Hungarian has no portmanteau agreement[*]

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1. Introduction

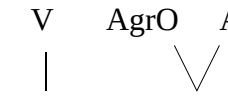
Hungarian has two subject agreement paradigms. The first, called the indefinite (or subjective) conjugation, is used with intransitive verbs and with transitive verbs appearing with indefinite direct objects, and the second is the definite (or objective) conjugation, which is used with definite objects. (1) shows the indicative present paradigms of the verb *szeretni* 'to love':

(1)

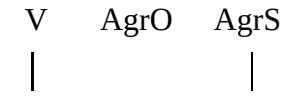
	1sg	2sg	3sg	1pl	2pl	3pl
ind.	szeret-ek	szeret-sz	szeret	szeret-ünk	szeret-tek	szeret-nek
def.	szeret-em	szeret-ed	szeret-i	szeret-jük	szeret-itek	szeret-ik

For most minimal pairs such as 1sg *-ek/-em* there is no obvious way to split the suffix strings in object and subject markers. This makes it seem inevitable to treat some or all of these markers as portmanteau affixes expressing subject *and* object agreement at the same time (cf. Trommer (1995)), as in (2a):

(2) a.



b.



In this paper, I argue that this approach proves wrong once the full range of agreement paradigms is taken into account. The basic argument is that the alleged portmanteau affixes also appear with forms that agree with only one argument, such as possessor agreement. Adopting a minimalist version of Distributed Morphology (Halle and Marantz (1993)), I show how these affixes can be analyzed as standard agreement morphemes expressing subject *or* object agreement, accompanied by zero expression of agreement which gives the superficial impression of portmanteau marking. Thus the analysis I assume for *-em* is (2b).

In section 2, I introduce Minimalist Distributed Morphology as a formal framework, and in section 3, I discuss why the representation of 1sg agreement in Hungarian poses prima facie problems for this framework. In section 4, I show that the data actually fit nicely into the approach assuming a finer syntactic structure. Evidence for segmentable object agreement markers is presented in section 5, and in section 6, I analyze further cases of syncretism outside the 1sg forms. In section 7, I discuss Carstairs-McCarthy's (1998a) critique of DM which is based on Hungarian verb agreement. I show that his account makes wrong predictions and propose an alternative way to capture substantive restrictions on paradigm structure. Section 8 contains a short summary of the paper.

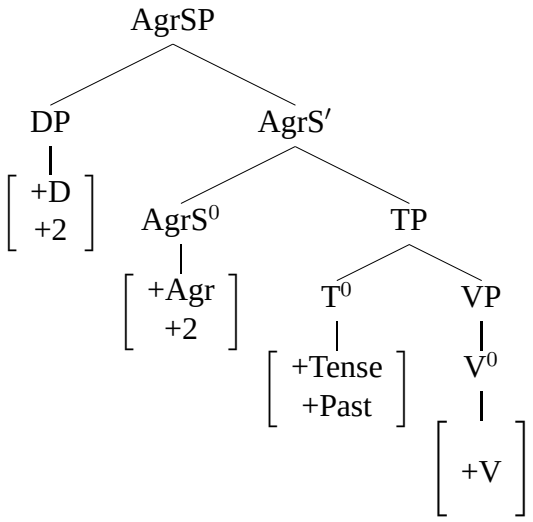
[*]Thanks to an anonymous reviewer, Chris Piñón, and the audience at ICSH-6 for helpful comments.

I will disregard vowel harmony effects here and will treat the affixes appearing after stems with unrounded front vowels as representative for all variants. Similarly, I will not discuss partly phonologically conditioned vowels before agreement affixes as *e* in *ért-**e**-tek*,'you (pl.) understand' vs. *néz-**Ø**-tek*,'you (pl.) watch' and vowel quality or length conditioned (or as part) of the preceding tense/mood affix, as in *ért-ett-**e**-tek*,'you (pl.) understood'. However, I will take into account the form of pre-agreement vowels in minimal pairs of definite/indefinite forms such as *ért-ett-**e**-tek* and the corresponding definite form *ért-ett-**e**-**e**-tek*.[1]

2. The framework

The framework I adopt in this paper is Minimalist Distributed Morphology (MDM, Trommer (1999)). In MDM, as in standard Distributed Morphology (DM, Halle and Marantz (1993)), morphology interprets the output of syntax which operates on abstract feature bundles ("heads") without phonological content. Thus the Hungarian sentence *te énekel-t-él* 'you sang' is represented syntactically as follows:

(3)



At morphological structure (MS), so-called vocabulary items (VIs), pairing underspecified morphosyntactic features with phonological content are inserted into heads. Crucially, each inserted vocabulary item corresponds to exactly one head. (4) lists the VIs to be inserted in (3) to result in *te énekel-t-él*:

(4) te: [+D, +2] -el: [+Agr, +2] énekel: [+V] -te: [+Tense, +Past]

While standard DM assumes a great wealth of operations which manipulate the syntactic output before vocabulary insertion, in MDM vocabulary insertion apart from morphophonology is the *only* morphological operation. Systematic neutralization and "splitting" of syntactic heads into different affixes (VIs) which require separate rule formats in standard DM are captured as the by-product of vocabulary insertion itself.

[1] Two consecutive *e*'s are interpreted phonetically as long *e* ([e:]) and represented as <é> in Hungarian orthography.

