

Micro-variation as a tool for linguistic analysis

Jan Don, Paula Fenger & Olaf Koeneman

Abstract

A look at the straight and inversion order paradigms of agreement inflection in 267 varieties of Dutch reveals the existence of four exceptionless generalizations on paradigm structure. Under the assumption that these generalizations act as restrictions on the variation space, probably brought in through the process of language acquisition, the number of possible analyses for a single synchronic paradigm is drastically reduced. We provide the first analysis of the Standard Dutch agreement paradigm that is compatible with these restrictions. In addition, we claim that two different types of inversion morphology can be theoretically as well as empirically distinguished.

Keywords: agreement, inversion morphology, micro-variation, impoverishment

1 Introduction

An all too common situation in linguistics is that the data underdetermine the proper analysis. This paper deals with a concrete case, namely the analysis of the present tense agreement paradigm of Standard Dutch, given in (1):¹

(1)

Standard Dutch			
		Straight	Inversion
SG	1	leev- \emptyset	leev- \emptyset
	2	leev-t	leev- \emptyset
	3	leev-t	leev-t
PL	1	leev-en	leev-en
	2	leev-en	leev-en
	3	leev-en	leev-en

Any analysis has to account for two types of facts concerning this paradigm. First, it must account for the distribution of the three affixes, $-\emptyset$, $-t$ and $-en$. Second, it has to account for the fact that in the inversion order, i.e. the order in which the subject follows rather than precedes the verb, a different affix appears in the 2nd person singular. As can be observed from the contrast in (2)a and (2)b, the finite verb is inflected with $-t$ if in a main clause the subject precedes the verb, whereas there is no affix if the subject follows the verb:

¹ In mono-syllabic forms such as *leev* and *leevt*, the phoneme /v/ is pronounced as [f] due to final devoicing. In the remainder of the paper, we will only represent the affixes. This does not affect our argumentation.

- (2) a. *Jij koopt morgen een boek* (Standard Dutch)
 You.sg buy.2sg tomorrow a book
 'You will buy a book tomorrow.'
- b. *Morgen koop jij een boek*
 tomorrow buy.2sg you.sg a book
 'Tomorrow you will buy a book.'

Hence, Standard Dutch shows so-called inversion morphology in 2sg contexts.

In this paper we will develop an analysis for the paradigm of standard Dutch that accounts for the distribution of the affixes and the special morphology in the inversion order that is motivated by a much larger study on the inflectional paradigms of Dutch dialects. These dialects show a lot of variation in their inflectional paradigms, both with respect to affix distribution and inversion morphology. However, despite this variation, we will show that there are four generalizations that hold for all variants of Dutch. We hypothesize that these generalizations reflect deeper properties of the verbal paradigm that have to be explained. The explanations we propose define the boundaries of the inflectional variation in the Dutch dialects. At the same time they provide restrictions on the proper analysis of each individual variant, including the paradigm of the standard variety, thereby reducing the underdeterminacy problem significantly.

This paper is organized as follows. In section 2, we first flesh out the underdeterminacy problem. Then a micro-variational solution is offered in section 3. Section 4 introduces the four restrictions. An analysis compatible with these restrictions is subsequently offered in sections 5 and 6. Section 7 discusses an important consequence of our analysis (the existence of two types of inversion morphology) and section 8 offers some speculations for the future.

2 The underdeterminacy problem

In this section, we will show that even with a restricted set of analytical tools the present tense agreement paradigm of Standard Dutch can be analyzed in multiple ways. Section 2.1 will focus on the distribution of the three affixes in the straight order. Section 2.2 will look at two analyses for inversion morphology.

2.1 Accounting for the distribution of the affixes in the straight order

The distribution of the three affixes in the straight order is correctly captured by the following three realization rules:

- (3) $-en \leftrightarrow [\text{plural}]$
 $-\emptyset \leftrightarrow [\text{speaker}]$
 $-t \leftrightarrow []$

These rules are disjunctively ordered, implying that the final rule operates as a default: if neither the first nor the second rule applies, the third steps in as a last resort. A plausibility argument for taking $-t$ to be the default is that it occurs in the 3rd person context, which is often described as the non-person (cf. Benveniste 1971, Harley & Ritter 2002 and others).

Alternatively, one could propose that the first person is the default option, and that the $-t$ marks [-speaker]:

- (4)
- | | | |
|--------------|-------------------|------------|
| $-en$ | \leftrightarrow | [plural] |
| $-t$ | \leftrightarrow | [-speaker] |
| $-\emptyset$ | \leftrightarrow | [] |

A plausibility argument for taking the null affix to be the default is that its morphological shape is null, so that an iconic relation is established between the default status and the actual shape of the affix. One could then even argue that in this case there is no need for a default, since the default rule only attaches a zero-affix and there is no obvious way to discriminate between zero and the absence of anything, simplifying the analysis to only two spell-out rules.

A third option would be to take $-en$ as the default, as in (5):

- (5)
- | | | |
|--------------|-------------------|---------------------|
| $-\emptyset$ | \leftrightarrow | [+speaker, -plural] |
| $-t$ | \leftrightarrow | [-speaker, -plural] |
| $-en$ | \leftrightarrow | [] |

A plausibility argument for taking $-en$ to be the default is that this affix also occurs on the infinitive. See Bennis & MacLean (2006) for an analysis along these lines.

So far we have only described the paradigm in (1) with the use of realization rules. More options present themselves if we allow ourselves the liberty to manipulate the feature bundle provided by the syntax before it is being spelled out by realization rules. The fact that there are person distinctions in the singular but not in the plural may lead one to conclude that this is a deeper property of the Dutch inflectional system that is insufficiently explained by the rule-ordering (see Aalberse & Don 2009). In order to explain the neutralization of person features in the plural, an ‘impoverishment rule’ as in (6) can be added to the partial grammar in (3).

- (6) [speaker] $\rightarrow \emptyset$ / ____ [plural]

Since this rule applies before the spell-out rules, insertion of $-\emptyset$ and $-t$ are blocked in the plural.

Note that we present a simplified hypothesis space here, and refrain from talking about different feature sets and feature types.² Even for this restricted hypothesis space, the question is how to determine what the best analysis is.

² The analysis we develop will directly bear on the choice of default and the status of impoverishment rules but will have little to say about the choice of feature system (see for an interesting discussion Ackema & Neeleman 2012). It is likely that future research will show that a micro-variational approach will also enable us to restrict the hypothesis space with respect to feature sets but this will not be pursued here.

2.2 Accounting for Standard Dutch inversion morphology

As shown above, Standard Dutch displays inversion morphology in 2sg contexts. There are two different proposals defended in the literature: the double paradigm theory and the impoverishment theory.

