

A (Covert) Long Distance Anaphor in English

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1. Introduction

The empirical focus of this paper is the distribution of strict and sloppy interpretations of reflexive pronouns in comparative stripping. We present a set of new data which indicates that strict readings of reflexives in comparative stripping, while possible, are blocked when the subject of the comparative clause is a name or pronoun. We then show that the pattern of strict readings in comparatives mirrors the pattern of long-distance anaphora in Chinese; in particular, the contexts in which strict readings are impossible are strikingly similar to the environments in which long-distance anaphora is blocked. We therefore propose that strict readings of reflexives in comparatives involve binding of a long-distance anaphor from the subject position of the matrix clause. We explain the apparent absence of such an object in English by claiming that although the long-distance anaphor is a well-formed syntactic object, it has no morphological instantiation, and so cannot appear in a PF-representation without violating Full Interpretation. Such an object *can* appear in an elided constituent, however, because deletion of syntactic material in ellipsis bypasses the need for morphological realization.

2. The facts

In comparative stripping constructions with a reflexive pronoun in the antecedent clause, we find a difference in the availability of strict readings depending on whether the subject of the elided clause is a name or a definite description. Compare (1)a, which does not have a strict reading, with (1)b, which does.

- (1) a. Fred defended himself better than Barney.
 = better than Barney defended himself/*Fred
- b. Fred defended himself better than the court-appointed lawyer.
 = better than the court-appointed lawyer defended himself /Fred

This contrasts with comparatives involving VP-deletion, in which both the strict and sloppy readings are available:

- (2) a. Fred defended himself better than Barney did.
= better than Barney defended himself/Fred
- b. Fred defended himself better than the court-appointed lawyer did.
= better than the court-appointed lawyer defended himself/Fred

Restricting our attention to stripping for now, we see that pronouns and demonstratives pattern with names in allowing only sloppy readings.

- (3) a. d Fred defended himself better than you.
= better than you defended yourself/*Fred
- b. Fred defended himself better than that guy over there.
= better than that guy defended himself /*Fred

Quantified NPs pattern with definite descriptions in allowing either strict or sloppy readings:

- (4) a. Fred defended himself better than most of the lawyers.
= better than most of the lawyers defended themselves/Fred.
- b. Fred defended himself better than any of the lawyers.
= better than any of the lawyers defended themselves/Fred

In the absence of ellipsis, we find the expected locality effects on pronominals and anaphors. Independent of the content of the subject, the anaphor takes only a clausemate antecedent whereas the pronominal takes only the nonclausemate antecedent.

- (5) a. d Fred_i defended himself_i better than Barney_j defended himself_{j/*i}
- b. Fred_j defended himself_j better than Barney_j defended him_{i/*j}
- (6) a. d Fred_i defended himself_i better than the lawyer_j defended himself_{j/*i}
- b. Fred_i defended himself_i better than the lawyer_j defended him_{i/*j}

These facts can be summarized as follows. Given a reflexive pronoun in the main clause of a comparative, a strict interpretation of the corresponding object in the elided part of the *than*-clause is always possible under VP-deletion. A strict reading under stripping depends on the nature of the subject of the elided clause, however: the strict reading is blocked when the embedded subject is a name, pronoun, or demonstrative.

This generalization is reminiscent of the well-known blocking effect in Chinese long-distance anaphora (Cole, Hermon and Sung 1990). In

Chinese, binding of a reflexive by a nonlocal antecedent is blocked when an intervening subject has certain referential/formal properties (discussed in detail below). Our hypothesis for English is that the “missing” reflexive in the elided constituent is actually a long-distance anaphor, and the contrasts discussed above are due to “blocking effects” governing the binding of long-distance anaphors. In other words, the strict reading in comparative stripping arises when the elided anaphor is bound long-distance by the matrix subject; the sloppy reading arises when it is bound locally.

In the following section, we provide initial support for our hypothesis by reviewing the properties of the class of NPs that give rise to the blocking effect in Chinese long-distance anaphora and showing that strict readings in comparative stripping constructions are subject to the same effects. Then in section 4 we provide theoretical justification for this hypothesis, showing that it follows from independently motivated assumptions about the nature of morphological interpretation and the grammar of ellipsis.

