Kratzer's effect in the nominal domain: fake indexicals in Dutch and German

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Abstract
Fake indexicals are indexicals that does not have a fixed referent but vary over a set. Fake indexicals are subject to morphological restinctions imposed by the verbal domain. In this paper, we show fake indexials in the nominal domain are subject to similar morphological restrictions. Only if the morphology is invariant under person permutation do the sloppy reading come about. This is studied both theoretically and empirically within the Dutch dialectological space.

Keywords: fake indexicals, sloppy identity, verbal morphology, possessive morphology, paradigms, Limburgian, Dutch, German, English

1. Introduction

Though Grammar is modular, i.e. it is composed of distinct, rather independent components, these modules influence each other through their interfaces. Morphology may influence syntax, e.g. in the realm of verb movement (Pollock 1989), and syntax may have impact on the semantics, e.g. through properies of the logical form (May 1974). It was only the work of Kratzer (2009) that indicated that a direct influence of morphological properties was operative on the semantics: *fake indexicals*, discovered some 10 years earlier, turned out to have sensitivity of paradigmatic properties of the verb. Kratzer's discovery opened up the possibiity of dialectological semantics, or variational syntaxis. In this contribution I will show that micro-variation among Dutch dialects shows parallell variation in such abstract semantics of *sloppy anaphora*. First, we briefly explain what fake indexicals are, then we expose Kratzer's theory in our own wording, which will be of use for our later investigations. Then we present some comparative problems for the theory observed by Maier & De Schepper. We solve these problem by extending Kratzer's theory to the nominal domain. Finally, we show that this rephrasing predicts dialectal variation that is found in the Dutch dialects.

2. Fake Indexicals

Fake indexicals (Partee 1989) are pronouns that display anaphoric readings in 1/2 person pronouns singular or plural. In these cases, the 1/2 person pronoun does not act like a well-behaved *indexical* in having a fixed discourse referent, but ranges over a set. They are anaphors in the semantic representation, as in (1a). The 1/2 pronoun exhibits a sloppy reading. [1]

(1)   a.   Only you eat what you cook

       b. $\forall_x$ [(x eats what x cooks) $\rightarrow$ x = 2]   sloppy[2]

       c. $\forall_x$ [(x eats what 2 cooks) $\rightarrow$ x = 2]   nonsloppy

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[1] The earliest mentioning of the construction is in Ross (1970:251, 270), who refers to Ray Jackendoff for the two readings.

[2] Paraphrases of the sloppy and non sloppy reading are, respectively:

(i)   nobody eats his own food, but you do

(ii)   nobody eats your food, but you do

These constructions has been the subject of some debate (Heim 1994, Kratzer 1998, 2009, Von Stechow 2003, Rullmann 2004, Maier & De Schepper 2011, henceforth M&dS). Kratzer recent (2009) approach shows morphological blocking of certain sloppy readings. Kratzer's effect is interesting and has far-reaching consequences for the theory of syntax as it shows that morphology, syntax and semantics are closely interacting systems. Kratzer's analysis has been challenged in M&dS: they claim that the effect is absent in Dutch. As we will show, however, a more detailed analysis of the Dutch data, extending Kratzer's effect to the nominal domain, makes them fit perfectly into the framework, and solves some remaining problems for English as well.

3. Kratzer (2009)
Kratzer (2009) shows that there are curious restrictions on the grammaticality of fake indexicals, both language internally, as the two German examples in (2a,b) show, and comparatively, as the German and Dutch examples (2b,c) show.

(2)   a.   Wir sind die einzige, die unseren Sohn versorgen   sloppy/nonsloppy
             we are the only, who our son take.care.of
             'we are the only ones who take care of our children
   b.   Du bist der einzige, der deinen Sohn versorgt   *sloppy/nonsloppy
             you are the only, who your son take.care.of
             'you are the only one that take care of your son'
   c.   Jij bent de enige die je zoon goed verzorgt   sloppy/nonsloppy
             You are the only one that take care of your son

For reasons of presentation, we decompose Kratzer's analysis into two steps. The first step is the recognition that two chains are involved. The second step is the analysis of which positions belong to which chain.