The double paradigm theory hypothesizes that Standard Dutch has two paradigms, one for straight orders and one for inversion orders. The morphological component ends up inserting different affixes dependent on whether the verb precedes or follows the subject. What may cause inversion morphology is the fact that the verb occupies distinct syntactic positions in both orders: It resides in I(NFL) when the subject precedes the verb and it occupies C when it follows the verb (Zwart 1993; Bennis & MacLean 2006). Under the assumption that distinct functional heads can have a distinct featural make-up, inversion morphology is a consequence of morphology being faithful in spelling out these different features. The analysis Bennis & MacLean provide is given in (7), where I encodes [speaker] and C encodes [utterance]:

(7)	<i>non-inverted</i> (I)		<i>inverted</i> (C)
	–∅ ↔	[+speaker]	–∅ ↔ [+utterance]
	–t ↔	[–speaker]	–t ↔ [–utterance]
	–en ↔	[plural]	–en ↔ [plural]

It is fairly easy to provide an analysis in which –t or –∅ is the default form, so that the underdeterminacy we already saw in the analysis of the straight order is retained in inversion.

A second approach to inversion morphology relies on the idea that impoverishment rules can be triggered by inversion contexts. Ackema & Neeleman (2003, 2012) propose that in inversion orders the finite verb and the subject are parsed in the same prosodic phrase, whereas these constituents occupy distinct prosodic phrases in the straight order. This contrast is illustrated in (8), where curly brackets indicate the prosodic phrases (cf. Selkirk 1986 for the algorithm):

- (8) a. {Jij} {koopt} {morgen} {een boek}
 You.sg buy.2sg tomorrow a book
 ‘You will buy a book tomorrow.’
 b. {Morgen} {koop jij} {een boek}
 tomorrow buy.2sg you.sg a book
 ‘Tomorrow you will buy a book.’

In order to account for inversion morphology, Ackema & Neeleman (2003) propose that if a subject and agreeing verb occur in the same prosodic domain, the co-occurrence of a similar feature within that domain can trigger impoverishment. They provide the realization rules in (9) and the impoverishment rule in (10), which deletes the [addressee] feature on the verb if the 2sg pronoun resides in the same prosodic phrase (i.e. in the inversion order).³

³ The gist of the analysis remains the same in their (2012) analysis, although they adopt a different feature set, including [proximal] and [distal].

- (9) a. [participant] $\rightarrow -\emptyset$
 b. [participant, addressee] $\rightarrow -t$
 c. [plural] $\rightarrow -en$
 d. elsewhere form $\rightarrow -t$
- (10) Dutch Agreement Weakening
 { [V part, add] [D part, add] } \rightarrow {[V part] [D part, add]}

After deletion of [addressee], the rule in (9)b can no longer apply, so that (9)a applies in 2sg contexts instead. Hence, the $-\emptyset$ rather than the $-t$ appears on the verb in inversion orders.

An important characteristic of impoverishment theories is that the consequence of feature deletion is that a less specified form is inserted instead, or no form if no realization rule can apply anymore. Take the example above. In the straight order, a $-t$ is inserted in 2sg contexts, spelling out the [participant] and [addressee] features. After impoverishment of [addressee] in the inversion context, insertion of $-t$ is blocked and the less specified form $-\emptyset$ is inserted instead.

In contrast to the double paradigm theory, the impoverishment theory makes a falsifiable prediction for inversion morphology. If Ackema & Neeleman are correct in arguing that inversion orders can trigger (additional) impoverishment rules, then we predict that in these two examples the reverse patterns are unattested, as they would entail ‘enrichment’ in inversion order. Hence, there can be no dialect in which an $-e/-e/-e$ pattern in the straight order ‘deregularizes’ to a $-e/-t/-e$ pattern in inversion, where $-t$ spells out [plural, addressee]. The inversion paradigm should be an impoverished version of the straight order paradigm rather than the other way around. Now, if paradigmatic variation is indeed restricted in ways that the impoverishment theory would predict, this would constitute a strong argument in favor of impoverishment. After all, in a double paradigm theory such gaps are merely a coincidence.

Both the double paradigm theory and the impoverishment theory account for the inversion paradigm in Standard Dutch and the question is therefore again how we can determine which of the two is the better analysis. As hinted to above, patterns in dialect variation form an interesting testing ground. In the next section, we will further explore the role of dialects and offer a rationale for a micro-comparative take on the problem.

3 Solving the underdeterminacy problem: a micro-comparative approach

As discussed above, the data from Standard Dutch leave underdetermined what the right morphological analysis is of the present tense agreement paradigm. Each of the three affixes, $-\emptyset$, $-t$, or $-en$, can be plausibly analyzed as a default, or elsewhere form. We also saw that the affix $-t$ disappears in the 2sg inversion order. This is an important fact, but it does not by itself point towards the correct analysis.

If the data underdetermine the analysis, a common strategy is to look for arguments from language typology or language acquisition that may help decide the issue. The fact that 1-2 and 2-3 syncretisms occur more often in the world’s languages than 1-3 syncretisms, for example, is taken by Ackema & Neeleman (2012)

to imply that the analysis should be such that 1-3 syncretisms are harder to derive. Likewise, the observation that 2nd person agreement is acquired after 3rd and 1st person agreement entails for them that 2nd person agreement is featurally the richest of the three.

In this paper, we propose a novel way of tackling the underdeterminacy problem, namely by looking at micro-variation, i.e. variation in verbal agreement among Dutch dialects. This variation is documented in the *Syntactische Atlas van Nederlandse Dialecten* (SAND, Barbiers et al 2005), which comprises subject agreement data of the verb *leven* 'to live' from 267 measuring points in the Dutch speaking parts of the Netherlands and Belgium, including the inversion paradigms. The attested variation is quite bewildering, both in terms of paradigm structures and syncretism patterns, and in terms of the morphological shape of the affixes. Despite this, four robust – and as far as we can see exceptionless – generalizations can be formulated. We think that these generalizations, which basically act as restrictions on the possible variation space, must be explained. The reason is as follows.

It is fairly well established that the variation we now observe among Dutch dialects is an interplay of phonological erosion processes and reanalyses of subject clitics into agreement affixes (cf. De Vogelaer 2008). The first process reduces or even eliminates agreement affixes, whereas the second process creates them. Since in principle any slot in the paradigm can be targeted by the two processes, these processes themselves at most account for the variation but not for the generalizations we observe, especially not when generalizations pertain to paradigm structure and are independent of the concrete morphological shape of the affixes. Such restrictions, we think, must be a consequence of the fact that at any point in time the language acquirer has to map the phonological endings in the input onto a concrete morphological subject agreement paradigm. In this mapping procedure, the language learning child will not postulate every possibility compatible with the data. This could be a consequence of either the learning algorithm itself, or factors related to the input which determine the order of acquisition. In either case, language acquisition acts as a stabilizing factor in a diachronic process, so that over time morphological restrictions become observable, despite the variation caused by erosion and reanalysis.