Formally, vocabulary insertion in MDM involves two conceptually virtually inescapable aspects of spell-out: Syntactic features specified in the VI are deleted from the targeted syntactic head and the phonological representation is concatenated with the corresponding stem if affixal and otherwise ordered according to the Linear Correspondence Axiom (LCA, Kayne (1994)). With Halle (1997), I assume that more than one VI can be inserted into one syntactic head as long as the head still has undeleted features. Thus in Nenets (Salminen (1998:533)), plural and dual for subject agreement are expressed by affixes (*-yih*:[+du] and *-aq*:[+pl]) separate from the person affix *-r* (*-r*:[+2]):[2]

(5) a. yemp^{o}qnga-**r^{o}**, 'you (sg.) dress him'
b. yemp^{o}qnga-**r-yih**, 'you (du.) dress him'
c. yemp^{o}qnga-**r-aq**, 'you (pl.) dress him'

Two VIs (e.g., *-yih*:[+du] and *-r*:[+2]) can be inserted into the same head ([+Agr +2 +du]) because they target different features. I assume a similar analysis for Hungarian plural agreement, which always contains *-k*, also used to mark plural forms of nouns (e.g., *hajó-**k*** 'ships').[3] (6) illustrates this for a 2pl form:[4]

(6) szeret-**te-k**, -te:[+2]$_{\text{AGR}}$ / [___ +pl], -k:[+pl]

Unlike the Nenets person affix, which is the same in all numbers, *-te* realizes (hence deletes) only person, but by force of its context restriction only for plural agreement heads. While *-te*:[+2]$_{\text{AGR}}$ can cooccur with *-k*:[+pl], it cannot cooccur with *-el*:[+2]$_{\text{AGR}}$ since insertion of *-te* deletes the feature [+2], and VIs can only be inserted into heads if their syntactic features subsume[5] the features of the head. But through the insertion of *-te*, the head [+2 +pl]$_{\text{AGR}}$ is reduced to [+pl]$_{\text{AGR}}$ which is not subsumed by [+2]. That *-te* and not *-el* is inserted in the first place follows from the subset principle (Halle (1997:428)), which requires that the most specific VI is inserted if there is any choice. Since the syntactic features specified by the VI are deleted in the head during insertion, this blocks insertion of less specific VIs.

The subset principle is also responsible for the fact that VIs with zero phonology cause neutralization (captured by "impoverishment rules" in standard DM), if they are more specific than corresponding non-zero VIs. A number of examples will occur in the following analysis of Hungarian.

By context restrictions, VIs can refer to features of more than one head, but they *apply* only to a single syntactic head, i.e., there are no true portmanteau affixes. This is a crucial formal restriction not present in other approaches to morphology (e.g., Wunderlich and Fabri (1994)). The data from Hungarian verb agreement seem to imply that this assumption is too strong, and that single suffixes can express two syntactic heads (sub-

[2] Salminen uses "^{o}" to transcribe schwa (ə).

[3] See also den Dikken (1999). *-tek* might also be analyzed as *-t-ek*, where *-t* is the [+2] suffix and *-ek* the [+pl] suffix since the allomorph *-ek* also occurs in plural forms of nouns, such as *sz**é**k-ek*, 'chairs'. Nothing crucial in my analysis depends on the choice of segmentation here. However, I will use the segmentation in (6) in the following since it makes the fact more transparent that the same plural marker occurs in all verbal plural forms.

[4] To enhance legibility, I notate categorial "+Agr" as a subscript to the relevant feature structure.

[5] A feature structure F_1 subsumes another feature structure F_2 iff all feature values in F_1 are also in F_2, i.e., iff the features in F_1 are a (possibly non-proper) subset of those in F_2.

ject and object agreement). In the following, I will show that Hungarian does not have portmanteau agreement affixes, and that the phenomena which seem to involve such affixes are the effect of impoverishment, i.e., the insertion of VIs with zero phonology.

3. Apparent problems for an MDM account

The basic problem for a DM account of the data in (1) is how to represent subject-object agreement adequately without stipulating portmanteau VIs. (8) lists the possible representations for *-em*, the 1sg suffix of the definite object series.[6]

(7)

a. -em: $\left[\begin{array}{c}\text{+Nom}\\ \text{+1 -pl}\end{array}\right]_{\text{AGR}}$ b. -em: $\left[\begin{array}{c}\text{+Acc}\\ \text{+3 +def}\end{array}\right]_{\text{AGR}}$

c. -em: $\left[\begin{array}{c}\text{+Nom}\\ \text{+1 -pl}\end{array}\right]_{\text{AGR}}$ / — $\left[\begin{array}{c}\text{+Acc}\\ \text{+3 +def}\end{array}\right]_{\text{AGR}}$ d. -em: $\left[\begin{array}{c}\text{+Nom}\\ \text{+1 -pl}\end{array}\right]_{\text{AGR}}\left[\begin{array}{c}\text{+Acc}\\ \text{+3 +def}\end{array}\right]_{\text{AGR}}$

(7a) correctly restricts *-em* to first person subjects, but fails to capture the contrast between *-em* and *-ek*. (7b) states that *-em* only occurs with definite direct objects, but does not distinguish it from other definite object agreement markers such as 2sg *-ed*. (7c) predicts the correct distribution of *-em*, but seems inferior to (7d) because it requires an additional explanation for why object agreement is zero. (7d), however, is impossible in DM, since each VI can only target one head. Before we proceed, let us have a look at some more data, including possessor agreement of nouns which is morphologically intimately related to verb agreement. As shown in (8), agreement for intransitive forms and transitive forms with an indefinite object completely falls together, while definite object forms tend to fall together with possessor agreement forms.[7]

[6] An anonymous reviewer rightly notes that case checking and agreement in Hungarian do not stand in a one-to-one relation. Thus infinitives do assign accusative case, but have no object agreement, and there are cases of "long-distance" agreement where a higher (possibly intransitive) verb bears agreement with the object of a lower predicate. However, my analysis does not imply that case features in agreement directly reflect case assignment or checking. I assume that when agreement is established NPs already have case features such as [+Nom] and [+Acc], which are copied to the respective agreement heads along with phi-features. For infinitives neither phi- nor case features of the object are copied to AgrO (if this is present at all). In long-distance agreement, case is copied together with phi-features to the higher head by whatever might be the correct technical mechanism to achieve this.

