (cf. Harley 1995, Marantz 1997, Harley and Noyer 2000 for similar proposals for other languages). This is also supported by the fact they are positioned between the stem (verbal, nominal or adjectival) and the lowermost element of the inflectional domain (Mod⁰).²⁰

The intriguing question is why it was frequentative suffixes which were reinterpreted as markers of middle voice. Note that cross-linguistically, middles are often associated with frequentative/habitual readings.²¹ In antipassives, the theme argument (which could measure out the event) is demoted: this means that an unbounded, habitual reading is more readily accessible:

- (30) a. *János épít-Ø egy házat.*
 John build-3SGINDEF a house.ACC
 ‘John is building a house.’
- b. *János épít-kez-ik.*
 John build-MID-3SGMID
 ‘John is building. (John is involved in an unspecified and temporally unbounded building project.)’

20 As pointed out by a reviewer, an alternative would be to assume that frequentative suffixes are merged higher up, as Asp heads (cf. Cinque 1999). While various authors have assumed an AspP projection in Hungarian (cf. É. Kiss 2002:62-71), it is clear that it cannot be the home of frequentative suffixes. Firstly, AspP is clearly outside the inflectional domain, and as such, cannot house a suffix. Also, the frequentative suffix is always placed between the stem and the lowermost element of the inflectional domain (Mod⁰). This, together with its functions related to causativity alternations and verbalization, clearly shows that it is to be analyzed as a spellout of *v*.

21 The antipassive in particular (see footnote 22) and middle voice in general (cf. Klaiman 1991:47-48 on Greek and Fula) has been cross-linguistically associated with an imperfective (stative, durative-habitual or iterative) interpretation. I would like to thank an anonymous reviewer for calling my attention to the relevance of Klaiman’s (1991) remarks on this matter.)

In (30a), the theme argument measures out the event: once the house is built, the event is terminated. In (30b), the event is not measured out due to the lack of a theme argument and an unbounded, habitual reading is more accessible.²²

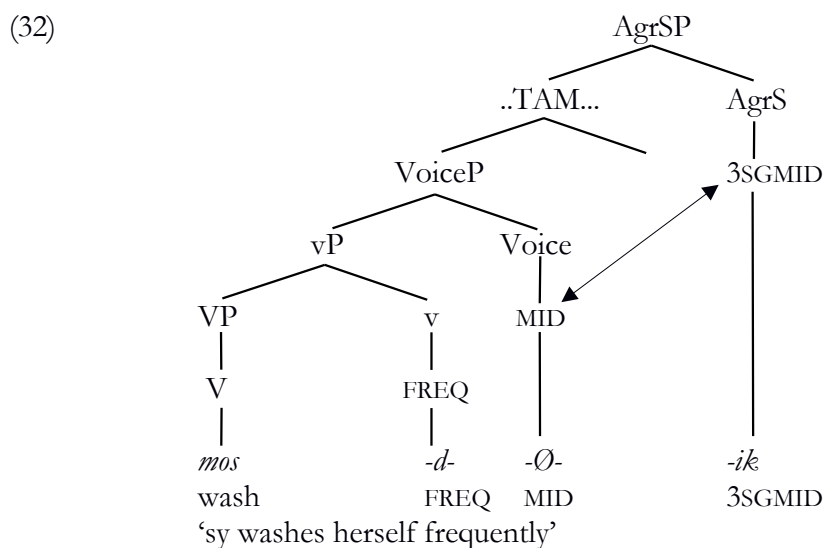
Dispositional middles often ascribe a stable generic property to their argument, and because of this, they are often used to describe situations with a habitual flavour:

- (31) *Jó idóben innen általában lát-sz-ik a Triglav.*
 good weather.in from.here in.general see-MID-3SGMID the Triglav
 ‘In good weather, Triglav is usually visible from here.’

This means that verbs in middle voice were likely to carry these frequentative suffixes (or at least significantly likelier than their active counterparts). As a result, as the middle paradigm collapsed and AgrS allomorphy was no longer a reliable marker of middle voice, it was easy for language learners to reanalyze these frequentative suffixes as the markers of middle voice. This can be related to the notion of stability (Clark and Roberts 1993): the expression of middle voice in AgrS morphology was highly ambiguous and unstable in terms of learnability.

In structural terms, this reanalysis was equivalent to the spellout of a frequentative v head being reinterpreted as the spellout of a middle Voice head. The new system had a significant learnability advantage: middle voice was now transparently encoded in all moods, tenses and persons.

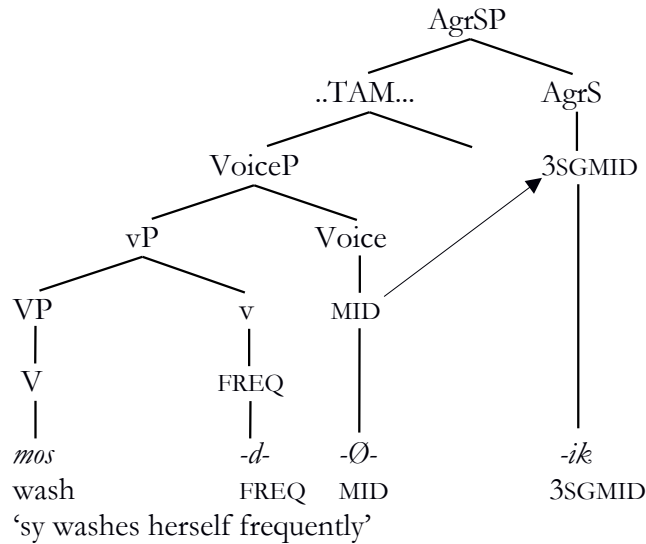
The reanalysis proceeded as follows. At the starting stage, the middle paradigm was stable: there was a one-to-one (bidirectional) correspondence between the AgrS⁰ allomorph and the feature content of Voice⁰:



As the middle paradigm collapsed, the one-to-one correspondence between the AgrS allomorph and Voice⁰ was lost: while it was the case that middles followed the middle paradigm, not all verbs that followed the middle paradigm were middles (this is symbolized by the one-headed arrow below):

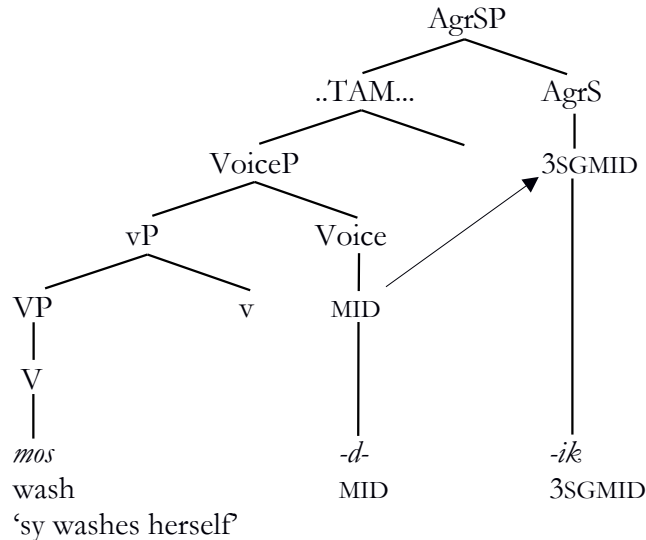
22 The correlation of antipassives with habitual/iterative readings has been reported from various languages such as Chamorro (Cooreman 1988), Chukchi (Comrie 1979, Polinskaja and Nedjalkov 1987), West Greenlandic (Fortescue 1984:86), Warrungu (Tsunoda 1988), Dyirbal (Dixon 1972:91), Quiché (Mondloch 1981) and Inuktitut (Spreng 2012) (cf. Cooreman 1994 and Polinsky 2017 for an overview).

(33)



The final stage was the reanalysis of frequentative v heads as overt middle voice heads, leading to increased transparency (visible in all tenses and moods) and better learnability:

(34)



This reanalysis was a slow and gradual process, taking place over the course of centuries. Consider two examples: *old* ‘dissolve_{transitive}, loosen_{transitive}’ and *érez* ‘feel, perceive’.

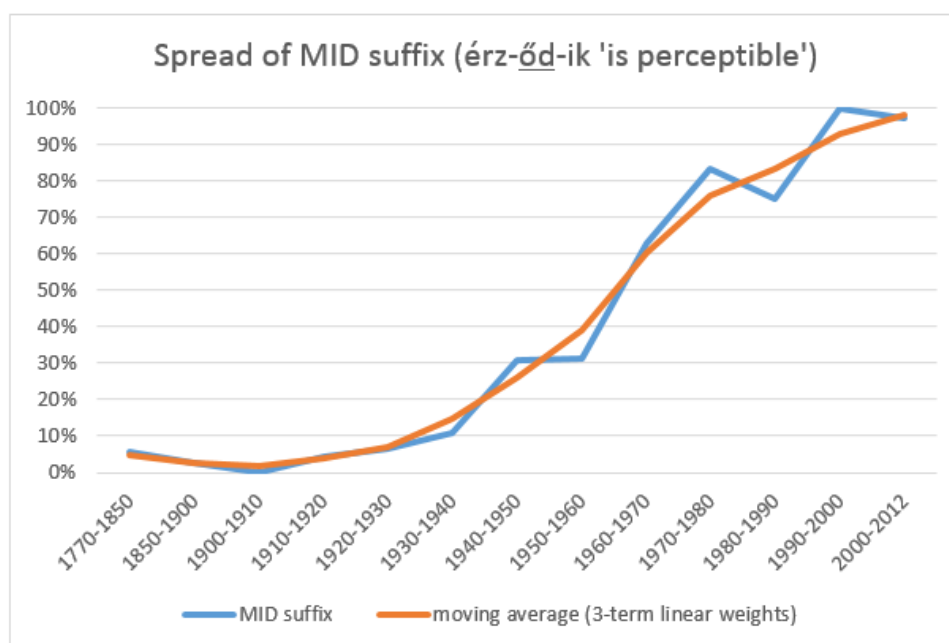
- (35) a. *az ő derekanac is öve meg nem old-ik* Károli (1589)
 the he waist.3SG.DAT too girdle.3SG PRT not loosen-3SGMID
- b. *és meg nem old-ik az ő derekának öve* K. Csipkés (1678)
 and PRT not loosen-3SGMID the he waist.3SG.DAT girdle.3SG
- c. *derekának öve sem old-ód-ik meg* Revised Károli (1905)
 waist.3SG.DAT girdle.3SG nor loosen-MID-3SGMID PRT
 ‘the girdle around his waist shall not be loosened’ (Isaiah 5:27)

Note that Kassai (1817), in his otherwise rather prescriptive grammar, mentions both forms (*old-ik* and *old-ód-ik*) as attested and acceptable, which indicates that by the beginning of the 19th century, the form with the overt middle suffix was on course of taking over the older form. By the beginning of the 20th century, this process was complete, as even the linguistically conservative Reformed Protestant Bible started to use the variant with the overt middle suffix (35c).