A direct consequence of this hypothesis is that it restricts the number of morphological analyses that can be entertained for a particular synchronic paradigm, such as Standard Dutch. After all, the analysis we propose must fall within the restrictions on paradigm structure that we observe. This, we will show, desirably places quite a few analyses out of the picture, in fact all of the analyses we have seen above. Before we look at an analysis that meets our demands, we first present the four generalizations on paradigm structure that can be formulated on the basis of the variation among Dutch dialects, and show how they restrict the number of possible analyses.

4 Restricting the possibilities: four micro-typological generalizations

The first generalization is given in (11).

(11) *Generalization 1*

The affixes associated with 3SG and 3PL contexts in the straight order are never dropped or replaced by another affix in the inversion order, in contrast to affixes associated with 1st and 2nd person contexts (singular or plural).

The data in (12)-(15) illustrate *Generalization 1* and show for 1sg, 2sg, 1pl and 2pl respectively how the affix appearing in the straight order does not appear in the inversion order.

(12) a.

Aalst			
N	P	Straight	Inversion
SG	1	-∅	-en
	2	-t	-t
	3	-t	-t
PL	1	-en	-en
	2	-t	-t
	3	-en	-en

b.

Gistel, Poelkapelle			
N	P	Straight	Inversion
SG	1	-en	-∅
	2	-t	-∅
	3	-t	-t
PL	1	-n	-n
	2	-t	-∅
	3	-n	-n

(13) a.

Hollum, Kollum, Leermens, Nieuw-Scheemda, a.o.			
N	P	Straight	Inversion
SG	1	-∅	-∅
	2	-n	-∅
	3	-t	-t
PL	1	-n	-n
	2	-n	-n
	3	-n	-n

b.

Oostburg, Ouddorp, Scherpenisse, Zierikzee			
N	P	Straight	Inversion
SG	1	-e	-(e)
	2	-t	-∅
	3	-t	-t
PL	1	-en	-en
	2	-en	-en
	3	-en	-en

(14) a.

Aalten, Eibergen, Staphorst			
N	P	Straight	Inversion
SG	1	-e	-e
	2	-t	-∅
	3	-t	-t
PL	1	-t	-e
	2	-t	-∅
	3	-t	-t

b.

Enter, Vriezenveen			
N	P	Straight	Inversion
SG	1	-e	-e
	2	-t	-∅
	3	-t	-t
PL	1	-t	-∅
	2	-t	-∅
	3	-t	-t

(15) a.

Spijkerboor			
N	P	Straight	Inversion
SG	1	-∅	-∅
	2	-en	-∅
	3	-t	-t
PL	1	-en	-en
	2	-t	-en
	3	-en	-en

b.

Bovensmilde, Giethoorn			
N	P	Straight	Inversion
SG	1	-e	-(e)
	2	-en	-∅
	3	-t	-t
PL	1	-en	-en
	2	-en	-∅
	3	-en	-en

In short, inversion morphology is not attested in 3rd person contexts.⁴

The second generalization is given in (16).

(16) *Generalization 2*

Inversion morphology either uses an affix that already appears somewhere in the straight order (i.e., the inventory of affixes is not extended) or the inversion morpheme is new (i.e. extending the inventory of affixes) but in the latter case the inversion morpheme is invariably null.

The data in (12)-(15) also illustrate this generalization. The a-paradigms show inversion morphemes that also appear somewhere in the straight order. Take example (13)a. The -∅ affix which appears in 2sg inversion contexts also appears in 1sg contexts in the straight order. Hence, it is not a new affix. In (13)b, on the other hand, we also see that a -∅ affix appears in 2sg inversion contexts but this affix is new: it does not show up anywhere in the straight order. The important aspect of *Generalization 2* is that, if in the inversion order a new affix shows up, the inversion affix is invariably null.

It is important to realize that these generalizations do not refer to the particular phonological form of the affixes. Neither the phonological form of the affixes that disappear in inversion order, nor of the affixes that appear in inversion order, is fixed. In the limited set shown so far, the form of the affected affixes and the form of the inversion morphemes is -∅, -t, or -(e)n. Hence, these are morphological generalizations about paradigm structure, not phonological generalizations about affixes with a particular form.

The third generalization is given in (17):

(17) *Generalization 3*

Although the affix associated with 3sg can never be dropped in the inversion order, it is dropped without exception in past tense contexts.

It is helpful to keep in mind that the 3sg affix is the same in all dialects of Dutch, namely -t. Now, there is no general restriction saying that there can only be one affix on the finite verb, as illustrated in (18)b, c. The plural affix -en can co-occur with the past tense affix -de in Standard Dutch, and the 2sg affix -st can co-occur with the

⁴ *Generalization 1* is contra Postma (2011), who claims that there is no inversion morphology in 1sg contexts. This turns out to be incorrect, as the data in (12) show.

past tense affix in Eigenbilzen. In contrast, the $-t$ affix, despite the fact that it always occurs in 3rd person contexts in the present tense, does not show up in any dialect in the past tense. For Standard Dutch, this is shown by the ungrammaticality of (18)a.

- (18) a. Jan wandel-de (*-t) over straat (Standard Dutch)
 Jan walk-past.sg (*-t) in the.street
 b. Jan en Marie wandel-de-(e)n over straat (Standard Dutch)
 Jan and Marie walk-past.3PL in the.street
 c. Dan leef-de-st -e wie ne koning (Eigenbilzen)
 then live-past.2sg you like a king

The fourth and last generalization is given in (19):

(19) *Generalization 4*

If in 1sg and 2sg contexts inversion morphology occurs, the inversion morpheme is never syncretic with the 3sg morpheme.

Suppose that a dialect has three distinct affixes in the singular part of the paradigm in the straight order. Then the options for the 2sg in the inversion order are given in 0:

(20)

	Straight	Inversion	Inversion	*Inversion
1sg	A	A	A	A
2sg	B	A	- \emptyset	C
3sg	C	C	C	C
Ex.		(21)a	(21)b	

It is possible that the 2sg affix in the straight order is replaced by an affix that already occurs in the straight order paradigm, e.g. in 1sg contexts. An example is given in (21)a. It is also possible that a new affix appears but in that case the affix is invariably null, as stated by *Generalization 2*. An example of such dialects is given in (21)b.

(21) a.