3. A long-distance anaphor in English

We begin by reviewing six properties of long-distance anaphora in Chinese (Huang and Tang 1991, Cole, Hermon and Sung 1990, Cole and Sung 1994, Huang and Liu 2001). First, the anaphor *ziji* is not subject to the Specified Subject Condition, as illustrated in (7). Here, either the clausemate or matrix subject is a possible antecedent for *ziji*.

- (7) Lisi zhidao Zhangsan chang piping ziji
 Lisi know Zhangsan often criticize self
 ‘Lisi knows that Zhangsan often criticizes him/himself.’

In (8), we see that the long-distance anaphor takes only subjects as antecedents. The indirect object *Lisi* in (8) is not a possible antecedent.

- (8) Zhangsan song gei Lisi yi-zhang ziji-de xiangpian
 Zhangsan_i give to Lisi_j one-cl self_{i/*j}-de picture
 ‘Zhangsan gives Lisi a picture of himself (=Z/≠L).’

(9)a illustrates that long-distance anaphora is blocked for a third person antecedent if the intervening subject is first or second person. However, (9)b illustrates that a third person intervening subject does not block long-distance binding by a first or second person antecedent.

- (9) a. Zhangsan danxin wo/ni hui piping ziji
 Zhangsan worries I/you will criticize self
 ‘Zhangsan is worried that I/you will criticize myself/yourself/*him’

- b. wo/ni danxin Zhangsan hui piping ziji
 I/you worry Zhangsan will criticize self
 ‘I/you worry that Zhangsan will criticize himself/me/you.’

(10) shows that in logophoric contexts in which a nonsubject NP represents the point of view from which the sentence is reported, this NP can block long-distance binding even when it is not a potential antecedent (Sells 1987, Kuno 1972, Y. Huang 1984).

- (10) Zhangsan gaosu wo Lisi hen ziji
 Zhangsan tell me Lisi hate self
 ‘Zhangsan told me that Lisi hates himself/*me/*him.’

The fifth property of long-distance anaphora in Chinese is that a deictically identified third person subject blocks long-distance binding. In (11), the subject of the embedded clause is deictically identified (as indicated by the pointing finger) and induces blocking.

- (11) Zhangsan shuo **ta** qipian-le ziji (ta = deictic)
 Zhangsan say **he** cheat-perf self
 ‘Zhangsan said that HE cheated himself/*him.’

Finally, we see that a plural NP does not block long-distance binding by a singular antecedent whereas a singular antecedent does block long-distance binding by a plural antecedent.

- (12) a. Lisi zhidao tamen chang piping ziji
 Lisi know they often criticize self
 ‘Lisi knows that they often criticize themselves/him.’
 b. tamen zhidao Lisi chang piping ziji
 they know Lisi often criticize self
 ‘They know that Lisi often criticizes himself/*them.’

Returning now to English comparative stripping constructions, we see that these same six properties determine whether a strict reading is available for the elided reflexive. First, as in Chinese, the strict reading is not subject to the Specified Subject Condition. In order to see this effect, we consider an anaphor contained inside a picture-NP, as in (13).

- (13) John showed Mary someone’s picture of himself before the
 photographer.
 = before the p. showed M. someone’s picture of himself/him/John

The striking observation here is that in the antecedent clause, only the NP internal subject is a potential antecedent for the anaphor. However, in the elided clause the anaphor can be bound by any of the subject NPs in the sentence, including those that are outside of NP or outside of the clause containing the anaphor. If the elided anaphor is a long-distance reflexive like Chinese *ziji*, then we expect precisely these effects. On this view, the elided clause can be analyzed either as in (14)a or (14)b, where *ziji* is used to represent the hypothesized English LDA. In (14)b, binding by a subject NP outside of the NP containing the anaphor is expected.

- (14) a. ...before the photog [~~showed Mary someone's picture of himself~~]
 b. ...before the photog [~~showed Mary someone's picture of *ziji*~~]

Furthermore, like Chinese, only subjects are possible antecedents for the elided anaphor in English comparative stripping. The indirect object *Mary* is thus not a possible antecedent for the elided anaphor in (13), explaining the absence of a third potential interpretation for this sentence: *...before the photographer showed Mary someone's picture of her.*¹

We also find a person asymmetry in the availability of strict readings that parallels the person asymmetry in Chinese LDA. A non-third person subject of a stripped clause blocks the strict reading if the subject of the matrix clause is third person. However, if the subject of the stripped clause is third person and the matrix subject is non-third person, then the strict reading is available.