This process can be mapped even more accurately with the verb *érez* ('feel, perceive'), due to the fact that the emergence of the overt suffix took place later, in a period from which we have more data in the Hungarian Historical Corpus. Consider:

- (36) a. *a' szobában a' méznek vagy penésznek büdössége érz-*ik**
 the room.in the lime.DAT^{or} mould.DAT odour.3SG feel-3SGMID
 'the smell of lime or mould can be felt in the room' Mindenés Gyűlytemény (1789)
- b. *mindvégig érz-*őd*-*ik* valami szkept*iciz*mus*
 throughout feel-MID-3SGMID some scepticism
 'a certain scepticism can be felt throughout' Poszler György: Szerb Antal (1973)

Data drawn from the Hungarian Historical Corpus shows that the spread of the new form (overt middle suffix) followed the typical logistic curve (or S-curve, cf. Kroch 1990, Niyogi and Berwick 1997):



Graph 1²³

While the form with overt middle suffix is attested as early as the beginning of the 19th century, its spread is initially slow, gathering speed around the 1930s, and then slowing somewhat around the 1970s until the old form becomes practically unattested by the 1990s. Note that due to the nature of the texts it includes (literature, science), the Hungarian National Corpus represents a very conservative written register: in colloquial Hungarian, the spread of the overt middle suffix was probably faster.

7 REINTERPRETATION BASED ON CORRELATION BETWEEN MIDDLE VOICE AND FREQUENTATIVE ASPECT

In this section, I will develop the argument that the Voice Cycle in Hungarian cannot be described in terms of Feature Economy. Instead, I will propose that the reinterpretation of frequentative suffixes as middle voice suffixes was due to the correlation of (certain flavours of) middle voice with frequentative/habitual aspect.

²³ See tabulated data in the Appendix.

Feature economy has been proposed by van Gelderen (2007, 2011) as a general principle of language acquisition and also of language change. The basic observation is that the reanalysis of elements in the course of language change typically involves (i) the reanalysis of semantic features as interpretable formal features and (ii) the reanalysis of interpretable formal features as uninterpretable formal features. This often goes hand in hand with a change of the syntactic status of the element concerned. Consider for example a schematic model of the subject agreement cycle (van Gelderen 2011:41, slightly modified for clarity):

(37) Feature Economy in the Subject Agreement Cycle

Adjunct		Specifier		Head		affix
emphatic pronoun	>	full pronoun	>	head pronoun	>	agreement
[semantic phi]		[i-phi]		[u-1/2][i-3]		[u-phi]
				[u-1/2/3]		

Emphatic or topic pronouns have semantic phi-features (person and number features). In the course of grammaticalization, these are first reinterpreted as interpretable formal features and then as uninterpretable formal features. Feature economy can also involve the complete loss of a feature, as in the case of the copula cycle, where a demonstrative pronoun is reinterpreted as a copula, and in the process, it loses its case feature [uT], while its deictic feature [i-loc] is preserved and its phi-features are reinterpreted as uninterpretable (van Gelderen 2011:130, slightly modified):

(38) Feature Economy in the Copula Cycle

Specifier		Head
demonstrative	>	copula
[i-loc]		[i-loc]
[i-phi]		[u-phi]
[u-T]		

Consider now what features are involved in the two stages of the Voice Cycle in Hungarian. While I do not wish to firmly commit myself to a very specific formal featural analysis of frequentative suffixes, I think it is safe to assume that they affect the aspectual interpretation of the predicate so that it ends up as denoting a plurality of non-overlapping events. Van Geenhoven (2004) analyzes West Greenlandic frequentative suffixes along these lines, proposing that frequentative suffixes denote a verb-level pluractional operator (see also Lasersohn 1995 for a similar approach). In addition to this, we have seen that frequentative suffixes in Hungarian can act as verbalizers, that is, they can attach to category-neutral roots, adjectives or nouns to create verbs. This suggests that frequentative suffixes carry event-related features with values such as [+plural, +distributive] and category-related features with the value [+V] or [+V,-N].

As far as the feature content of the Voice head is concerned, we can assume following Schäfer (2008) that it has two features: one which encodes the syntactic import of the head (whether Spec,VoiceP is projected or not) and another one which encodes the semantic import of the head (whether a semantic external argument position is introduced and how the argument slot is satisfied). In other words, the Voice suffix has features related to the syntactic and semantic valency of the predicate (see Section 4 for a more detailed discussion).

Recall that in the cases characterized in terms of Feature Economy, the sets of features available in subsequent stages are not disjoint. In the Subject Agreement Cycle, the element under reinterpretation has phi-features in each stage (except the last). In the copula cycle, phi-features and deictic features are available in both the demonstrative and in the copula stage. In the case of the Voice Cycle in Hungarian, however, no such overlap of features can be detected: the suffixes concerned carry

event structure and category related features in the ‘frequentative’ stage and valency-related features in the ‘Voice’ stage. Because of this, I believe this change cannot be characterized in the terms of Feature Economy.²⁴

As I argued in Section 4, what made frequentative suffixes susceptible to be reanalyzed as voice suffixes was not a set of shared abstract features but rather, the principled correlation between middle voice and frequentative/habitual aspect. Interestingly, such a development is probably not unique to Hungarian, e.g. the middle suffix *-sík-* in Udmurt has been tentatively analyzed as etymologically related to a frequentative suffix, and the antipassive in Udmurt is associated with a habitual reading (Orsolya Tánzos pc).