[7] In the literature it is often claimed that possessor agreement patterns with definite agreement in the singular, but with the indefinite one in the plural (e.g., Szabolcsi (1994)). I assume here that the VI used in 3pl possessor agreement is identical to the one used in 1pl definite agreement. Thus, there is also a common affix for definite and possessor agreement in the plural. Moreover, definite 2pl *i-tek* is almost identical to 2pl *-tek*, which is used in indefinite and possessor agreement. See section 6 for discussion of agreement affixes in the plural and of the syncretisms between possessor and indefinite agreement forms.

(8)

	intransitive	ind. object	def. object	possessor
1sg	**-ek**	**-ek**	**-em**	**-em**
2sg	**-sz/-el**	**-sz/-el**	**-ed**	**-ed**
3sg	-Ø	-Ø	-i-Ø	-e
1pl	-ün-k	-ün-k	**-(j)ü**-k	-ün-k
2pl	-te-k	-te-k	-i-te-k	-te-k
3pl	**-ne**-k	**-ne**-k	-i-Ø-k	**-(j)ü**-k

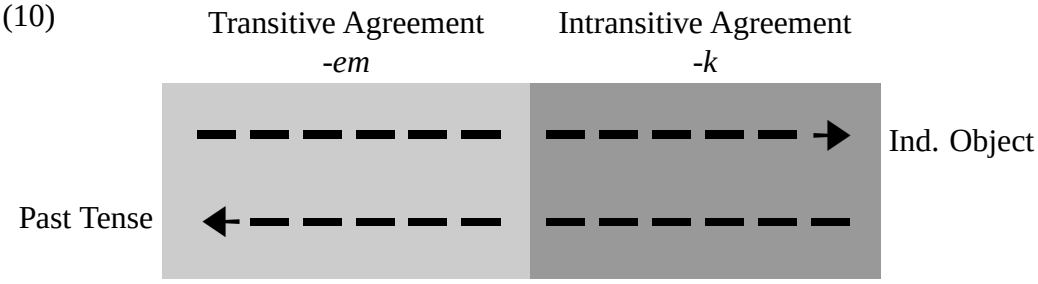
Now, given the possessor forms, also (7b) and (7c) prove empirically inadequate since *-em* also occurs in forms without an object. A similar problem arises with past tense forms and the so-called *ik*-verbs, a closed class of verbs which is characterized by taking the 3sg suffix *-ik* instead of *-Ø* in the present tense and extending the use of 1sg *-em* to the indefinite object/intransitive forms. *-em* is also used for the 1sg past tense forms of all the paradigms:

(9)

	intr. pres.	intr. pres. ik	intr. past	def. obj. past	def. obj. pres.
1sg	**-ek**	**-em**	**-em**	**-em**	**-em**
2sg	**-sz/-el**	**-el**	-e-**el**	**-ed**	**-ed**
3sg	-Ø	-ik	Ø	-e-Ø	-i-Ø
1pl	-ün-k	-ün-k	-ün-k	**-ü**-k	**-(j)ü**-k
2pl	-te-k	-te-k	-e-te-k	-e-e-te-k	-i-te-k
3pl	**-ne**-k	**-ne**-k	-e-Ø-k	-e-e-Ø-k	-i-Ø-k

This poses another problem for the framework I assume which I will call "Double Neutralization". On the one hand, transitive agreement in Hungarian is neutralized to intransitive agreement with indefinite objects. Conversely, intransitive agreement is neutralized to transitive agreement in the past tense and with *ik*-verbs where *-em*, normally the 1sg marker for transitive forms, is extended to intransitive forms. Hence, neutralization proceeds in two opposite directions:

(10)



Formally, this case is quite similar to the distribution of number markers in Nimboran, which has been used by Noyer (1998) and Harbour (2000) as a main argument against accounts of neutralization in terms of pure feature deletion. A similar argument for Hungarian could go like this: if neutralization always involves feature deletion, features must be removed from a transitive configuration to get an intransitive one. To achieve

neutralization in the opposite direction, features of the intransitive configuration must be removed to get the transitive one. Simple mathematics suggests that this cannot work. While this is not a problem for other versions of DM (e.g., Noyer (1998)) which allow feature insertion, it is critical for MDM where all neutralization involves insertion of zero VIs and hence feature deletion.

A third problem is not specific to the framework I use but of typological nature: Crosslinguistically, verbs do not agree with objects in definiteness, but only in phi-features (person, number, etc.). An effect of definiteness on object agreement that has some frequency is agreement of the finite verb with definite objects and non-agreement with indefinite objects (cf. Croft (1988)). In contrast to this, there seem to be no languages where definite objects are marked by specific agreement affixes on the verb while indefinite objects are marked by different (non-zero) affixes. Indefinite object agreement (if opposed to definite object agreement at all) is always lack of agreement. This is also true for other Uralic languages (e.g., Mordva and Nenets), where object agreement is number agreement with definite objects whereas there is no agreement with indefinite objects (cf. Abondolo (1998)). Thus, if Hungarian "definite" agreement suffixes mark subject agreement and definiteness of the object in a portmanteau manner, Hungarian would be rather unique among the world's languages in showing overt definiteness marking in object agreement.

4. Hungarian 1sg syncretisms in MDM

In the following, I present an account of 1sg agreement that avoids the assumption of portmanteau affixes and solves the problems discussed in section 3.

4.1 Syncretism of intransitive and indefinite object forms

The fact that object agreement with indefinite NPs crosslinguistically implies object agreement with definite ones, while the converse implication does not hold can be captured by the universal rule in (11), reading as "If a chain contains an indefinite direct object, then delete all corresponding agreement features."