- (15) a. The lawyer defended himself better than you.
 = better than you defended yourself /*him
 b. You defended yourself better than the lawyer.
 = better than the lawyer defended himself /you

The fourth property of long-distance anaphora in Chinese also finds a parallel in the English data: nonsubjects can block strict readings even when they are not potential antecedents. Compare (16) with (13). Whereas in (13), the anaphor in the elided clause could be taken to be coreferential with

1. Note that the indirect object would be a potential antecedent for the English anaphor inside a picture NP if that picture NP had no subject.

(i) John gave Mary a picture of herself.

Thus, it is somewhat surprising that when binding out of NP is possible in ellipsis, only subjects are potential antecedents. Of course it is not surprising if we are correct in analyzing the elided anaphor as a long-distance anaphor.

an NP outside of the NP containing it, in apparent violation of the specified subject condition, when the indirect object represents the point of view from which the sentence is expressed, nonlocal binding is impossible:

- (16) John showed me someone's picture of himself before the photographer.
 = before the photographer showed me someone's picture of himself/
 *him/*me

With these observations in mind, we can now understand our original observation that names, pronouns and demonstratives, but not descriptions and quantificational NPs, block strict readings of reflexives in terms of the deixis constraint described above for Chinese: a deictically identified third person NP induces blocking effects.² Furthermore, just as there is a person asymmetry in blocking in Chinese long-distance anaphora, there is a person asymmetry in the availability of strict readings in English comparatives. A plural subject in an elided clause allows a strict reading when the matrix subject is singular whereas a singular subject in the elided clause does not allow a strict reading when the matrix subject is plural:

- (17) a. d Fred defended himself better than the lawyers.
 = better than the lawyers defended themselves /him
 b. The lawyers defended themselves better than the judge.
 = better than the judge defended himself /*them.

4. Licensing unpronounceable objects

4.1. Ellipsis and interpretive morphology

The facts discussed in the previous section led us to conclude that English has a long-distance anaphor among its inventory of anaphoric expressions, despite superficial evidence pointing to exactly the opposite conclusion – namely the apparent absence of an overt version of this object.

2. Potential further support for this view comes from the fact that when a name is used anaphorically rather than deictically, as in (ia), the blocking effect disappears: (ia) allows a strict reading of the reflexive. This does not seem to be true of pronouns, though, as shown by (ib), which has only a sloppy reading.

- (i) a. Barney is a real good lawyer, but on this particular occasion at least, Fred defended himself better than Barney.
 b. Wilma is a real good lawyer, but on this particular occasion, at least, Fred defended himself better than her/she.

What is special about the English LDA, then, is that it has the unusual restriction of appearing only in the context of ellipsis. Clearly, if this constraint must be stipulated, we will have failed to explain anything. We are therefore confronted with the following question: is there some principled reason that the English LDA is licensed only when it does not have to be pronounced?

In fact, this result follows from – and is arguably an inevitable consequence of – two independent assumptions about the structure of the grammar. The first is a common view of ellipsis, which is that it involves the deletion of some syntactic constituent (VP, IP or NP in English) under identity with some antecedent, where “identity” may be a structural/syntactic relation (as in Wasow 1972, Williams 1977, Fiengo & May 1994, Chung, McCloskey and Ladusaw 1995, etc.) or a logical/semantic one (as in Sag 1976, Rooth 1992, Merchant 1999, etc.).

The second is a particular view of the relation between syntax and morphology, in which the syntactic component of the grammar generates a set of ordered feature structures (PF representations) which are then “interpreted” by the morphological component, which associates each terminal node with an appropriate morphological value (Anderson 1992, Beard 1995, Halle and Marantz 1993, Bobaljik 1995, Noyer 1997, Lidz 1998). Within this framework, “deletion” may be construed either as an instruction to forego morphological insertion or as an operation that literally eliminates syntactic structure from the PF representation (see Merchant 1999 and Kennedy and Merchant 2000 for discussion; since this choice does not bear on the analysis here, we adopt the former view).