8 THE BREAKDOWN OF VOICE SYNCRETISM AND THE RISE OF SUFFIX STACKING

After the reanalysis of frequentative suffixes as middle suffixes, a fragmented landscape of semi-productive middle suffixes emerged:

(39)		<i>-sík-</i>	<i>-(V)k(V)ík-</i>	<i>-Vd-</i>	
a.	<i>lát-Ø</i> see-3SGINDEF ‘sy sees sg’	<u><i>lát-sík-ik</i></u>	<u><i>*lát-kóík-ik</i></u>	<u><i>*lát-od-ik</i></u>	DISP. MIDDLE
b.	<i>imád-Ø</i> worship-3SGINDEF ‘sy worships sg’	<u><i>*imád-sík-ik</i></u>	<u><i>imád-kóík-ik</i></u>	<u><i>*imád-od-ik</i></u>	ANTIPASSIVE
c.	<i>kever-Ø</i> mix-3SGINDEF ‘sy mixes sg’	<u><i>%kever-sík-ik</i>²⁵</u>	<u><i>*kever-keík-ik</i></u>	<u><i>kever-ed-ik</i></u>	ANTICAUSATIVE

This state of affairs is similar to Stage 2 of the Negative Cycle in French (see Foulet 1990, Déprez 2000, Roberts and Roussou 2003), where several words were grammaticalized as neg-words: *point* ‘point’, *pas* ‘step’, *mie* ‘crumb’ or *goutte* ‘drop’. There is no one-to-one correspondence between flavours of middle voice and different middle suffixes. Note e.g. that the same suffix *-(V)k(V)ík-* can appear in a reflexive, an antipassive and a reciprocal:

(40)	a.	<i>szépit-keík-ik</i> beautify-MID-3SGMID lit. ‘beautifies herself’, meaning: ‘does her makeup’	REFLEXIVE
	b.	<i>épít-keík-ik</i> build-MID-3SGMID ‘is building around, is involved in an unspecified building project’	ANTIPASSIVE
	c.	<i>vitat-kóík-ik</i> dispute-MID-3SGMID ‘is involved in a debate, are debating with one another’	ANTIPASSIVE/ RECIPROCAL

There is one exception to this pattern of irregularity: with anticausatives (and mediopassives), *-V:d-* emerged as a productive suffix (Kömlösy 2000, Márkus 2015):

24 A reviewer notes that since Voice heads are higher than v heads, the Late Merge principle of grammaticalization might be relevant here. The idea of Late Merge is that it is more economical to (i) base-generate an element in position X than to (ii) base-generate it in a lower position Y and then move it to position X. This principle often leads to heads being reanalyzed as higher heads. Note, however, that there is no movement of the heads concerned in any stage of the Voice Cycle in Hungarian, therefore, I would argue that Late Merge does not play a role here.

25 Dialectally attested.

- (41) *töm-Ø* → *töm-ód-ik* / **töm-sz-ik* / **töm-d-ik* / **töm-kez-ik* / **töm-öd-ik*
 fill-3SG fill-MID-3SG
 ‘sy fills sg’ ‘sg gets filled’

Anticausatives are not correlated with frequentative readings (unlike antipassives or dispositional middles), so the appearance of *-V:d-* in anticausatives was probably a later development²⁶ based on analogy with other middles such as the antipassive shown in (42):

- (42) *csúfol-ód-ik*
 mock-MID-3SGMID
 ‘is engaged in mocking’

The latest, ongoing development in the Voice Cycle is that some of these semi-productive suffixes are being reinforced with the productive anticausative / mediopassive suffix *-V:d-*, resulting in the rise of stacking (the combination of a semiproductive suffix and a productive voice alternation suffix, cf. Kozinsky et al. (1988:661), Gerdts and Hukari (2005), Polinsky (2013)).

This process affects dispositional middles, while reflexives and antipassives appear to be immune:

- | | | | | | |
|------|----|---|---|---|------------------------------|
| (43) | a. | <i>lát-Ø</i>
see-3SGINDEF
‘sy sees sg’ | <i>lát-sz-ik</i>
see-MID-3SGMID
‘sg can be seen / sg is visible / sg seems as’ | <i>lát-sz-ód-ik</i>
see-MID-MID-3SGMID
‘sg can be seen / sg is visible / sg seems as’ | DISP. MIDDLE
DISP. MIDDLE |
| | b. | <i>hall-Ø</i>
hear-3SGINDEF
‘sy hears sg’ | <i>hall-atsz-ik</i>
hear- MID-3SGMID
‘sg can be heard / sg is audible / sg sounds as’ | <i>hall-atsz-ód-ik</i> ²⁷
hear-MID-MID-3SGMID
‘sg can be heard / sg is audible / sg sounds as’ | DISP. MIDDLE |
| | c. | | <i>tet-sz-ik</i>
see.archaic- MID-3SGMID
‘sg appears favourable, sg is likeable’ | <i>?tet-sz-ód-ik</i>
see.archaic-MID-MID-3SGMID
‘sg appears favourable, sg is likeable’ | DISP. MIDDLE |
| | d. | <i>ölel-Ø</i>
embrace-3SGINDEF
‘sy embraces sg’ | <i>ölel-kez-ik</i>
embrace-MID-3SGMID
‘sy embraces one another’ | <i>*ölel-kez-ód-ik</i>
embrace-MID-MID-3SGMID | REFLEXIVE |
| | e. | <i>csodál-Ø</i>
admire-3SGINDEF
‘sy admires sg’ | <i>csodál-koz-ik</i>
admire-MID-3SGMID
‘sy is astonished’ | <i>*csodál-koz-ód-ik</i>
admire-MID-MID-3SGMID | ANTIPASSIVE |

A natural explanation for this pattern is that dispositional middles and anticausatives form a natural class in the sense of involving agent suppression / demotion, while there is no agent suppression with reflexives and antipassives.²⁸ (Note that cross-linguistically, reflexives and antipassives often display syncretism, cf. Kozinsky et al. 1988 on Chukchi and Dixon 192,1977, Austin 1981 and Terrill 1997 on various Pama-Nyungan languages.) The spread of *-V:d-* onto more and more flavours of middles is a step into the direction of the full restoration of voice syncretism.