(11) $$\text{Ø}: \left[\begin{array}{c} \text{+AGR} \\ \ldots \end{array} \right]_i \text{/\_\_} \left[\begin{array}{c} \text{-def} \\ \text{+Acc} \end{array} \right]_i$$

This rule is formally a VI, but one that applies to chains and not to simple heads. It is universal in the sense that a given language with object agreement might or might not apply it, the latter option resulting in a language such as Turkic which has agreement with definite *and* indefinite objects. Under the assumption that there is no corresponding rule that deletes agreement features for indefinite NPs, this accounts for the crosslinguistic asymmetry between definite and indefinite objects. If definiteness is universally not copied to the agreement head in verbal agreement, it follows further that definiteness in agreement is only indirectly reflected by the lack of agreement for other features.

Note that definiteness as the relevant trigger for "definite" agreement is not uncontroversial. Bartos (1997) claims that NPs triggering the definite paradigm are full DPs

while object NPs not doing so are formally NPs. While I do not have the space here to discuss the dis(advantages) of this approach, it has the same consequences for morphology: definiteness cannot be represented by affixes.

4.2 Syncretism of possessor and definite object forms

An anonymous reviewer has suggested that the syncretism of possessor forms with verb agreement in the definite object paradigm might indicate that possessor forms, like definite object forms, are transitive in the sense that there are two NPs (the possessor and the possessum) in a local domain. In fact, some Uralic languages which mark number agreement of objects by affixes separate from subject agreement mark noun number and object number, on the one hand, and subject person/number and possessor person/number, on the other hand, by the same affixes. This is illustrated by the following example from Nganasan. In (12a) the dual marker *-kej* marks duality of the head noun but in (12b) of the direct object. *-tuʔ* expresses a 3sg subject (12b) or possessor (12a):

(12) a. kuhu **-kej -tuʔ** (kuhugəitʲü)
skin **DU 3SG**
'his two skins'

b. kodaʔ**-kej -tuʔ** (koδaʔakəitʲü)
kill **DU 3SG**
'he kills two' (Helimski (1998:498/504))

However, for Hungarian an analysis which treats possessor and direct object constructions in parallel is not viable. Unlike the verbal pendant, Hungarian possessor agreement is not sensitive to the definiteness of the lower noun phrase (the possessum). Thus there is no complete parallel between verb and noun agreement. Moreover, the same affixes found in possessor agreement are also used with most postpositions and case affixes which synchronically cannot be analyzed as nouns.

-em also occurs in two other contexts which syntactically do not involve a direct object, namely with intransitive *ik*-verbs and with all intransitive past tense verbs. Thus *-em* cannot be restricted in its lexical entry to transitive contexts. The only generalization that can be maintained for *-em* is that it expresses agreement with 1sg arguments.[8] In the next section I argue that this corresponds closely to the formal representation of *-em*, and show how its distribution can be derived by the interaction of several feature-deleting processes, i.e., the insertion of zero VIs.

4.3 Definite object agreement as feature deletion

I assume that the syntactic structure of the verb complex in Hungarian is uniformly as in (13), where the verb itself is represented by a bare root $\sqrt{}$ containing its idiosyncratic lexical meaning and little v ([+v], Marantz (2001)), while the Tense node

[8]The default character of *-em* and other agreement markers used in possessor forms is further corroborated by their use in infi nitive forms with agreement.

contains tense and mood features.[9]

(13) $\sqrt{}$ [+v] [ ]$_{TNS}$ ([+Acc]$_{AGR}$) [+Nom]$_{AGR}$

Now, *-ek* only occurs in indefinite forms, hence never in possessor or adpositional agreement. This fact can be captured by a context restriction on the relevant VI which allows it only in verbal agreement, while *-em*, which occurs in definite object and non-verbal forms, does not have such a context restriction.

(14) a. -ek: $\left[\begin{array}{c}+1\\-pl\end{array}\right]_{AGR}$ / [+v] __ b. -em: $\left[\begin{array}{c}+1\\-pl\end{array}\right]_{AGR}$

Accordingly, we get *-ek* for the indefinite and intransitive object forms since its VI is more specific (due to the additional context restriction) and the subset principle favors more specific VIs. In possessor agreement, we get *-em*, since the context restriction for *-ek* is not matched after a noun or adposition and *-ek* cannot be inserted.

If we now assume that in 1sg definite object forms [+v] is deleted at spell-out before a VI for 1sg agreement is inserted,[10] *-ek* cannot be inserted and we get the less specific VI *-em*. Deletion of [+v] is the result of inserting the VI in (15):

(15) Ø:[+v] / __ $\left[\begin{array}{c}+Acc\\+3\end{array}\right]_{AGR}$ $\left[\begin{array}{c}+Nom\\+1\text{-}pl\end{array}\right]_{AGR}$