Crucially, either implementation of deletion has the consequence that constituents targeted for ellipsis are not interpreted at the PF-interface. (Indeed, this can be thought of as a definitional property of ellipsis: an elided constituent is a constituent that has an interpreted LF (a meaning) but does not have an interpreted PF (a pronunciation).) A result of these two assumptions, then, is that ellipsis should license certain “unpronounceable” objects: expressions that are syntactically well formed (i.e., generated by the combinatorial rules from the basic categories of the language) but have no morphological instantiations. Such objects should normally trigger a violation of Full Interpretation at PF, which requires all (PF/LF) symbols to have interpretations at the (PF/LF) interface levels (Chomsky 1995). However, when such an object is a component of an elided phrase, it would vacuously satisfy FI, since ellipsis (by definition) bypasses PF interpretation.

More generally, these two assumptions lead us to *expect* to find objects in ellipsis that have interpretations but do not have pronunciations. This is exactly the property we have assigned to the English LDA, but before we move to the discussion of this object, we first present some independent

evidence from attributive comparatives that this general view of the relation between ellipsis and morphology is correct.

4.2. Attributive comparative deletion

In comparatives involving attributive modifiers, comparative deletion (CD) cannot target just the AP in the comparative clause (Pilch 1965, Pinkham 1982, Kennedy and Merchant 2000):

- (18) a. *Erik drives a faster car than Polly drives a __ motorcycle.
 b. *Abby wrote a better novel than Ben wrote a __ play.

On the surface, this fact is unsurprising. Assuming the comparative clause involves A'-movement of a degree element from the CD site (see Ross 1967, Chomsky 1977 and many others), comparatives like those in (18) are structurally identical to questions like (19), and ungrammatical for the same reason: they violate Ross' (1967) Left Branch Constraint (LBC).³

- (19) *How fast does Erik drive a __ car? (cf. *how fast a car does Erik drive*)

What is surprising is that attributive comparatives in which a constituent containing the AP targeted by comparative deletion is elided are well-formed, a fact originally observed by Pinkham (1982). This is illustrated by the examples in (20), in which a DP, VP, and clausal constituent are elided, respectively.

- (20) a. Erik drives a faster car than Polly drives/does/said/Ø.
 b. Abby wrote a better novel than Ben wrote/did/ expected/Ø.

The examples present a puzzle. If the LBC reduces to the Empty Category Principle, as argued by Corver 1990 in one of the most well-developed attempts to bring Ross' constraint into a more general explanatory framework, and if the ECP holds at LF, then attributive CD *should be impossible in general*. At LF, the examples in (20) should be structurally identical to their ungrammatical counterparts in (18) and to the ungrammatical question in (19) (see Kennedy and Merchant 2000, especially fn. 5, for detailed justification of this claim). (20), for example,

3. Kennedy and Merchant 2000 provide cross-linguistic support for the general claim that these examples should be explained in terms of the LBC: in Czech and Polish, which allow extraction attributive APs in questions, exclamatives, etc., comparatives like (18) are well-formed; in Greek and Bulgarian, however, which do not allow extraction of attributive APs in questions, comparatives like (18) are impossible.

on the VP-deletion option, should have the LF in (21) (where *Op* corresponds to a moved AP or degree term).

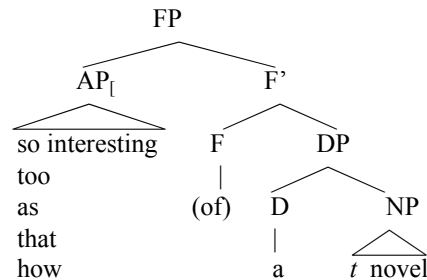
(21) Erik drives a faster car than [*Op*_{*i*} Polly does [_{VP} drive [_{NP} a *t*_{*i*} car]]]

The question is why does ellipsis “fix” structures that should be ill-formed?

Kennedy and Merchant 2000 (K&M) develop an answer to this question that crucially involves the sort of reasoning about the relation between ellipsis (qua deletion) and PF interpretation outlined in section 4.1. First, K&M argue that the LBC should not be reduced to the ECP, but rather reflects the action of a PF-constraint. Specifically, LBC effects are the result of a violation of Full Interpretation at PF, triggered when the syntax creates a feature combination in the nominal projection that has no morphological instantiation.

K&M provide three independent arguments that the syntax of the nominal projection in AP-inversion structures, which include cases in which the attributive modifier is headed by a *wh*-element, such as questions and comparatives, is as shown in (22). (Space prohibits discussion of the arguments here; see K&M 2000, pp. 124-130.)