Emmer-Compascuum, Erica			
N	P	Straight	Inversion
SG	1	- \emptyset	- \emptyset
	2	-n	-\emptyset
	3	-t	-t
PL	1	-n	-n
	2	-n	- \emptyset
	3	-n	-n

b.

Bovensmilde, Giethoorn			
N	P	Straight	Inversion
SG	1	-e	-e
	2	-en	-\emptyset
	3	-t	-t
PL	1	-en	-en
	2	-en	- \emptyset
	3	-en	-en

What is unattested, however, is that the inversion context uses the $-t$ that occurs in the 3rd person context, creating an ACC pattern. Although not shown explicitly here, the same point can be made for 1sg contexts: the $-t$ affix never spreads to either 1sg or 2sg contexts in the inversion order, creating a CBC or CCC pattern.

Together, these four generalizations seriously reduce the analytical possibilities. Take for instance the choice between the double paradigm theory and the impoverishment theory of inversion morphology. The double paradigm theory simply claims that the paradigm can be different for the straight and inversion order and not much more. It does not exclude, for instance, affixes appearing in the inversion order that do not show up in the straight order. As we saw, this is indeed attested. However, as we have seen, there is a robust restriction on this pattern: the new affix appearing in the inversion order is invariably zero. There is no reason within the double paradigm theory why this should be the case. The new affix could equally well be overt. Moreover, the double paradigm theory fails to exclude the reverse of *Generalization 2*: null affixes appearing in 1st and 2nd contexts in the straight order.

For the impoverishment theory, these restrictions do not come as a surprise, as the inversion paradigm is ‘derived’ from the straight order paradigm, leading to a more impoverished paradigm in which either a less marked affix is inserted or no affix since a possible outcome of impoverishment is that no spell-out rule can apply anymore. Hence, the impoverishment theory is able to account for *Generalization 2* in a straightforward way. Moreover, since in Ackema & Neeleman’s proposal context-sensitivity is brought in by prosodic brackets containing both the finite verb and the subject, context-sensitive impoverishment rules only apply in the inversion order. Hence, the reverse of *Generalization 2* is excluded by the essence of their proposal.

Although in contrast to the double paradigm theory the impoverishment theory offers an understanding of *Generalization 2*, it has little to say about *Generalizations 1, 3 and 4*. Take for instance *Generalization 1*, stating that there is no inversion morphology in 3rd person contexts. For the singular, a natural assumption would be to say that the *-t* affix is the default spell-out for agreement, like in analysis (3). In that case, *-t* does not spell out any person or number features and there is no feature that can be impoverished in inversion contexts such that *-t* is blocked from being inserted there. This is the correct result, because 3sg *-t* is never dropped in inversion contexts. There are two problems, however. First, this solution does not carry over to the plural. After all, the feature [plural] in for instance Standard Dutch can in principle be impoverished in 3pl inversion contexts so that *-en* insertion would be blocked, which is never attested. Second, assuming that *-t* is the default spell-out of agreement contradicts the remaining generalizations, 3 and 4. Let us see why.

Generalization 3 states that the *-t* affix never appears in past tense contexts, although other agreement affixes do (cf. (18)). If *-t* is indeed the default spell-out for agreement, it is hard to see why it cannot show up in past tense contexts. After all, there is no feature to impoverish so that *-t* insertion is subsequently blocked. This was the right result for inversion contexts, we have just seen, but it is exactly the wrong result for past tense contexts. One could in principle try to overcome this problem by taking *-t* to be a default affix that is inserted when neither an agreement nor a tense affix is inserted. In that event, insertion of a past tense affix blocks *-t* insertion as well, as desired. However, this at least begs the question why *-t* cannot be an agreement default in any dialect and consequently show up in the past tense. Moreover, this solution would not solve the next, more pervasive problem.

Generalization 4 states that if 1sg and 2sg contexts show inversion morphology, it is never the $-t$ that shows up in these contexts. Again, this is a conundrum if $-t$ were the default. Being the least specified affix, it is exactly this affix, rather than the null or no affix, that is expected in the impoverished contexts in the inversion order. Yet, the $-t$ affix never spreads to other contexts in inversion.

Hence, we have a paradox: *Generalization 1* strongly suggests that $-t$ is a default agreement spell-out, whereas according to *Generalizations 3* and *4* it simply cannot be. In analytical terms: if $-t$ spells out a feature we do not understand why that feature is never impoverished in inversion, and if $-t$ does not spell out a feature we do not understand why $-t$ is categorically absent in the past tense (because $-t$ can in principle function as an agreement default) and why it never occurs in 1sg and 2sg inversion contexts. Since this ' $-t$ paradox' affects three of the four generalizations, it constitutes the core problem to be solved.

To conclude this section, we have argued that the double paradigm theory makes no predictions about inversion morphology other than that it can exist and is in this respect inferior to the impoverishment theory that correctly expects the inversion paradigm to be an impoverished version of the straight order paradigm. Hence, only the impoverishment theory can make sense of *Generalization 2*. What all theories discussed so far have in common, however, is that they fail to shed any light on the remaining generalizations. We have identified the $-t$ paradox as a central problem to solve. In section 5, we will develop a proposal that partly solves that paradox. In section 6, we will return to inversion morphology and argue that in Standard Dutch it should not be derived by impoverishment. Instead, subject pronouns play a crucial role in the appearance of null forms in inversion contexts. As a result, all four generalizations are accounted for, but the question becomes what role is left for impoverishment. This issue will then be taken up in section 7.

5 An novel analysis of $-t$: deriving Generalizations 1 and 3

In the Distributed Morphology (DM) framework (Halle & Marantz 1993), following the Separation Hypothesis (Beard 1995), a distinction is made between morphemes and their phonological realization (i.e. vocabulary items). A morpheme is a syntactic terminal that consists of a feature (bundle). This feature (bundle) is subsequently interpreted by the spell-out component that inserts vocabulary items that most faithfully spell out the feature(s). Hence, one could say that in Standard Dutch [plural] is a morpheme and $-en$ is the vocabulary item that spell-out inserts, 'realizing' this feature.

Taking the entry of these terminals into the morphological component to be stage 1 of this morphological component, we assume the existence of a second stage in which operations can affect these terminals. One operation, called morphological merger (Marantz 1984), can move one syntactic terminal to another adjacent one: this is morphological head movement, which is more local than syntactic head movement. A second operation relevant for our purposes is an impoverishment rule that can delete a feature. In the inverted Y model with an LF and PF branch, this means that such a feature plays a role in the syntax and potentially the semantics, but that it will not reach PF because at stage 3, where vocabulary items are inserted, it has already been deleted. Hence, there will not be any overt reflex of it.