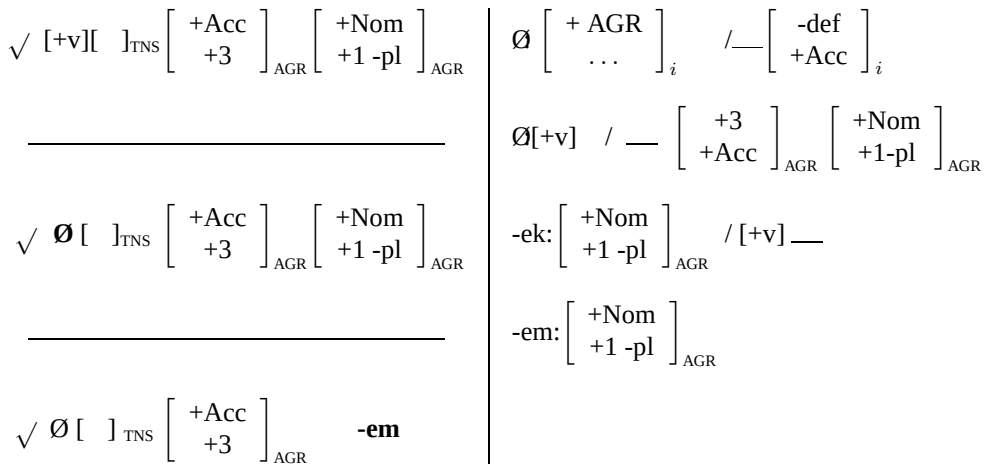
(16) shows the derivation of *szeret-em* 'I love her'. In the left column you see the output from syntax (first line), and the results of inserting different VIs into this structure. The VIs that are inserted are in the right column. "__" appears if a VI cannot be inserted because not all of its features are matched by the syntactic structure, and vocabulary insertion for Tense and object agreement is omitted.[11]

[9] This picture is somewhat simplified since a tense head can cooccur with a mood morpheme in analytical forms such as *vár-t vol-na* (wait-PAST vol-COND) 'he would have waited'. See also Bartos (2000). Since this syntactic differentiation is irrelevant for the analysis of agreement, I will assume here the simpler structure in (13).

[10] Deletion of [+v] has no effect on syntax or semantics of the verb since it happens at spell-out.

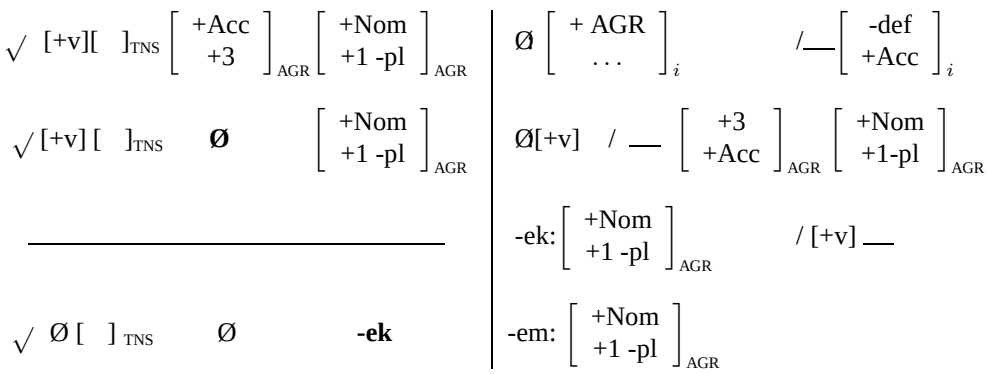
[11] I assume that the first vocabulary item in (16) has precedence over the other ones because it applies to chains and hence earlier in the overall derivation of sentences. The application of the other VIs is ordered by the subset principle, preferring the VIs that specify a larger number of syntactic features.

(16) **Derivation of a definite object form**



(17) illustrates the derivation for transitive *szeret-ek* 'I love (someone)':

(17) **Derivation of an indefinite object form**



The neutralization of *-ek* to *-em* for [+past] forms and *ik*-verbs is captured by the zero VIs in (18a) and (18b), respectively:

(18) a. Ø:[+v] / __ [+past]$_{TNS}$ [+Nom +1 -pl]$_{AGR}$

b. Ø:[+v] / esz, isz, . . . __ [(+ind)]$_{TNS}$ [+Nom +1 -pl]$_{AGR}$

As the VI responsible for syncretism of definite object with possessor forms, these delete little v and thus prevent insertion of *-ek*. Note that the contextual restriction of (18b), in contrast to other contextual restrictions, lists a number of stems (the *ik*-verbs) disjunctively. The parentheses around "+ind" in (18b) express the fact that in present standard variants of Hungarian *-em* is only used after indicative *ik*-verbs. This variant results from assuming presence of "+ind". By omitting it, one gets the now almost obsolete variant where *-em* is also used in the conditional and imperative.

5. Object agreement affixes

If Hungarian has subject and object agreement but no portmanteau affixes, we expect that at least in some forms non-zero object agreement affixes should surface to render the system transparent to the language learner. In this section, I argue that Hungarian indeed has such affixes, even though their existence is obscured by morphophonological variants and frequent zero realization.

5.1 1sg → 2 forms

-lek, used in forms with 1sg subject and 2nd person objects, is usually treated as a portmanteau affix, but as noted by Bartos (1997) it is just the form we would expect if object agreement is left-adjacent to subject agreement and the default 2nd person marker for subject agreement is used.[12]

(19)

Subject	Subject	Object + Subject
néz-**el**	szeret-**ek**	szeret-**l-ek**
V-**2**	V-**1SG**	V-**2SG-1SG**

5.2 3rd person object affixes

For some definite/indefinite minimal pairs, the phonological shapes of suffixes also differ minimally.[13] Thus, as can be seen in (20), the indicative present 2pl definite form contains *-i* preceding the corresponding indefinite form. Since this is exactly the position where we find the object marker in 1sg → 2 forms, I analyze *-i* as a 3rd person object marker. While *-i* does not occur in other moods and tenses for 2pl, there is a similar pattern in past tense and imperative forms where the definite 2pl form is identical to the indefinite one except that the vowel (*e*) before the suffix proper is lengthened (notated in (20) as double *e*). Lengthening happens again in exactly that position where an object marker is expected. I represent the object affix as an underspecified vowel (*-V*) that according to vowel harmony is realized as *-e* (and *-a* after back stems). This is identical to the 3sg marker in possessive agreement as in *kert-e* 'his garden'. and similar to *-i* in the present indicative, but I leave it open whether *-V* is related to *-i* by a morphophonological rule or is a separate VI.