(22) *The syntax of AP-inversion structures*



K&M further argue that LBC effects arise when a [+wh] AP undergoes inversion to SpecFP, passing its [+wh] feature to F⁰ via Spec-head agreement. According to K&M, English does not contain a morphological realization of the feature bundle corresponding to a [+wh] F⁰ head. As a result, a PF-representation that contains such an object violates FI, and structures like (23) are correctly predicted to be ungrammatical.

- (23) a. * [How fast]_[+wh] does Erik drive [_{FP} *t* [_F_[+wh] a *t* car]]?
 b. *Erik drives a faster car than [*Op*_[+wh] Polly drives [_{FP} *t* [_F_[+wh] a *t* motorcycle]]]

There are two ways to avoid the violation of FI triggered by the uninterpretable $[+wh]$ F^0 head, however. The first option is to pied-pipe FP, thus generating a configuration in which the $[+wh]$ feature can be deleted in SpecCP in the normal way. This results in the normal English word order for attributive adjective questions:

(24) $[_{FP}$ how fast $_{[-wh]} F_{[-wh]}$ a t car $]$ does Erik drive?

The second, and more interesting, option is to leave FP in situ, but to delete a constituent that contains it; i.e., to include FP in the target of ellipsis. This results in the various acceptable attributive comparative structures in (20) above, which are well-formed because the uninterpretable $[+wh]$ F^0 head is eliminated from the PF-representation.

This brief discussion necessarily omits several crucial empirical and theoretical details of K&M's argumentation (we therefore urge the skeptical reader to consult K&M), but it should be clear that the central component of the analysis is the claim that feature structures that are syntactically well-formed but have no morphological instantiation are possible in ellipsis (all other things being equal), since ellipsis bleeds violations of FI at PF. If this is correct, then we should be able to find further examples of phenomena in which ellipsis saves otherwise ill-formed structures, as in attributive comparative deletion. Merchant 1999 argues that the well-known ability of sluicing constructions to "escape" (some) island violations is one such case (see Ross 1969 and Chung et al. 1995); in the next section, we claim that the English long-distance anaphor is another.

4.3. The English long distance anaphor

Long-distance anaphors are not uncommon in the world's languages. Given that many languages have a full set of anaphoric expressions (pronouns, reflexives, reciprocals, LDAs) we might ask what is special about languages like English that lack one member of this set. One possible answer, if the inventory of anaphoric expressions is built from a universal inventory of basic features, is that in some languages (like English) the feature matrix corresponding to the LDA does not have a morphological instantiation. In such a language, PF representations containing the LDA feature complex violate Full Interpretation, and therefore all overt anaphoric expressions will be pronouns, reflexives or reciprocals.

Given the relation between ellipsis and morphology outlined in section 4.1, however, and taking the evidence from attributive comparatives into account, it also follows that the LDA feature matrix should be able to "appear" in ellipsis constructions, since ellipsis bypasses morphological instantiation. Assuming that the feature structures corresponding to local and long-distance anaphors count as identical for the purposes of licensing

ellipsis (see below), it follows that (25)b is a possible analysis for (25)a, where *ziji* represents the LDA feature structure. Since the constituent containing *ziji* is deleted, the FI violation that would result from trying to pronounce this PF is avoided, and the sentence is grammatical.

- (25) a. Fred defended himself better than NP.
 b. Fred defended himself better than NP ~~[defended *ziji*]~~
 c. Fred defended himself better than NP ~~[defended himself]~~

Like LDAs in other languages, the English LDA is subject to blocking effects, so whether long-distance binding is possible depends on properties of the intervening NP. As we have shown above, when the intervening NP is a description or a quantifier, long-distance binding by the matrix subject is possible, resulting in a strict interpretation. When the intervening NP is deictically identified, however, blocking effects arise, and long-distance binding of the anaphor is impossible. This leaves local binding as the only option, giving a sloppy reading. (The sloppy reading also arises when the elided constituent is analyzed as containing a local reflexive, as in (25)c, which is always possible.)

Before moving on to compare stripping with VP-deletion, we should mention two caveats. First, as noted above, it must be the case that a reflexive and a LDA count as identical for the purposes of deletion, but a reflexive (or LDA) and a pronoun do not. If the latter were the case, then we would expect strict readings of reflexives to be possible in general, as (26) would be a possible analysis of *Fred defended himself better than Barney*.