9 CONCLUSION

In this paper, I have shown that the current picture of middle voice in Hungarian reflects several overlapping stages of an ongoing grammaticalization process which can be characterized as a cycle. A handful of verbs still preserve the Old Hungarian system, where middle voice was encoded through a

26 Simonyi (1905:5-7) lists 35 verbs where the middle form lacks a dedicated middle suffix (cf. (1)), and out of these, 28 are anticausatives (2 are disp. middles, 2 are reflexives and 3 are antipassives).

27 Dialectal *hall-ik* / *hall-ód-ik* (also *hall-sz-ik* / *hall-sz-ód-ik*).

28 More precisely: the agent in reflexives is *semantically* represented (and coreferential with the internal argument), even though it is *syntactically* suppressed.

separate inflectional paradigm (contextual allomorphy in AgrS conditional on the feature content of a silent Voice head). With most verbs, middle voice is encoded through a dedicated middle voice suffix (an overt spellout of the Voice head). I claimed that these two stages are connected by a grammaticalization process taking place over the course of centuries, which involved the reinterpretation of frequentative suffixes (v heads) as middle voice suffixes (Voice heads). Crucially, this reinterpretation was not based on shared abstract features, but rather, on a principled correlation between middle voice and frequentative aspect.

APPENDIX 1: THE ACTIVE AND THE MIDDLE PARADIGM

The difference of the middle paradigm from the standard paradigm manifested itself in different AgrS suffix forms. In its fullest known form, the middle paradigm differed from the standard paradigm only in the following moods/tenses: the present singular, the present conditional singular, the imperative singular and the archaic imperfect past singular. Consider:

	active indef./no obj.	active def. obj. ²⁹	middle
present			
1SG	- <i>Vk</i>	- <i>Vm</i>	- <i>Vm</i>
2SG	-(<i>V</i>) <i>sʒ</i>	- <i>Vd</i>	- <i>Vl</i>
3SG	- <i>Ø</i>	- <i>ja/-i</i>	- <i>ik</i>
present conditional			
COND.1SG	- <i>nV:k</i>	- <i>nV:m</i>	- <i>nV:m</i>
COND.2SG	- <i>nV:l</i>	- <i>nV:d</i>	- <i>nV:l</i>
COND.3SG	- <i>nV</i>	- <i>nV:</i>	- <i>nV:k</i>
imperative			
IMP.1SG	- <i>jVk</i>	- <i>jVm</i>	- <i>jVm</i>
IMP.2SG	- <i>j(V:l)</i>	- <i>jVd</i>	- <i>j(V:l)</i>
IMP.3SG	- <i>jVn</i>	- <i>jV</i>	- <i>jV:k</i>
imperfect past (archaic)			
PAST.1SG	- <i>V:k</i>	- <i>V:m</i>	- <i>V:m</i>
PAST.2SG	- <i>V:l</i>	- <i>V:d</i>	- <i>V:l</i>
PAST.3SG	- <i>V</i>	- <i>V:</i>	- <i>V:k</i>

Crucially, in the praeterite past tense (which is the only past tense in Modern Hungarian), the middle paradigm and the standard paradigm have never been different (since as far as our written sources stretch back).

The erosion of the separate middle paradigm has been ongoing since the 16th century, today, the only form where the separate middle paradigm is stable is the present tense 3rd singular. Very conservative speakers and some dialects to some extent retain the difference in the 1st and 3rd person present, present conditional and imperative forms; however, the difference in 2nd person forms has completely collapsed.

APPENDIX 2: ÉRZ-IK → ÉRZ-ŐD-IK

PERIOD	NO MID SUFFIX	MID SUFFIX	TOTAL
1770-1850	17	1	18
1850-1900	35	1	36
1900-1910	13	0	13
1910-1920	23	1	24
1920-1930	29	2	31
1930-1940	42	5	47
1940-1950	27	12	39
1950-1960	35	16	51
1960-1970	10	17	27

29 On differential object marking (DOM) in Hungarian, see Bárány (2017) and references therein.

1970-1980	8	40	48
1980-1990	7	21	28
1990-2000	0	5	5
2000-2012	1	38	39

(source: Hungarian Historical Corpus)

APPENDIX 3: CORPORA, CODICES, BIBLE TRANSLATIONS AND OTHER DATA SOURCES

CORPORA:

Old Hungarian Corpus: <http://omagyarkorpusz.nytud.hu/en-descr.html>

Hungarian Historical Corpus: http://clara.nytud.hu/mtsz/run.cgi/first_form

CODICES:

Döbrentei Codex (1508)

Érdy Codex (1526)

Érsekújvár Codex (1529-1531)

Festetich Codex (1492-1494)

Jordányszky Codex (1516-1519)

Munich Codex (1466)

Nagyszombat Codex (1512-1513)

Teleki Codex (1525-1531)

Vienna Codex (mid-15th C)

Winkler Codex (1506)

BIBLE TRANSLATIONS:

Károli Bible (1589)

Komáromi Csipkés Bible (1678)

Revised Károli Bible (1905)

(For a description of codices and Bible translations, see: <http://omagyarkorpusz.nytud.hu/en-texts.html>.)