-i and *-V* also occur in other forms to identify definite object agreement, namely, in all 3sg forms, where 3sg marking is zero, and in the 3pl past tense. *-i* and *-V* seem to occur in complementary distribution with *-ne* in present, conditional, and imperative verb forms, but given the fact that 3rd person is realized as *-Ø* in all 3sg and all definite forms with a 3rd person subject, it is plausible that *-i-Ø-k* -[+Acc+3]-[+Nom+3]-[+pl] is also an extension of *-ne-k* -[+Nom+3]-[+pl] with respect to the syntactic features of the involved VIs. (20) shows all non-zero 3rd person object markers in boldface: I leave it open to which morphemes the single *e's* in forms such as *neez-t-e_1-e_2-te-k* belong.

[12] V AgrO AgrS is also found in other Uralic languages such as Nganasan (Helimski (1998)).

[13] See É. Kiss (2002:49) who refers to results of Rebrus (2000) for similar observations. É. Kiss also seems to analyze the post-stem vowel in *szeret-**e**-m* as an AgrO affi x, but gives no explanation of why *-(e-)m* and *-ek* have different distributions.

Either -e_1 belongs to the preceding past tense affix (-*t*), or -e_2 to the following second person marker -*te*. The crucial point is that either -e_1 or -e_2 is an object marker since it appears in addition to the one -*e* in the indefinite form *neez-t-e-te-k*.

(20)

	present		past		conditional		imperative	
	ind.	def.	ind.	def	ind.	def	ind.	def
1sg	-ek	-em	-em	-em	-e-ek	-e-em	-ek	-em
2sg	-sz/-el	-ed	-e-el	-ed	-e-el	-e-ed	-e-el	-ed
3sg	-Ø	**-i**-Ø	-Ø	**-e**-Ø	-e-Ø	-e-**e**-Ø	-en	-e-Ø
1pl	-ün-k	-(j)ü-k	-ün-k	-ü-k	-e-e-nk	-e-e-nk	-ün-k	-(j)ü-k
2pl	-te-k	**-i**-te-k	-e-te-k	**-e**-e-te-k	-e-e-te-k	-e-e-te-k	-e-te-k	**-e**-e-te-k
3pl	-ne-k	**-i**-Ø-k	-e-Ø-k	**-e**-e-Ø-k	-e-e-ne-k	**-e**-e-Ø-k	-e-ne-k	**-e**-e-Ø-k

Thus, the basic problem is not to identify object markers, but to capture the fact that they are often zero. In the next subsection, I introduce the VIs that capture the distribution of zero and overt 3rd person object marking.

5.3 Zero object agreement affixes

Number is never distinguished for objects. This is captured by (21c). (21a,b) effect that 1sg, 2sg and 1pl subjects never cooccur with object markers.[14] [+2] and [+1] AgrO never occurs with 3rd person subjects, which is guaranteed by (21d,e):

(21) **3sg object agreement VIs**

a.	Ø:[ ]$_{AGR}$	/ [+Nom -3 -pl]	[__ +Acc]	(delete AgrO for 1/2sg AgrS)
b.	Ø:[ ]$_{AGR}$	/ [+Nom +1 +pl]	[__ +Acc]	(delete AgrO for 1pl AgrS)
c.	Ø:[+/-pl]$_{AGR}$	/	[__ +Acc]	(delete AgrO number)
d.	Ø:[ ]$_{AGR}$	/	[__ +1 +Acc]	(delete [+1] AgrO)
e.	Ø:[ ]$_{AGR}$	/ [+Nom +3]	[__ +2 +Acc]	(delete [+2] AgrO)
f.	-V/i:[+3]$_{AGR}$			

This together with the VIs already introduced derives the complete paradigms for 1sg and 2pl under the assumption that one *e* is deleted in conditional forms with the configuration *e-e-e*.

Note a striking fact about zero agreement in Hungarian. There is a great variety of VIs for zero object agreement, involving singular and plural and person features for third and non-third person. For subject agreement, only singular and 3rd person are expressed by zero (apart from the variant -Ø suffix for imperative 2sg forms). Thus *-el* cannot be specified [+2-pl] since it occurs with 2pl objects in 1sg → 2 forms. Hence in

[14] Rebrus (2000) argues that *-j* in definite 1pl forms such as *kü**ld**jük*, 'we send' is another allomorph of the 3sg object marker. This is plausible since *i* and *j* differ phonologically in a minimal way, and the allomorph of 3rd person *-i* after back vowel stems *-ja* (e.g., in *lát-**já**-tok* 'you see (it)') also contains *j*. I avoid this conclusion since *j* also appears in 3pl possessor agreement with *-jük* (e.g. *börönd-jük* 'their suitcase'), which I take to be the same VI which is used in 1pl definite possessor agreement. See also section 6.2

a form such as *esz-el* 'you (sg.) eat' subject number is not expressed which is captured by (22):

(22) Ø:[-pl]$_{AGR}$ / [__ +Nom]

Also 1sg markers can now be represented more parsimoniously since accusative 1sg agreement is deleted by (21d) and [-pl] by (22):

(23) a. -ek:[+1]$_{AGR}$ / [+v] __ b. -em:[+1]$_{AGR}$

(24) contains the VIs necessary to derive 3rd person subject marking in verbs. Note that the order as far as relevant follows the subset principle. *-ne* can only appear in 3pl forms with little v. Since the latter is deleted in definite forms, *-ne* is restricted to indefinite forms. Assuming that [+v] is also deleted with 3pl forms in past tense, *-ne* cannot occur there. In all other 3rd person forms apart from the special affixes *-en* and *-ik*, subject person is realized as Ø.