      The unavailability on fake indexicals in (2b) typically occurs if there are two syntactic chains with distinct person features, that are identified with each other under predication. We have the 2sg chain (*du, deinen*) and 3sg chain (*der einzige, der, t, versorgt*). We will refer to the former as the person chain, to the latter as the gender chain.[3] The two chains are indicated in (3) with i and k subscripts.

(3) Du_i bist der $einzige_k$, der_k t_k $deinen_i$ Sohn $versorgt_k$

The two chains are identified upon predication in the main clause.[4] Predication disrupts the immediate c-command relation between *du* and *deinen*, as the AGR-index of the embedded verb starts to intervene. The empirical generalization that Kratzer defends, is that if the spellout of the index that immediately c-commands the fake indexical, is invariant[5] under the relevant person permutation (here 2sg↔3sg), the fake indexical is licit. In (2b) the immediately c-commanding element is *versorgt*. The involved 2/3-permutation would be (*versorgst↔versorgt*), which is not invariant, because the two inflectional morphemes are unequal in German. In the Dutch sentence in (2c), which has similar chains as the German, 2sg↔3sg permutation in the element that

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[3] These are simply labels and chosen for ease of reference. In the person chain we see 12-person agreement, in the latter gender agreement. The labels have no theoretical status in this paper.
[4] Without equative *be* in the main clause, no sloppy readings arise:
(i)   you mistreated the only person that took care of your son   *sloppy/nonsloppy
[5] We use *invariance under permutation* as an interface requirement and *syncretism* as a paradigmatic property that allows it.

immediately c-commands the fake indexical, would be (*verzorgt↔verzorgt*), which is invariant as Dutch has 2sg/3sg syncretism in T.

Kratzer's second step is less straightforward and involves the concept of *minimal pronouns*. Kratzer's idea is that the foot of the person chain in (3) (*deinen*) does not belong to the person chain but to the gender chain. In the syntax it is an element without any specification and is anaphoric to the inflectional head with relevant features. The fact that *deinen* shows up as a 2nd person pronoun rather than a 3rd person is a PF effect of spellout. In the syntax it is an element without inherent features.[6] The syntactic anaphoricity in the lower predicate causes the sloppy nature of the entire construction. The predicate is reflexive in the sense of Reinhart & Reuland (1993). There is a potential problem here, which Kratzer does not address. According to Reinhart & Reuland reflexive predicates should be reflexively marked, either overtly or abstractly by the lexicon. This does not seem to be the case in (3). We come back to this.

As Rullmann's (2004) data illustrate, Dutch has pervasive sloppy readings with fake indexicals. They create even a full paradigm. In (4) I give a full paradigm with a fake indexical in a verbal construction. In (5) I give a full paradigm with a fake indexical in a nominal construction. The latter is Rullmann's.

(4)   a.   Ik ben de enige die me hier verveelt   1sg
       b.   Jij bent de enige die je hier verveelt   2sg
       c.   Hij is de enige die zich hier verveelt   3sg.masc
       d.   Wij zijn de enige die ons hier vervel**en**   1pl
       e.   Jullie zijn de enige die je hier verveelt/vervel**en**[7]   2pl
       f.   Zij zijn de enige die zich hier vervel**en**   3pl
            I am the only who me here bores (etc)
            'I am the one who gets bored'

(5)   a.   Ik ben de enige die **mijn** best doe**t**   1sg
       b.   Jij bent de enige die **je** best doe**t**   2sg
       c.   Hij is de enige die zijn best doe**t**   3sg.masc
       d.   Wij zijn de enige die **ons** best doe**n**   1pl
       e.   Jullie zijn de enige die **je** best doe**n**   2pl
       f.   Zij zijn de enige die hun best doe**n**   3pl
            I am the only who my best does
            'I am the only one that does my best'

In the next section, we present M&dS's exention of the Dutch data set.

4. Problems and Extensions
M&dS observe that the Dutch counterpart of the German example in (2a) is ungrammatical for many speakers of Dutch (including the present author), cf. (6).

(6)   Wij zijn de enigen die onze zoon verzorgen   *sloppy/nonsloppy
             we are the only who our son take.care.of
             'we are the only ones who take care of our son'

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[6] This shows up in Romance by using the bare article in these sloppy readings.