OTHER DATA SOURCES

Faludi, Ferenc. 1773. Szent ember vagyis szent életre vezető istenes oktatások. [The holy man, or: godly instructions for a holy life.]

Kassai, József. 1817. Magyar nyelv-tanító könyv [...]. [A Study Book of Hungarian.]

Révai, Miklós. 1803. Elaboratio Grammatica Hungarica.

Telegdi, Miklós. 1577-1580. Az evangéliumoknak [...] magyarázatja. [Gospel commentaries.]

REFERENCES:

- Ahn, Mikyung and Foong Ha Yap. 2017. From middle to passive: A diachronic analysis of Korean *-eci* constructions. *Diachronica* 34:4, 437-469.
- Alexiadou, Artemis. 2014. Roots in transitivity alternations: afto/auto reflexives. In Artemis Alexiadou, Hagit Borer and Florian Schäfer (eds.): *The syntax of roots and the roots of syntax*. Oxford University Press, 57-80.
- Alexiadou, Artemis and Edit Doron. 2012. The syntactic construction of two non-active Voices: Passive and middle. *JoL* 48: 1-34.
- Alexiadou, Artemis, Elena Anagnostopoulou, and Florian Schäfer. 2015. External arguments in transitivity alternations: A layering approach. Vol. 55. *Oxford Studies in Theoretical Linguistics*.
- Arregi, Karlos, and Andrew Nevins. 2012. *Morphotactics: Basque auxiliaries and the structure of spellout*. Dordrecht: Springer.
- Austin, Peter. 1981. *A grammar of Diyari, South Australia*. Cambridge: Cambridge University Press.
- Baker, Mark. 1985. *The mirror principle and morphosyntactic explanation*. *Linguistic Inquiry* 16. 373–415.
- Baker, Mark. 1988. *Incorporation: A theory of grammatical function changing*. Chicago: University of Chicago Press.
- Bartos, Huba. 1999. Morfoszintaxis és interpretáció. A magyar inflexió jelenségek szintaktikai háttere. [Morphosyntax and interpretation. The syntactic background of inflectional phenomena in Hungarian.] PhD Dissertation.
- Bárány, András. 2017. *Person, Case, and Agreement: The morphosyntax of inverse agreement and global case splits*. Oxford University Press.
- Benkő, Loránd. 1967. *A magyar nyelv történeti-etimológiai szótára*. [A Historical-Etymological Dictionary of Hungarian.] Akadémiai Kiadó, Budapest.
- Bickel, Balthasar, Bernard Comrie and Martin Haspelmath. 2008. *The Leipzig Glossing Rules. Conventions for interlinear morpheme by morpheme glosses*.
- Bobaljik, Jonathan. 2000. The ins and outs of contextual allomorphy. In University of Maryland Working Papers in Linguistics, ed. Kleanthes K. Grohmann and Caro Struijke, volume 10, 35–71. College Park: University of Maryland, Department of Linguistics.
- Bobaljik, Jonathan. 2012. *Universals in comparative morphology*. Cambridge: MIT Press.
- Bobaljik, Jonathan, and Heidi Harley. 2017. Suppletion is local: Evidence from Hiaki. In *The structure of words at the interfaces*, ed. Heather Newell, Maire Noonan, Glyne Piggott, and Lisa Travis, Oxford Studies in Theoretical Linguistics. Oxford University Press.
- Bok-Bennema, Reineke. 1991. *Case and agreement in Inuit*. Berlin-New York: Foris.
- Budenz, József. 1884. Az ugor nyelvek összehasonlító alaktana. [The Comparative Morphology of Uralic Languages.] *Nyelvtudományi Közlemények* 18:2, 161-319.
- Chomsky, Noam. 1995. *The Minimalist Program*. Cambridge: Massachusetts Institute of Technology Press.
- Cinque, Guglielmo. 1999. *Adverbs and functional heads: A cross-linguistic perspective*. Oxford University Press.
- Clark, Robin and Ian Roberts. 1993. A computational model of language learnability and language change. *LI* 24.2: 299-345.
- Comrie, Bernard. 1979. Degrees of ergativity: Some Chukchee evidence. In Frans Plank (ed.): *Ergativity: Towards a theory of grammatical relations*. London: Academic Press, 219-240.
- Cooreman, Anne. 1988. The antipassive in Chamorro: Variations on the theme of transitivity. In Masayoshi Shibatani (ed.): *Passive and Voice*. Amsterdam: John Benjamins, 561-593.
- Cooreman, Anne. 1994. A functional typology of antipassives. In Barbara Fox and Paul Hopper (eds.): *Voice: Form and Function*. Amsterdam: John Benjamins, 49-88.
- D. Bartha, Katalin. 1991. Az igeképzés. [The derivation of verbs.] In: Loránd Benkő (ed.): *A magyar nyelv történeti nyelvtana – A korai ómagyar kor és előzményei*. [A Historical Grammar of Hungarian: Early Old Hungarian and Before.] Akadémiai Kiadó, Budapest, 60-103.