(24) **VIs relevant for 3rd person subject agreement**

a.	-en:[+3-pl]$_{AGR}$	/ [+v] [+imp]	[__ +Nom]
b.	-ik:[+3-pl]$_{AGR}$	/ esz, isz, . . . [+v] [+prs +ind]	[__ +Nom]
c.	-ne:[+3]$_{AGR}$	/ [+v]	[__ +Nom +pl]
d.	Ø:[+3]$_{AGR}$	/ [+v]	[__ +Nom]
e.	-i/V:[+3]$_{AGR}$		
f.	-k:[+pl]		

6. Further syncretisms

6.1 2sg forms

The distribution of *-el/-sz* vs. *-ed* is almost completely parallel to that of *-ek* vs. *-em* for the 1sg apart from the fact that *-sz* is restricted to present tense indicative forms not ending in a sibilant. This distribution is captured by the VIs in (25):

(25) **2(sg) VIs**

a.	-sz:[+2]$_{AGR}$	/ . . . [-sib] [+v] [+pres +ind]	__
b.	-el:[+2]$_{AGR}$	/ [+v]	__
c.	-ed:[+2]$_{AGR}$		

Syncretism of definite verb and possessor forms can be captured by deletion of [+v], just as for 1sg forms.

6.2 1pl forms

The 1pl is different from the other forms since possessor agreement syncretizes with the indefinite and not with the definite object agreement paradigm, and a syncretism between definite and indefinite forms (in the conditional) results in the affix normally used in indefinite forms (in 1/2sg it is the other way around):

(26)

	Pres.		Past		Cond.		Imp.		Poss.
	ind.	def.	ind.	def.	ind.	def.	ind.	def.	
1pl	-ün-k	-jü-k	-ün-k	-ü-k	-n-k		-ün-k	-ü-k	-ün-k

Thus *-(ü)n* seems to be the default marker for 1pl. Since all 1pl forms are expanded by the general plural affix *-k*, I assume that *-(ü)n*, similar to 2pl *-te*, is not specified as [+1+pl] but as [+1] with a contextual restriction tying it to [+pl] inputs. This accounts for all cases where *-(ü)n* occurs. Also *-jü* appears in possessor agreement, but there it spells out 3pl, hence I assume that it only realizes the feature [-2] not [+1] and is hence less specific than *-(ü)n*. So, by the subset principle, *-jü* can only be inserted where *-(ü)n* itself is blocked, which is done by (27a), which renders insertion of *-(ü)n* impossible in the non-conditional definite object forms but still allows *-jü* to spell out the remaining feature [-2]:

(27) **1pl agreement VIs**

a. Ø:$[+1]_{AGR}$ / [-cond] $[+Acc]_{AGR}$ [__ +pl]
b. -(ü)n:$[+1\text{-}2]_{AGR}$ / [__ +pl]
c. -jü:$[-2]_{AGR}$ / [__ +pl]
d. -k:[+pl]

7. Carstair-McCarthy's critique of DM

Carstairs-McCarthy (1998a, henceforth CM) criticizes Noyer's (1998) DM approach to feature neutralization, arguing that it is less restrictive on possible syncretism processes than an alternative approach proposed by CM himself which he illustrates with data from Hungarian verb agreement further discussed in Carstairs-McCarthy (1998b). In this section, I discuss CM's arguments and show that MDM can impose significant restrictions on paradigm structure, while CM's approach cannot fully account for Hungarian verb agreement.

7.1 Carstair-McCarthy's approach to possible syncretisms

CM's base assumption is that inflectional affixes can be polysemous, but polysemy is restricted by the same principles it obeys in lexical semantics. According to this approach, inflectional affixes can have disjunct meanings but disjuncts must be compatible with each other. Further, inflectional affixes should not have meanings containing negations or unmarked feature values. Thus, the representations in (28a) are possible since all specified features have marked values (1, definite and past) and the disjoined feature values in the entry for *-em* can cooccur, i.e., there are verb forms which are definite and past tense. The entry for *-em* in (28b) is illicit since there are no forms in Hungarian which are past *and* conditional, and the entry for *-ek* in (28c) is impossible since it specifies an unmarked feature value (present):

(28) a. **possible**
-em [1 (definite OR past)]
-ek [1]

b. **impossible**
-em [1 (past OR conditional)]
-ek [1]

c. **impossible**
-ek [1 present]
-em [1]

Empirically, (28a), according to CM, corresponds to the distribution of 1sg markers in Hungarian. *-em* has precedence over *-ek* by Panini's principle and is used in all 1sg forms which are either past tense or definite (or both), *-ek* in all remaining indefinite forms. (28b) would generate a paradigm where 1sg conditional or past tense forms bear *-em* while all other 1sg forms have *-ek*. (28c) would be a language where *-ek* is used in present tense 1sg and *-em* in all other 1sg forms. CM shows that the paradigms corresponding to (28b,c), although excluded under the lexical semantics approach can be derived by feature deletion as is licit in DM, and concludes that his approach is preferable because it is more restrictive.

7.2 Empirical problems of a polysemy-based approach

While CM's approach is discussed in detail with data from Hungarian, it cannot capture a number of facts. First, there is an affix that roughly corresponds to the allegedly impossible distribution induced by (28c). Recall from section 6.1 that the 2sg affix *-sz* occurs only in indefinite present tense form while all other indefinite 2sg forms use *-el*. Carstairs-McCarthy (1998b) notes the problem himself and assumes that the set of affixes in a screeve (i.e., the person/number paradigm for a specific tense-mood combination) constitutes itself a type of meaning. Thus *-sz* would have the meaning {ek,sz/l, ünk,tek,nek}, which is the affix set particular to the present indicative verb paradigm. While CM restricts this form of meaning to screeves which have "many" specific affixes, the empirical claim against DM is considerably weakened because (28c) is now also possible under the extended theory of lexical meaning.