[7] Dutch uses the default form *je* in anaphoric context, beacause *jullie* resists anaphora. For a discussion: Postma (2006). The double verbal form *-t/-en* might be tied to this. Notice, however, that Standard Dutch *jullie* may take *-t* in AGR$_T$, never in AGR$_C$, where it is always *-en* (Postma 1012).

This is unexpected under Kratzer's theory, as Dutch verbs in 1pl and 3pl systematically exhibit syncretism when they sit in T, i.e. in embedded clauses in all verbs. This is true for all dialects.[8] So, on the point of the verbal inflection, there is no variation between Dutch speakers, but there is nevertheless variation in the sloppy readings. This suggests that the trigger for the sloppy reading does not sit in the verbal paradigm. Instead of resorting to statistical empirical methods as M&dS do, it is better to reflect on where the triggering factor can be found. Since these deviations from Kratzer's predictions only occur when the fake indexical is a possessive pronoun within a nominal group, we must look at the structure of the Dutch possessives. A proper analysis of Dutch possessive constructions will not only solve the problem of unexpected unavailability of sloppy readings in Dutch, it also solves the problem why English verbs unexpectedly permit sloppy readings.

Let us look more carefully to the German (2a) and the Dutch (6), which are word by word parallels. We repeat them for convenience without glosses in (7ab).

(7)   a   Wir sind die einzige, die unseren Sohn versorgen   sloppy/nonsloppy
      b   Wij zijn de enigen   die onze   zoon verzorgen   *sloppy/nonsloppy

Apart from some orthographic differences they seem to be quite similar. This picture, however, changes if we consider them into their paradigmatic dimension, as summarized in (8).

(8)   a   ich ... mein **-en** Sohn versorg-e   ik...   mijn **-ø** zoon verzorg-ø
      b   du ... dein **-en** Sohn versorg-st   jij ... je   **-ø** zoon verzorg-t
      c   er ... sein **-en** Sohn versorg-t   hij ... zijn **-ø** zoon verzorg-t
      d   wir ... unser**-en** Sohn versorg-**en**   wij ... onz **-e** zoon verzorg-**en**
      e   ihr ... eur **-en** Sohn versorg-t   jullie ...je **-ø** zoon verzorg-**en**
      f   Sie ... ihr **-en** Sohn versorg-**en**   zij ... hun **-ø** zoon verzorg-e**n**

In the verbal paradigm (*verzorg-* and its alternates), Dutch shows syncretism, much more than German. This would predict that Dutch has fake indexicals more easily, not less easily than German, contrary to fact. If we turn to the nominal domain, however, we see a difference. While German has *-en* all over the paradigm, Dutch has an *-e* inflection with 1pl possessive pronouns, and a zero-inflection in 3rd. We claim that it is precisely this difference that blocks fake indexicals in (7b). Before implementing the theory, we give some more data on Dutch. As we have seen from Rullmann's examples in (5), the nominal construction in (9a) *does* allow for fake indexicals in 1pl constructions. This variability made Maier & De Schepper resort to elicitation tests.

(9)   a   Wij zijn de enigen die ons-ø best doen   sloppy
          Zij zijn de enigen die hun–ø best doen
      b   Wij zijn de enigen die onz-e kinderen verzorgen   *sloppy/nonsloppy
          Zij zijn de enigen die hun-ø kinderen verzorgen

Crucially, there is 1pl-3pl syncretism in (9a): both the first person pronoun and the 3pl pronoun have zero inflection. This licenses the sloppy reading in (9a) and blocks it in (9b), in full compliance with Kratzer's theory.

Syncretism between 1pl and 3pl possessives applies in two cases in Standard Dutch. Firstly, it occurs when the noun has neuter gender. This is illustrated in (10-11) where we give the paradigm for the neuter *boek* 'book' (10a/11a) and the common *stad* 'town' (10b/11b). For the neuter

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[8] There is not always syncretism between 1pl and 3pl when the V sits in C, e.g. in the Amsterdam dialect in inversion contexts: *dan gane wij/dan gaan zij* 'then go we/they'.

there is zero-inflection in the entire paradigm.[9] With common nouns there is dismorphy: *hun-ø* versus *onz-e*.