- D. Bartha, Katalin. 1992. Az igeképzés. [The derivation of verbs.] In Loránd Benkő (ed.) *A magyar nyelv történeti nyelvtana: A kései ómagyar kor: Morfematika* [A Historical Grammar of Hungarian: The Morphology of Late Old Hungarian], 55-119.
- Deme, László and Samu Imre. 1968-77. *A magyar nyelvjárások atlasza I-VI*. [Dialect atlas of Hungarian I-VI.] Akadémiai Kiadó, Budapest.
- Dékány, Éva. 2011. A profile of the Hungarian DP. PhD Dissertation, University of Tromsø.
- Déprez, Viviane. 2000. Parallel (a)symmetries and the internal structure of negative expressions. *Natural Language and Linguistic Theory* 18, 253-342.
- Dikken, Marcel den. 1999. On the structural representation of possession and agreement: the case of (anti-)agreement in Hungarian possessed nominal phrases. *Amsterdam Studies in the Theory and History of Linguistic Science Series 4*: 137-178.
- Dixon, R. M. W. 1972. *The Dyirbal language of North Queensland*. Cambridge: Cambridge University Press.
- Dixon, R. M. W. 1977. *A grammar of Yidiny*. Cambridge: Cambridge University Press.
- Dömötör, Adrienne. 2013. *Az ó- és középmagyar kori magánéleti nyelvhasználat morfológiailag elemzett adatbázisa*. [A morphologically annotated database of vernacular language use in Old and Middle Hungarian.] In E. Fazekas et al. (eds.): *Tér, idő és kultúra metszéspontjai a magyar nyelvben*. Budapest-Kolozsvár. Nemzetközi Magyarásgtudományi Társaság – ELTE Magyar Nyelvtörténeti, Szociolingvisztikai és Dialektológiai Tanszék.
- Embick, David. 2010. *Localism versus globalism in morphology and phonology*. Cambridge, MA: MIT Press.
- E. Abaffy, Erzsébet. 1978. A mediális igékről. [On middle verbs.] *Magyar Nyelv* 74, 280-293.
- E. Abaffy, Erzsébet. 1992. Az igei személyragozás. [Verbal conjugation.] In Loránd Benkő (ed.) *A magyar nyelv történeti nyelvtana: A kései ómagyar kor: Morfematika* [A Historical Grammar of Hungarian: The Morphology of Late Old Hungarian], 184-238.
- É. Kiss, Katalin 2002. *The Syntax of Hungarian*. Cambridge: Cambridge University Press.
- Faarlund, Jan Terje. 2008. A mentalist interpretation of grammaticalization theory. *Grammatical change and linguistic theory: The Rosendal papers*, 221-244.
- Foulet, Lucien. 1990. *Petite syntaxe de l'ancien français*. Paris: Champion.
- Geenhoven, Veerle van. 2004. For-adverbials, frequentative aspect and pluractionality. *Natural Language Semantics* 12:2, 135-190.
- Gelderen, Elly van. 2004. *Grammaticalization as Economy*. Amsterdam: John Benjamins.
- Gelderen, Elly van. 2008. *Negative cycles*. *Linguistic Typology* 12, 195-243.
- Gelderen, Elly van. 2011. *The Linguistic Cycle*. Language Change and the Language Faculty. OUP.
- Gelderen, Elly van. 2018. *The Diachrony of Verb Meaning: Aspect and Argument Structure*. Routledge.
- Gerds, Donna B. and Hukari, Thomas. 2005. Multiple Antipassives in Halkomelem Salish. *Proceedings of the Annual Meeting of the Berkeley Linguistics Society* 26. 51-62.
- Grestenberger, Laura. 2014. *Feature mismatch: deponency in Indo-European languages*. PhD dissertation, Harvard University.
- Grestenberger, Laura. 2018. Deponency in finite and nonfinite contexts. *Language* 94:3, 487-526.
- Halle, Morris. 1990. An approach to morphology. In *Proceedings of NELS 20*, ed. Juli Carter, Rose-Marie Déchaine, Bill Philip, and Tim Sherer, 150-184. GLSA.
- Halle, Morris, and Alec Marantz. 1993. Distributed morphology and the pieces of inflection. In *The view from building 20*, ed. Kenneth Hale and Samuel Jay Keyser, 111-176. Cambridge, Massachusetts: MIT Press.
- Harley, Heidi. 1995. *Subjects, events, and licensing*. Ph.D. thesis, MIT.
- Harley, Heidi and Rolf Noyer. 2000. Formal versus encyclopedic properties of vocabulary: Evidence from nominalisations. In Bert Peeters (ed.): *The lexicon/encyclopedia interface*. Amsterdam: Elsevier. 349-374.
- Heine, Bernd and Tania Kuteva. 2002. *World lexicon of grammaticalization*. Cambridge University Press.
- Jespersen, Otto. 1917. *Negation in English and Other Languages*. Copenhagen: A. F. Høst.