A further problem for CM's approach are 1pl forms. Recall from section 6.2 that *-(ü)n*k is used in all indefinite and all conditional forms and *-(j)ük* is used in the definite forms of present indicative, past and imperative. (29) shows the two possible accounts for this distribution under CM's model:

(29)

a.
-ünk [1 pl(ind. OR conditional)]
-jük [1 pl]

b.
-jük [1 pl def (present OR past OR imp.)]
-ünk [1 pl]

Both analyses are impossible under the restrictions CM assumes. *-ünk* in (29a) specifies the unmarked feature value indefinite, and *-jük* in (29b) combines present and past, and past and imperative, disjunctively, while both pairs are incompatible in Hungarian.

Finally, also 1sg markers are problematic for CM once the full array of data is taken into account, since *-em* occurs not only in past and definite object forms but also with *ik*-verbs and in possessor and adpositional agreement. Probably CM would have to add

the meaning "*ik*-class" to the meaning of *-em* as in (30).

(30) -em [1 (definite OR past OR ik-classs)]

As discussed in section 4.3, it is possible to use *-em* with all moods of indefinite forms of *ik*-verbs, but at least in some varieties and registers of Hungarian, *-em* only occurs in the present indicative of *ik*-verbs. For these, (30) leads to wrong predictions. Equally difficult is to integrate into this system the fact that *-em* is also used for possessor and adpositional agreement. Stipulating an entry like (31) involves incompatible features since there are no Hungarian noun forms with definite object or past tense specification, and no definite or past forms specified for possession.

(31) -em [1 (definite OR past OR possessor)]

Thus CM's approach, while partially predicting correct restrictions for Hungarian, cannot capture the full range of data. A further shortcoming with his analysis of Hungarian is that it is difficult to see how the paradigms he assumes interface with syntactic structures. Thus, he treats definite and indefinite as simple paradigmatic categories without taking into account the intricate relation between transitivity and definiteness of the object. His approach also does not capture the fact that definite (i.e., overt object) agreement tends to be realized by left extensions to subject agreement affixes as in *szeret-te-k, szeret-i-te-k* 'you (pl.) love (ind./def.)', which can be naturally captured by a syntax-based theory such as DM. Under a syntactic point of view, CM's affixal polysemy seems also to involve portmanteau expression of syntactic heads. Thus *-em* [1 (past or definite)] expresses the syntactic heads Tense and AgrS. However, it is then unclear why *-em* in *ér-t-em* 'I arrived' blocks the first person marker *-ek* (**ér-t-em-ek*) but not the past tense affix *-t* (**ér-Ø-e*).[15] This shows the importance of distinguishing the features a VI in DM expresses (which causes blocking of alternative VIs) and its contextual restrictions which do not block corresponding affixes.

7.3 DM and restrictions on paradigm structure

While CM assumes that DM approaches to syncretism are inherently unrestrictive, MDM imposes an important restriction on paradigms: the phenomenon of double neutralization is only possible in contexts with rich feature inventories. Thus, there should be no double neutralization between singular and plural such that singular syncretizes to plural in some specific context C_1 and plural to singular in another context C_2. Assuming that plural is represented as [+pl] and singular as [-pl] and that [-pl] in many languages is generally deleted, the only further syncretism that is possible is (32) for some context C:[16]

(32) [+pl] $\rightarrow$ Ø / C

No further syncretism from singular to plural is possible. However, double neutralization is possible in systems involving more relevant features such as three-way number

[15] An anonymous reviewer notes that *ér-Ø-e* is an archaic form.

[16] The same conclusion holds under the assumption of a feature-geometric representation of number features (cf. Harley and Ritter (2002) and Trommer (2003)).

systems involving dual (cf. Noyer (1998) and Trommer (2003) on Nimboran) or Hungarian transitive agreement where the realization of complex agreement with a nominative argument is itself sensitive to categorial information (e.g., little v) as well as to object agreement and tense.

Plural neutralization raises another question: Why is there an impoverishment rule deleting [-pl], but not a general rule deleting [+pl]? A language which has the latter rule but not the former would result in the typologically unplausible pattern that singular is marked by overt affixes while plural is not.

While it is clear from the facts discussed in section 7.2 that it is problematic to capture substantive restrictions on possible neutralization processes as formal constraints on all types of VIs, I think it is promising to consider constraints on possible zero VIs. Indeed, the zero VIs necessary for Hungarian verb agreement fall into two restricted classes:

- Deletion of features which universally tend not to be expressed by overt affixes (3rd person, 2nd person in imperative forms, singular, [+v])
- Features of the lower argument (i.e., the object) for number and person

Part of this latter group is also the case in which the VI which deletes all agreement features of indefinite objects. Similar effects are treated under the heading "Differential Object Marking" in OT approaches to morphosyntax (Ortmann (2002) and Aissen (2003)). A substantive theory of possible neutralizations in DM could simply require that zero VIs are only licensed if they serve to avoid marked structure such as singular affixes or 2nd person affixes in the imperative. The latter case as well as work on animacy hierarchy effects in agreement (Trommer (2002)) suggest that markedness is not necessarily an inherent property of single features but has to be evaluated in its syntactic context. This, I think, is a further advantage of an approach to paradigm restrictions in terms of constraints on zero VIs.

8. Summary

In this paper, I have shown that Hungarian transitive verb agreement can and in fact *must* be analyzed without assuming portmanteau affixes. I have developed an analysis in the framework of Minimalist Distributed Morphology and argued on empirical grounds against the lexical semantic analysis of Carstairs-McCarthy (1998a,b). Finally, I have proposed an approach to paradigm restrictions based on constraints on possible zero vocabulary items. This is in line with other attempts to capture restrictions on paradigms in a framework without the theoretical concept of paradigm (Bobaljik (2002)).

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