(10) a. mijn boek.n   jouw boek.n   zijn/haar boek.n   hun boek.n
      b. mijn stad.c   jouw stad.c   zijn/haar stad.c   hun stad.c
          'my book/town'   'your book/town'   'his/her book/town'   'their book/town'

(11) a. ons boek.n
      b. **onze** stad.c
          'our book/town'

We cannot be sure what gender *best* in (9a) has, since it cannot be modified. It could be neuter.

The other context where syncretism between 1pl and 3pl occurs is in anaphoric contexts, even if the noun is common, such as *buik* 'belly, abdomen, womb', or *rug* 'back'. This is illustrated in (12).

(12) a   Als we pijn in **onze/ons** buik hebben, behandelt de arts **onze/*ons** buik
          if we pain in our   abdomen have,   treats   the doctor our abdomen
          'if we have pain in the abdomen, the doctor treats the abdomen'
      b   Dat kunnen we op ***onze/ons** buik schrijven
          that can   we on our   belly write
          'we can forget it'

In (12a) we have two instances of 'our abdomen', a bound and an unbound one. The first instance allows an optional drop of the -e inflection, probabaly because the context is amiguous between an anaphoric and a coreferential coindexation. The second instance where no antecedent is present, only the inflected form is licit. In (12b), which is an expression with obligatory binding, only the uninflected form *ons* is licit.[10] It is certain that the zero-inflection in Rullmann's examples in (5) realizes this context: it is an obligatory anaphoric context. As we have seen above, it is this inherent anaphoric nature that causes the sloppy reading. This was Kratzer's second ingredient: only with a minimal pronoun does the sloppy reading arise. Apparently, the predicate's reflexivity is not only marked abstractly by the lexicon, it has a morphological realization: null inflectional morphemes. Secondly: only if the possessive pronoun *ons* is with null inflection does invariance hold. This shows that Kratzer's invariance approach makes exactly the correct demarcation, when applied to the nominal domain.

5. Theoretical implementation
Let us therefore implement Kratzer's approach with more precision to the nominal domain. Consider the sentences in (13).

(13) a. *jij* bent <u>de enige</u> <u>die</u> t *je*   zoon goed verzorg-t   sloppy/nonsloppy
      b. *wij* zijn <u>de enigen</u> <u>die</u> t *onze* zoon goed verzorg-en   *sloppy/nonsloppy

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[9] For the sake of completeness, I note that the 1pl possessive is on a par with adjectives and quantifiers, not with the other possessives. We cannot use give this observation a place in this paper.

(i)   ons boek.n   een mooi boek   elk boek   menig boek
      onze stad.c   een **mooie** stad   **elke** stad   **menige** stad
      'our book/town'   'a nice book/town'   'each book/town'   'many a book/town'

[10] The inflected e-form is not ungrammatical upon the literary reading, which is rather far fetched.

The first step in extending the approach, is to apply the invariance under permutation not only on the foot of the gender chain (i.e. on *verzorgt/verzorgen*), but also on foot of the person chain (i.e. on *je/zijn* and *onze/hun*).

(14) a. jij ...   je   –ø zoon verzorg-**t**   (2sg↔3sg)
            ... ...   zijn -ø zoon verzorg-**t**
       b. wij ... onz -**e** zoon verzorg-**en**   (1pl↔3pl)
            ... ...   hun -**ø** zoon verzorg-**en**

In the verbal domain, we have the 2sg↔3sg permutation (-t↔-t) and the 1pl↔3pl permutation (-en↔-en) repectively. These are both lexically invariant. If we make the permutation under (1pl↔3pl) in the nominal domain, we get the spellout permutation (-ø↔-ø) for the (13a) construction, which is invariant, but (*-e↔-ø) for the construction in (13b), which is not invariant. The nominal domain, therefore, distinguishes the two constructions: only (13a=14a) allows for the sloppy reading. In general, sloppy readings are only possible upon invariance under permutations of both chains.

    Similarly, comparison of the Dutch and German contrast in (7) provides in the following permutations.