- Kemmer, Suzanne. 1993. *The middle voice*. Amsterdam: John Benjamins.
- Kemmer, Suzanne. 1994. Middle Voice, Transitivity and the Elaboration of Events. In: Barbara Fox and Paul Hopper (eds.): *Voice: Form and Function*. Amsterdam: John Benjamins, 179-230.
- Klaiman, M. H. 1991. *Grammatical voice*. Cambridge University Press.
- Kozinsky, Isaac and Nedjalkov, Vladimir and Polinskaja, Maria. 1988. Antipassive in Chukchee. In Shibatani, Masayoshi (ed.): *Passive and Voice*, 651-706. Amsterdam: John Benjamins.
- Kroch, Anthony. 1990. Reflexes of grammar in patterns of language change. *Language Variation and Change* 1, 199–244.
- Lasersohn, Peter. 1995. *Plurality, Conjunction and Events*. Kluwer Academic Publishers, Dordrecht.
- Marantz, Alec. 1997. No escape from syntax: Don't try morphological analysis in the privacy of your own lexicon. In A. Dimitriadis, L. Siegel, C. Surek-Clark, and A. Williams (eds.), *Proceedings of the 21st Annual Penn Linguistics Colloquium*, 201–225. Pennsylvania Working Papers in Linguistics 4.2. Philadelphia: University of Pennsylvania, Penn Linguistics Club.
- Márkus, Andrea. 2015. Taming the Hungarian (in)transitivity zoo. Undiagnoses species and a complete derivation of the morphosyntactic patterns. PhD dissertation, University of Tromsø.
- Merchant, Jason. 2015. How much context is enough? two cases of span-conditioned stem allomorphy. *Linguistic Inquiry* 46:273–303.
- Mondloch, James. L. 1982. *Voice in Quiche-Maya*. PhD dissertation, State University of New York.
- Neeleman, Ad and Kriszta Szendrői. 2007. Radical pro-drop and the morphology of pronouns. *Linguistic Inquiry* 38 4: 671–714.
- Newson, Mark. 2010. Syntax first, words after: A possible consequence of doing Alignment Syntax without a lexicon. *The Even Yearbook* 9.
- Niyogi, Partha and Robert C. Berwick. 1997. Evolutionary consequences of language learning. *Linguistics and Philosophy* 20, 697–719.
- Novák Attila, György Orosz and Nóra Wenszky. 2013. Morphological annotation of Old and Middle Hungarian corpora. In Piroska Lendvai and Kalliopi Zervanou (eds.): *Proceedings of the 7th Workshop on Language Technology for Cultural Heritage, Social Sciences and Humanities*. Sofia, Bulgaria: Association for Computational Linguistics. 43-48.
- Noyer, Rolf. 1992. Features, positions and affixes in autonomous morphological structure. Doctoral Dissertation, Massachusetts Institute of Technology, Cambridge, MA.
- Noyer, Rolf. 1997. Features, Positions and Affixes in Autonomous Morphological Structure. Garland Press, New York.
- Polinsky, Maria. 2013. Antipassive. In: Matthew S. Dryer, and Haspelmath, Martin (eds.) *The world atlas of language structures online*. Leipzig: Max Planck Institute for Evolutionary Anthropology.
- Polinsky, Maria. 2017. Antipassive. In: Jessica Coon et al. (eds.): *The Oxford Handbook of Ergativity*. OUP.
- Rákosi, György. 2008. The inherently reflexive and the inherently reciprocal predicate in Hungarian: Each to their own argument structure. In Ekkehard König and Volker Gast (eds.): *Reciprocals and reflexives: theoretical and typological explorations*. Walter de Gruyter. 411-450.
- Ramchand, Gillian. 2008. Lexical items in complex predications: selection and underassociation. *Nordlyd: Tromsø University Working Papers in Linguistics* 35: 115–141.
- R. Hutás, Magdolna. 1972. *Az íkes ragozás állapotára Révai Miklós korában*. [The status of the ik verbal paradigm in the times of Miklós Révai.] Akadémiai Kiadó, Budapest.
- Rebrus, Péter and Miklós Törkenczy. 2015. Monotonicity and the typology of front/back harmony. *Theoretical Linguistics* 41 (1–2). 1–61.
- Roberts, Ian and Anna Roussou. 2003. *Syntactic Change: A Minimalist Approach to Grammaticalization*. CUP.
- Ruda, Marta. 2017. *On the syntax of missing objects: a study with special reference to English, Polish, and Hungarian*. John Benjamins.
- Schäfer, Florian. 2008. The syntax of (anti-) causatives: External arguments in change-of-state contexts. John Benjamins.

- Simonyi, Zsigmond. 1878. A visszaható igének egy különös használata. [On a peculiar usage of the reflexive verb.] *Magyar Nyelvőr* 7.
- Simonyi, Zsigmond. 1880. A magyar gyakorító és mozzanatos igék képzése. [The derivation of frequentative and semelfactive verbs in Hungarian.] *Nyelvtudományi Közlemények* 18.
- Simonyi, Zsigmond. 1905. Az ikes ragozás története. [The history of the -ik conjugation.] *Magyar Nyelvőr* 34.
- Simon Eszter, Sass Bálint: Nyelvtchnológia és kulturális örökség, avagy korpuszépítés ómagyar kódexekből. [Language technology and cultural heritage: building corpora from Old Hungarian Codices.] *Általános Nyelvészeti Tanulmányok*. 2012:24, 243-264.
- Spreng, Bettina. 2012. *Vienpoint aspect in Inuktitut: The syntax and semantics of antipassives*. PhD dissertation, University of Toronto.
- Svenonius, Peter. 2012. Look both ways: Outward-looking allomorphy in Icelandic participles. *Ling Buzz*. Available online at <http://ling.auf.net/lingbuzz/001519> (accessed April 11, 2018).
- Terrill, Angela. 1997. The development of antipassive constructions in Australian languages. *Australian Journal of Linguistics* 17, 71-88.
- Tsunoda, Tasaku. 1988. Antipassives in Warrungu and other Australian languages. In Masayoshi Shibatani (ed.): *Passive and voice*. Amsterdam: John Benjamins, 595-650.
- Weerman, Fred and Jacqueline Evers-Vermeul. 2002. Pronouns and case. *Lingua* 112: 301-338.
- Williams, Edwin. 2003. *Representation theory*. MIT Press, Cambridge, MA.