- (26) Fred_i defended himself_i better than Barney_j ~~[defended him_j]~~

We can achieve the desired result by assuming that reflexives and LDAs share a feature (e.g., [-referentially independent], as in Reinhart & Reuland 1993) that is not shared by pronouns ([+ref-indep] in R&R's terms), and that the identity condition in ellipsis is sensitive to this distinction (though see Fiengo and May 1994, pp. 205-208.)

A second caveat that must be added is that even if a reflexive and a LDA share certain features, it must not be the case that the feature content of the reflexive is a *subset* of the feature content of the LDA. If this were the case, then the elsewhere condition on lexical insertion (Halle and Marantz 1993) would allow us to associate the phonological matrix corresponding to the reflexive with the LDA feature structure, leading us to expect (erroneously) that long-distance binding of *himself* should be possible. It must therefore be the case that the reflexive and LDA disagree on some feature (the exact identity of which will depend on the underlying theory of the typology of anaphoric expressions).

5. Stripping vs. VP-deletion

The final question we need to answer concerns stripping vs. VP-deletion. As noted in section 2, comparatives involving VP-deletion differ from those involving stripping in licensing sloppy readings of reflexives regardless of the referential status of the embedded subject: both of the examples in (27) have strict readings.

- (27) a. Fred defended himself better than Barney/you/that guy did.
 b. Fred defended himself better than the court-appointed lawyer did.

The crucial example is (27)a. If the elided VP can be analyzed with a long-distance anaphor as in (28), which our analysis certainly predicts to be possible, then why isn't there a blocking effect triggered by the intervening name/pronoun/demonstrative? Why is the strict reading available here?

- (28) Fred defended himself better than B/him/that guy did [_{VP} defend ~~*z*~~]

Our answer is that there *is* a blocking effect in (28), and consequently this structure can only have the sloppy reading (though a strict reading would be possible if the subject were of the appropriate type). There is an alternative analysis of the examples in (27), however. As argued by Hestvik (1995), a strict interpretation of VP-deletion constructions like those in (27) can arise when the reflexive in the antecedent VP raises to an inflectional projection above VP and binds a variable in the adjunct clause, as in (29).

- (29) Fred_i [_{FP} himself_i [_{VP} [_{VP} defended *t_i*]] better than B_j did [_{VP} defend ~~*t_j*~~]

This structure involves ordinary variable binding, and so is not subject to blocking effects.

The Hestvik-style analysis is not possible in stripping constructions, however. Because the elided constituent in stripping is clausal, and therefore includes the inflectional projection(s), it must also include an occurrence of the raised reflexive in order to count as identical with the antecedent, as shown in (30), which has only a sloppy interpretation.

- (30) Fred_i [_{FP} himself_i [_{VP} [_{VP} defended *t_i*]] better than Barney_j [_{FP} ~~himself_j~~ [_{VP} defend ~~*t_j*~~]]

It follows that the only way to derive a strict reading is by analyzing the elided constituent as containing a long-distance anaphor. Stripping constructions should therefore always be subject to blocking effects.

To summarize, it is the availability of the alternative structure in (29) that explains the broader availability of strict readings in comparatives with

VP-deletion. More generally, the difference between stripping and VP-deletion with respect to the availability of strict readings follows from an independent syntactic difference between the two constructions in the category of the elided constituent: whether it is verbal or clausal. A corollary of this analysis is that strict readings of reflexives are crucially dependent on the *syntactic* properties of the elided and antecedent XPs, and not (just) on discourse coherence relations (as in Kehler 2000).

6. Conclusion

This paper has argued that the distribution of strict/sloppy readings in English comparative stripping constructions provides evidence for the existence of a long-distance anaphor in English which occurs only under ellipsis. The long-distance anaphor does not show up overtly, because English does not have a morphological realization of the feature combination corresponding to this object. The English LDA may appear in ellipsis, however, because it is precisely in ellipsis that morphological instantiation is not required. If correct, this analysis indicates that the set of feature structures generated by the syntax may be distinct from those that have corresponding vocabulary items: not every feature structure can be morphologically realized. This in turn leads to an even more important methodological conclusion: in order to identify a particular language's inventory of syntactic objects we must not only look at contexts where we expect them to be pronounced, we must also look at contexts where they don't have to be.

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