With this in mind, let us now return to the $-t$ in Standard Dutch. As discussed above, the $-t$ is often taken to be a “default affix” or “elsewhere affix” that is inserted when no other (agreement) affix is. In DM terms, this means that the $-t$ would be a last resort vocabulary item that is inserted by spell-out whenever $-en$ and $-\emptyset$ are not. An example of such an analysis is (3), repeated below as (22):

- (22) $-en \leftrightarrow [\text{plural}]$
 $-\emptyset \leftrightarrow [\text{speaker}]$
 $-t \leftrightarrow []$

As can be observed, $-t$ corresponds with no features, so that $-t$ is inserted whenever the other two vocabulary items are not. Now, it is this analysis that is contradicted by *Generalizations 3* and *4*, causing the $-t$ paradox, as we have seen. Remember that if $-t$ is a default vocabulary item, the question is why it can never spread to 1sg and 2sg inversion contexts when in those contexts impoverishment takes place (contra *Generalization 4*). And what blocks $-t$ from ever acting as a default agreement (contra *Generalization 3*)?

We propose to resolve the $-t$ paradox by relocating the default in the grammar from stage 3 to stage 2. It is not the vocabulary item $-t$ that should be considered the default. Instead, the $-t$ is a vocabulary item that phonologically realizes a ‘default’ morpheme that is inserted at stage 2, prior to vocabulary insertion. The constraint responsible for insertion of this morpheme is formulated in (23) and prohibits a finite verb in Dutch to leave the morphological component without any inflectional morpheme attached to it.

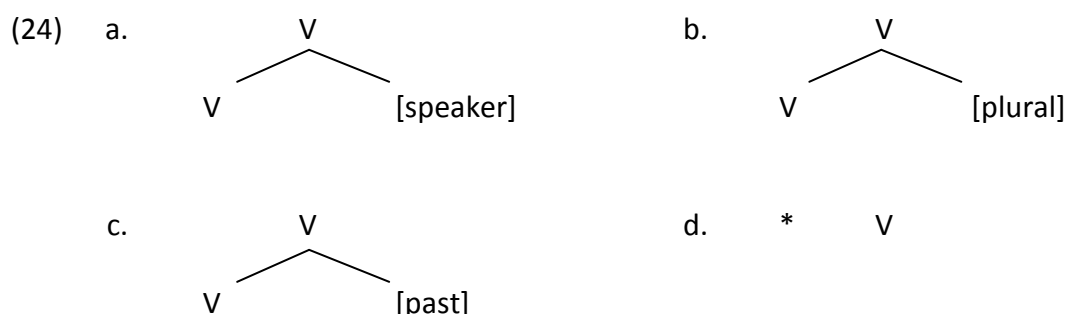
- (23) Dutch inflected verb: $V + \text{morpheme}^n$ ($n \geq 1$)

Hence, (23) is a constraint expressing the fact that the Dutch finite verb always minimally consists of a stem and a morpheme. Since it is a constraint on the structure of morphological objects, it is evaluated when the final structure is in place, i.e. after the impoverishment rules have applied.

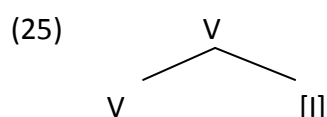
Let us assume a privative feature set (cf. Harley & Ritter 2002), using the privative features [speaker], [participant], [addressee] and [plural]. 3rd person is then the non-person in the sense of Benveniste (1971). Let us also assume that it is not the case that all features present on the subject are automatically present on the verb in the syntax, contrary to what is customary in DM and what is e.g. assumed by Ackema & Neeleman (2012). Hence, we will not assume that in a language without agreement on the verb the child postulates impoverishment rules to delete all the features before spell-out. Instead, we will assume that this child does not postulate anything. It is in a language *with* agreement that a child will have to postulate realization rules, and impoverishment rules, compatible with the data. See Koenenman & Zeijlstra (forthcoming) for a recent discussion and implementation of this hypothesis in the realm of V-to-I movement. This means that the Dutch child has evidence for only two features playing a role in verbal agreement based on the

distinction between $-\emptyset$, $-t$ and $-en$: [speaker], and [plural]. There is no evidence for the feature [addressee] or [participant] in subject-verb agreement.⁵

Let us now see what our restrictive assumptions (constraint (23), a privative feature system and no rule postulation in the absence of overt morphological contrasts) together give us. An immediate consequence is that the morpho-syntactic representations (24)a-c all satisfy the constraint in (23) whereas (24)d violates it.



We propose that, in order to rescue (24)d, an expletive morpheme is inserted. We take this morpheme to be a categorial feature, namely I(NFL), much like expletive *there* has been analyzed as merely a D element (cf. Chomsky 1995):



Hence, [I] can be characterized as a morphological expletive.

Our proposal of the Standard Dutch straight order paradigm then looks as follows:

(26)	$-en$	\leftrightarrow	[plural]
	$-\emptyset$	\leftrightarrow	[speaker]
	$-d/te$	\leftrightarrow	[past]
	$-t$	\leftrightarrow	[I]

Let us go over its properties and consequences.

Given the use of privative features, the 3rd person is the non-person. Although 3pl contexts at least have a [plural] feature, 3sg contexts have no features. For this reason, expletive [I] is inserted in all varieties of Dutch, which is invariably spelled out as $-t$. Since constraint (23) also holds in inversion orders, [I] is also inserted there and spelled out as $-t$. Hence, we capture the fact that 3sg contexts never display inversion morphology (part of *Generalization 1*). Note that in this analysis the 3sg contexts end up with a feature, namely [I]. This feature cannot be impoverished in inversion contexts because it would leave the finite verb featureless.

⁵ One could argue that the 1-2 syncretism in the inversion order provides evidence for the [participant] feature. We will argue in the next section, however, that there is *no* vocabulary item in 1sg and 2sg inversion contexts rather than a null morpheme. Hence, there can be no underlying [participant] feature either.

Since (23) is evaluated after impoverishment rules have applied, impoverishing [I] would lead to a violation of (23) and that structure, (24)d, is filtered out.

This analysis does not explain yet why we do not find inversion morphology in 3pl either, the other part of *Generalization 1*. If (23) acts as a filter, we understand that an overt affix in 3pl cannot be reduced to zero in the inversion. However, nothing prohibits impoverishing [plural] in 3pl inversion contexts and then inserting [I]. We then predict that an *-en* affix in 3pl straight order can become a *-t* in inversion, but this never happens. We will come back to the lack of 3pl inversion morphology in the next section.