(15) a   wir ... unser -**en** Sohn versorg-**en**   1pl↔3pl
            ... ... ihr   -**en** Sohn versorg-**en**
       b   wij ... onz   -**e** zoon verzorg-**en**   *1pl↔3pl
            ... ...   hun   -**ø** zoon verzorg-**en**

Once again the verbal domain is not distinctive. In the nominal domain we get (-en↔-en) for German and (*-e↔-ø) for Dutch, whence the contrast in the sloppy reading in (7).

    Notice that applying the invariance on both the verbal and the nominal domain makes Kratzer's analysis more symmetrical. The feet of both chains must be invariant under permutation for sloppy readings to be possible. We therefore remove an imperfection from Kratzer's verbal approach. From her perspective, the foot of the person chain is part of the gender chain in the semantics but part of the person chain in its spellout. So at least this pronoun should be invariant. Why there should be invariance of *the element c-commanding it* (the foot of the gender chain) was less obvious. Kratzer assumes double feature spellout in v°, inserted in the base. Given the current analysis, it is much more natural: the feet of both chains must be invariant. As the sloppy reading is induced by the predicate's reflexivity, reflexivity involves the two feet and the (relative) minimality of the lower pronoun (the minimal pronoun) is retained.

    A second remark is in place. Notice that we should not apply the invariance calculus on the entire pronominal part, i.e. on the pronominal root. If we did, we would get the wrong predictions since neither German (***unser-en↔ihn-en***) nor Dutch (***onz-e↔hun-ø***) is invariant in the bold part (the root). We only want to count the inflectional endings: (-en↔-en) in German and (*-e↔-ø) in Dutch. Only when we **ignore** the "lexical" root of the elements even if they carry phi-features, correct predictions come out for Dutch and German in the nominal domain. We indicated between brackets, the part that is not visible at the interface or level of representation where the permutational invariance is calculated.

(16)   (mein)-en.1sg   (mijn)-ø.1sg
            (unser)-en.1pl   (ons) -e.1pl
            (ihr)   -en.3pl   (hun) -ø.3pl

Above, we concluded that the lexical part of phi-feature spellout does not count in the permutation procedure. Now this would solve a problem for English as well. As Kratzer already notices, English has a wider possibility of fake indexicals than its inflection would suggest, e.g. in rich paradigms such as *to be*.

(17)   I am the only one who is brushing my teeth   ??sloppy/nonsloppy

The *is* form is not permutable with the *am* form. However, if we take the verb *be* to be represented as in (18), just as we assume for German/Dutch nominal groups, we do not count these root alternates. Notice that which agreement is part of the root is an empirical question. It seems that even the -s part in productive verbs is lexical in English, not inflectional.

(18)   a   (I).1sg   (am)   -ø.1sg
        b   (you).2sg   (are)   -ø.2sg
        c   (he).3sg   (is)   -ø.3g
        d   (cook) -ø.1sg
        e   (cook) -ø.2sg
        f   (cooks)-ø.3sg

The bracketing in (16) and (18) is *de facto* a representation of what Kratzer's intuition of gender and person markedness in English, which seems a stipulation at first glance, but is a possibility universal grammar apparently allows for in view of (16). Without it, the German/Dutch data would not fall into place. Especially the bracketing in (18def) deserves some more discussion. How is it possible that the string ccoks is not visible for the syntax? Regularly infected verbs in English are certainly moprhologically composed, but this composition is not visable for the syntax or has not come about in the syntax. Now it is well-known that the English inflectional -s is not acquired in the syntax under verb movement (under a Pollockian morphosyntax) but is base inserted. This is the famous affix hopping rule of older generative syntax, and the late insertion approach in more modern versions of the grammar. In terms of valued and unvalued features, both strategies can be accommodated, i.e. the distinction between Dutch/German on one side, and English on the other is give in (19).

(19)   T   V
        a.   -t   loop-   (hij) kookt   Dutch
                valφ   _φ
        b.   -ø   walks   (he) cooks   English
                _φ   valφ

According to Boskovic (2007), the featural scheme high or low unvalued features defines the movement properties: the configuration in (19a) causes verb movement and the configuration in (19b) show *in situ* behaviour, typical for English.[11] This is identical to the claim that the verbal inflectional part in English *cooks* is not visible to the syntax, while the verbal inflectional part in Dutch *kookt* is.

7. Variational Semantics
Let s now return to the linguistic variation that M&dS report on. Consider again the sentence in (9b), repeated for convenience in (20).