Our analysis also derives *Generalization 3* (no 3sg *-t* in the past tense). Insertion of expletive [I] is a last resort operation, executed when all else fails. Since in past tense contexts the feature [past] is present on the verb, there is no need for [I] insertion. Hence, the vocabulary item spelling out [I], *-t*, never shows up in 3sg past contexts either. This analysis partly resolves the *-t* paradox caused by *Generalizations 1* (*-t* must be a default) and *3* (*-t* cannot be a default) together; [I] is inserted whenever no feature occurs on the verb (in 3sg straight and inversion orders) but not when another feature is already there (in past tense contexts). There was a second reason why *-t* cannot be the default, however: it never spreads to 1sg and 2sg inversion contexts (*Generalization 4*). This issue will be taken up in section 6, which derives the remaining two generalizations.

6 Inversion morphology: deriving Generalizations 2 and 4

What we do not yet understand is the 2sg context of Standard Dutch. The straight order follows from our analysis. Since the straight order paradigm does not contain any morphological contrast that motivates the presence of [addressee], the 2sg context is featureless because the two features present in Standard Dutch agreement morphology, [speaker] and [plural], cannot be used there. As a consequence, [I] is inserted and subsequently spelled out by *-t*. The question is why *-t* can be dropped in 2sg inversion contexts, whereas it cannot be dropped in 3sg inversion contexts.

This fact is part of a larger pattern. We have seen that overt affixes can be reduced to zero in inversion in 1st and 2nd person contexts, in both singular and plural (see (12)b-(15)b). These data can be captured by adopting inversion-induced impoverishment rules. If one or more features are impoverished in an inversion context, a possible outcome is that no realization rule applies anymore and therefore no vocabulary item is inserted. In our analysis, however, this approach to capturing *Generalization 2* now creates a problem because of (23). This constraint forbids the radical absence of morphemes on the verbal stem prior to vocabulary insertion. So although nothing in our analysis prohibits us from adopting inversion-induced impoverishment rules in general, this may not result in a violation of (23).

We conclude that there is something special about 1st and 2nd person contexts distinguishing them from 3rd person, a distinction that is familiar in the morphological literature (Benveniste 1971; Fuss 2005 and many others). We argued above that expletive [I] is inserted whenever the finite verb does not carry an inflectional feature in its morpho-syntactic representation. Our analysis therefore leads us to believe that whenever expletive [I] is inserted in the straight order, this operation is blocked in the inversion order if the contexts is not 3rd person. The

question then is what it is about 1st and 2nd person contexts that blocks [I] insertion. What we propose is that constraint (23) can not only be satisfied by insertion of an expletive morpheme at stage 2 but in the inversion order also by 1st and 2nd person pronouns. In fact, using the pronouns to satisfy (23) makes expletive insertion redundant and therefore blocks it. Hence, in a 2sg context constraint (23) is satisfied in different ways in Standard Dutch, depending on whether the subject pronoun precedes or follows the verb:

- (27) a. *jij loop-t*: Insertion of [I] (spell-out: –t) satisfies constraint (23).
 b. *loop jij*: Pronoun (spell-out: *jij*) satisfies constraint (23).

There are two reasons why this role of pronouns is plausible.

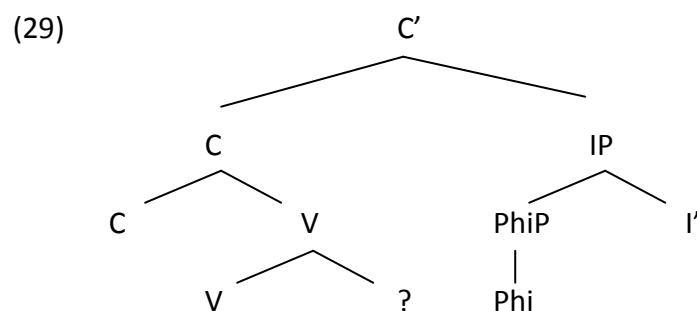
Synchronically, constraint (23) requires the verb to leave the morpho-syntactic component with an inflectional morpheme attached to the stem. This can be tense or agreement, where the latter consists of one or more phi-features. Now, 1st and 2nd person subject pronouns express just that, phi-features. In fact, some analyses capitalize on the similarity of subject pronouns and verbal agreement by analyzing pronouns as PhiPhrases (cf. Déchaine & Wiltschko 2002; Van Craenenbroeck & Van Koppen 2008; Barbiers, Koenenman & Lekakou 2009).

Diachronically, pronouns can over time be reanalyzed into agreement suffixes if they occur in contexts enclitic to the verb (cf. De Vogelaer 2010 for a recent discussion). Hence, in the stages prior to such a reanalysis, pronouns must count as ‘potential agreement affixes’. The idea that pronouns can satisfy constraint (23) underscores this relation: it is a precursor to the reanalysis (which may or may not take place at a later stage).

The way the analysis works technically is by invoking morphological merger (Marantz 1984; Embick & Noyer 2001), an operation that moves a syntactic terminal (a morpheme) to an adjacent one. M(orphological)-merger is defined as in (28):

- (28) *Morphological Merger* (Marantz 1984; Embick & Noyer 2001):
 At any level of syntactic analysis (d-structure, s-structure, phonological structure), a relation between X and Y may be replaced by (expressed by) the affixation of the lexical head of X to the lexical head of Y.

The relevance of M-merger becomes clear when one considers the syntactic structure of a clause in which inversion has taken place. In (29), the verb has been moved to the C-position and the subject pronoun occupies spec-IP.



As indicated by the question mark, the verbal stem requires a morpheme.⁶ Since the head adjacent to the verbal stem contains phi-features, M-merger takes place as illustrated in (30):⁷

(30) $[_{CP} V [_{IP} [_{\Phi i P} \Phi i] \dots]]$ \rightarrow $[_{CP} V+\Phi i [_{IP} [_{\Phi i P} \text{Phi}] \dots]]$

As a result of (30), constraint (23) is satisfied at the relevant level of representation and insertion of [I] is not triggered.⁸

Now that we have accounted for the drop of *-t* in 2sg inversion orders, we must explain why *-t* cannot be dropped in 3sg inversion contexts as well. Again, the answer lies in realizing that the patterns we observe are the outcome of a diachronic process fundamentally affected by language acquisition. For a language acquirer, using M-merger as a way of satisfying constraint (23) only comes to mind for those contexts in which merger with the terminal occurring adjacent to the verbal stem is a

⁶ One may wonder why the functional head that the finite verb is adjoined to in (at least) the inversion order, namely C, does not satisfy (23) and block [I] insertion, a question posed by Ora Matushansky (p.c.). We suggest that it must be related to the fact that (23) has to be a learnable constraint and is only postulated in the face of overt morphological evidence (see also Koenenman & Zeijlstra (forthcoming)). C is not associated with specific overt morphology and hence irrelevant for the generalization leading to the postulation of (23). One could argue that inversion morphology itself (in Standard Dutch the absence of *-t* in 2sg inversion orders) provides such overt morphological evidence but that would entail that one accepts the double paradigm theory. But that theory, we have concluded on empirical grounds, is obsolete. We conclude that C plays no role in the acquisition of (23) and therefore cannot satisfy it either.

⁷ There is no strict adjacency between the verb and subject in these contexts, as intervening focus markers are accepted by many speakers:

- (i) Loop ook/alleen jij graag 's avonds over straat?
Walk also/only you gladly in-the-evening across street
'Do also/even/only you gladly walk in the street at night?'

What can be observed is that the focus markers can also follow the subject:

- (ii) Loop jij ook/alleen graag 's avonds over straat?
Walk also/only you gladly in-the-evening across street

We capture this variation by assuming that the pronoun is the complement of a focus head that is moved to the specifier of that focus phrase. Hence, there are two copies of a PhiP and PF can spell out either of them.

- (iii) $[_{CP} \text{loop} [_{IP} [_{FocP} \Phi i P [_{Foc'} Foc \Phi i P]] \dots]]$

As a consequence, there will always be a terminal of the PhiP string-adjacent to the verbal stem to undergo M-merger. Some support for this analysis comes from stress patterns. Whereas the pronoun receives the stress in (i), the focus markers do in (ii). Under the assumption that the most deeply embedded constituent receives the stress (i.e., complement>head>specifier), this contrast follows. It should be mentioned, though, that for some reason focus marker *zelfs* 'even' never attracts the stress.

⁸ Recall that (23) is a morphological constraint on the structure of finite verbs. Therefore, the constraint is satisfied after (30), irrespective of the subsequent spell-out procedure (vocabulary insertion). It therefore does not matter for our purposes if the pronoun *jij* spells out the head of the PhiP or the entire phrase (the latter option is defended by Weerman & Evers-Vermeul 2002; Neeleman & Szendroi 2007; Barbiers, Koenenman & Lekakou 2009).

viable and robust alternative to [I] insertion and spell-out by $-t$. For this to happen, the adjacent terminal has to share the two basic distributional properties with [I] and its $-t$ spell out. First of all, it must occur to the right of the verbal stem, since $-t$ occurs to the right of the verbal stem as well: Standard Dutch has suffixes and not prefixes. For this reason, M-merger is only an option in inversion orders. Second, for M-merger to be considered an analytical alternative, the adjacent terminal must *always* be present in a particular context. After all, verbal agreement in Standard Dutch is obligatory: leaving out the affix $-en$ in plural contexts, for instance, always leads to ungrammaticality. Whereas 1st and 2nd person pronouns are obligatorily present in 1st and 2nd person contexts, 3rd person pronouns are not, for the simple reason that they are always in complementary distribution with lexical DPs. In contrast to 1st and 2nd person pronouns, then, 3rd person pronouns lack a general distributional similarity with vocabulary items $-\emptyset$, $-t$, and $-en$ and the language acquirer will not consider them as contenders. This excludes M-merger from applying in 3rd person inversion contexts. For this reason, [I] must be inserted here instead, explaining why the $-t$ never drops in the inversion order.

Let us go over the consequences of this analysis and derive the remaining two generalizations.

First of all, *Generalization 2* ('new' morphology in the inversion context is invariably null) is now derived. Inversion morphology can surface in two ways. The first option is that the straight order affix spells out a feature that is impoverished in the inversion order, such as [speaker] in (12)b. The consequence is that a less specific or no vocabulary item is inserted instead. The second option is that the straight order contains an expletive [I] feature, spelled out by $-t$. If this feature occurs in a 1st or 2nd person contexts, there is no reason for inserting it in the inversion order because M-merger with the pronoun blocks its insertion. The consequence is zero morphology, reflecting the absence of a verbal affix rather than a phonologically null one. This is what we for instance see in (13)b.

The second consequence is that *Generalization 4* now follows. Recall that an analysis in which $-t$ is a default vocabulary item does not explain why $-t$ never spreads to 1st and 2nd person inversion contexts if those contexts are targeted by impoverishment. This problem is now solved because M-merger blocks [I] insertion in 1st and 2nd person contexts. For this reason, an A-B-C pattern in the straight order can never become an A-C-C or C-C-C pattern in inversion contexts.

Finally, we can now address a left-over from the previous section, namely the question why 3pl contexts never show inversion morphology. Let us sketch the problem in a bit more detail. There are cases where impoverishment feeds M-merger, such as the paradigms in (21), where [addressee] is impoverished in 2sg contexts and M-merger must satisfy (23). Now, if M-merger can compete with [I] insertion, then impoverishment should be able to feed [I] insertion too. Why, then, are there no paradigms in which the feature [plural] is impoverished, followed by insertion of [I], so that a straight order $-en$ becomes $-t$ in 3pl inversion contexts? The answer comes from realizing that inversion-induced impoverishment and M-merger have a fundamental property in common: They both involve the interaction of the pronominal and agreement system in post-verbal position, an interaction that is triggered by their distributional and featural similarity. Now, as proposed, M-merger is blocked in 3rd person contexts because 3rd person pronouns have a distinct

distribution from 3rd person agreement markers. If distributional similarity is a prerequisite for such an interaction of the pronoun and agreement system, then inversion-induced impoverishment is blocked in 3rd person contexts too. Hence, the contexts that (dis)allow inversion-induced impoverishment are the same ones that (dis)allow M-merger. The consequence is that nothing ever happens in 3rd person contexts, plural or singular.

We have now derived all four generalizations. The proposed analysis is uniform in the sense that the same factor lies at the heart of all generalizations: the last resort nature of [I] insertion and the fact that this operation only takes place if other ways of satisfying (23) are unavailable. As a result, we conclude that the best analysis for Standard Dutch, one that is compatible with the four generalizations, is one with three realization rules ($-\emptyset \leftrightarrow [\text{speaker}]$; $-t \leftrightarrow [I]$; $-en \leftrightarrow [\text{plural}]$) in which $-t$ is not inserted in 2sg inversion contexts because it is blocked by M-merger of the subject pronoun.

7 Two types of inversion morphology

In our analysis, inversion morphology can be a consequence of two distinct morphological operations. It can be a consequence of inversion-induced impoverishment (a type of context-sensitive deflection), and it can be a consequence of [I] insertion being blocked by M-merger (a precursor to reanalysis of a pronominal clitic into an agreement morpheme). Although we have explicitly shown the second option, we have spent little time on the former, mainly because we did not need it in our analysis of Standard Dutch. In this section, we will argue that both types of inversion morphology exist and that they can be theoretically distinguished. This theoretical distinction turns out to be empirically real, which provides strong support for our analysis.