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[11] Boskovic defines the EPP in terms of interpretatble and uninterpretable features. Our impleemntation uses valued and unvalued feautures.

(20)   Wij zijn de enigen die onze kinderen verzorgen   *sloppy/nonsloppy

The judgements are mine and confirmed by various Amsterdam-based colleagues. However, Crit Cremers (*pers. comm.*) finds the sloppy reading perfectly fine. It would be good to attribute this disagreement to some subtle linguistic variable. The present analysis tells us where to look: differences in the nominal domain. Now, Cremers is a native speaker of the dialect of Tegelen. This dialect is similar to German in that it has invariance within the nominal domain. In the case of kinship terms the possessors are uniformly zero-endings, as in (21a).[12] In other nouns they have endings in function of the gender of the noun, but they are always isomorphic (cf. 21b), just as in German.

(21) a   os-ø kinger   (ɔs kɪŋəɤ̞)   eur-ø kinger   (ɵːɤ̞ kɪŋəɤ̞)
            our children   their children
      b   oz-e knech   (ʊzə knɛ̝ˑxʲ)   eur-e knech   (ɵːʁə knæˑxʲ)
            'our servant'   'their servant'

It is well known that L1-settings can be active in bilingual speaker's L2-judgements. I, therefore, conjecture that some bilingual Dutch speakers generate the sloppy reading with a parallel dialect syntax. Where can we find those speakers? With the GTRP-morphological dialect database, present at the Meertens, it is possible to trace the dialectal variants that have the isomorphic system. We did a brief search using 'onze knecht' (item nr. 1784) and 'hun knecht' (item nr. 1787) and marked for all dialects if their inflections were equal or unequal.
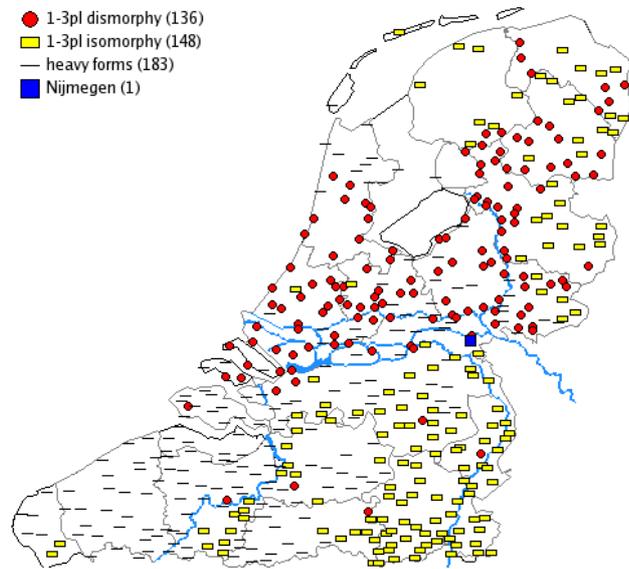
The results are given on the map below. We see that the Netherlands and Belgium are divided in three areas. A western area with the Standard Dutch system of possessive dismorphy between 1/3pl possessors (the red dots), an eastern area with German-type possessive isomorphy between 1/3pl possessors (the yellow blocks), and a southern area where the 3rd person pronouns are made with complex forms, as *hullie*, etc 'themguys' (the black dashes) (Flemish and Brabantish). We therefore predict that especially in the yellow area sloppy readings in sentences such as (13b) will be generated. As Nijmegen is on the border of the two dialect areas (the blue square close to where the Rhein River enters the country), and since Nijmegen University attracts students from both areas, it does not come as a surprise that the elicitation test carried out by M&dS, did not result in sharp demarcations.

8. Conclusion

We conclude that Kratzer's theory covers the entire realm of Dutch data. It provides evidence that full permutational invariance in two chains is a condition for sloppy readings. Kratzer's inflectional effect does not only hold in the verbal domain but also in the nominal domain. As a spin off, our

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[12] This seems to be a variant of the anaphoric effect present in Standard Dutch, discussed below (12). Kinship terms and body parts often behave as anaphors (Gueron 1985).

interface approach resolves a problem that sloppy readings are more wide-spread in English than its morphology seems to predict.

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