Let us consider a straightforward case of inversion-induced impoverishment. In 0a and 0b we see two dialect types that have two realization rules for the plural, namely the ones in (32).

(31) a.

Arcen, Maasbree			
N	P	Straight	Inversion
SG	1	$-\emptyset$	$-\emptyset$
	2	-s	-s
	3	-t	-t
PL	1	-e	-e
	2	-t	-e
	3	-e	-e

b.

Panningen, a.o.			
N	P	Straight	Inversion
SG	1	$-\emptyset$	$-\emptyset$
	2	-s	-s
	3	-t	-t
PL	1	-e	-e
	2	-t	-t
	3	-e	-e

- (32) $-t \leftrightarrow [\text{plural, addressee}]$
 $-e \leftrightarrow [\text{plural}]$

In Arcen and Maasbree the feature [addressee] is impoverished in the 2pl inversion order by the rule in (33), which leads to insertion of the less specific vocabulary item $-e$.

(33) [addressee] → ∅ / {V-[∅plural__]_i[D ∅_i]}

Since 2pl *-t* is retained in inversion in 0b, (33) is not part of the grammar of Panningen. There seems to be no way of predicting on the basis of the straight order paradigm whether or not a dialect type will have an inversion-induced impoverishment rule. This is a general property of impoverishment triggered in inversion contexts, irrespective of morphological context. (34)a, for instance, shows a dialect impoverishing [addressee] in 2sg, something which does not happen in 0a, b, and (34)b shows impoverishment of [plural] in 1pl contexts, something which does not happen in (34)a, etcetera.

(34) a. b.

Spijkerboor			
G	P	Straight	Inversion
SG	1	-∅	-∅
	2	-en	-∅
	3	-t	-t
PL	1	-en	-en
	2	-t	-en
	3	-en	-en

Kloosterburen			
N	P	Straight	Inversion
SG	1	-∅	-∅
	2	-n	-∅
	3	-t	-t
PL	1	-n	-∅
	2	-n	-∅
	3	-n	-n

For these cases of unpredictable inversion morphology, we therefore adopt Ackema & Neeleman's context-sensitive impoverishments rules which may or may be part of the grammar of a particular variety. Contrasting with these examples of unpredictable inversion morphology are cases of inversion morphology that are due to M-merger blocking [I] insertion, as we amply discussed in the previous sections. If in Standard Dutch *-t* is not inserted in 2sg inversion orders because M-merger blocks [I] insertion, inversion morphology is in fact predicted. Moreover, since M-merger takes place in the absence of inflectional morphology on the verb, inversion morphology should be zero, signaling the absence of a morpheme on the verb prior to M-merger. Now, interestingly, it turns out that there are dialects in which *-t* is retained in 2sg inversion orders. An example from the Tienen dialect is given in (35)a:

- (35) a. *As gij in Sintereklowes geluëft, dan geluëft* (Tienen)
 if you.2sg in Santa Clause believes then believe
ge da mar.
 you.2sg that PRT
 'If you believe in Santa Clause, then go ahead and believe that.'
- b. *As gelle gezond leeëft, dan leeëft gelle langer as ich.*
 if you.2pl healthily live, then live you.2pl longer than I
 'If you live healthily, then you live longer than I.'

As can be observed in (35)b, however, Tienen also displays a *-t* in 2pl contexts, so that a single *-t* can be analyzed as spelling out [addressee]. If so, Tienen simply has

no impoverishment of the [addressee] feature in inversion, in contrast to for instance Spijkerboor in (34)a.

This, then, leads to the following hypothesis: The $-t$ is retained in 2sg inversion contexts only if the $-t$ also appears in 2pl contexts and provides evidence for the [addressee] feature. The data are not entirely straightforward in that 2sg inversion forms often come out as in (36), for which it is hard to determine whether the dental (underlined) plosive is a retained $-t$ or part of a (doubled) pronominal clitic:

- (36) a. *Asge gezond leeft dan leefde langer* (Kampenhout)
 if.you healthily live.2sg then live.2sg longer
 b. *As ge gezond leeft dan leefde ge langer* (Asten)
 if you healthily live.2sg then live.2sg you longer

To increase the chances of falsifying the hypothesis under scrutiny, we counted all these plosives as retained $-t$'s. We subsequently looked at whether each of the 69 dialects in the set thus obtained provides evidence for $-t$ in 2pl contexts. This turns out to be the case without exception.⁹ We therefore conclude that (i) if $-t$ is related to the feature [addressee] 2sg $-t$ drop in inversion is unpredictable and (ii) if it is not related to the feature [addressee] 2sg $-t$ drop in inversion is categorical, in another word predictable. The observed contrast between predictable and unpredictable $-t$ drop in inversion is expected on our analysis, which treats $-t$ drop in a non-uniform way, and therefore provides strong support for it.

8 Outlook

In this paper, we hypothesized that four morphological generalizations on paradigm structure reflect restrictions on language change, probably caused through the process of language acquisition. If correct, the number of possible analyses for a single Dutch present tense agreement paradigm is seriously restricted. We offered the first analysis of Standard Dutch that stays within these observable boundaries.

The most prominent question our analysis conjures up is the nature of constraint (24): how does it enter the grammar? We tentatively suggest that the answer must again be sought in language acquisition. Ackema & Neeleman (2013) provide an overview of acquisition literature showing that 3rd person agreement is generally acquired before 1st and 2nd person. A reason could be that a parent is known to refer a lot to a child, as well as to him/herself, in the 3rd person. Whatever explains the fact that 3rd person agreement is acquired first, the Dutch child goes through a phase in which it has to analyze the 3rd person $-t$ in the absence of any contrasting forms. This means that features such as [singular] or [present] cannot be postulated, leaving very little options. Analyzing $-t$ as a vocabulary form expressing

⁹ The only counterexample in the SAND database is the dialect of Tienen, which is reported to retain $-t$ in 2sg inversion contexts but uses an $-e(n)$ form in 2pl contexts. An additional questionnaire was administered with nine speakers, including two examples with a 2pl context. Four speakers only used $-en$, one only $-t$ and four speakers used both. We believe it is fair to conclude that optionality exists in this dialect and that it crucially still provides evidence for an [addressee] feature. We kindly thank Jef Vanderstappen for gathering these data, including the examples in (35).

inflection (basically analyzing it as an expletive morpheme) then becomes the most plausible solution. Other forms can then subsequently be acquired by introducing privative number and person features.

It will be clear that both of these sketches have far-reaching typological consequences and we leave an exploration of them to future research.

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