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What syntax doesn’t feed semantics
Fake indexicals as indexicals*

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Abstract. Argues that the first person pronoun is always directly referential, against more recent findings of Heim (1991, 2008), Kratzer (1998, 2008) and others. Shows how purported evidence of syntactically bound or ‘fake’ indexical \( I \), involving sloppy ellipsis and only, and de se attitude reporting can be reconciled with a strict Kaplanian semantics. Proposes alternative treatments of these phenomena that bypass the syntactic LF level, going straight from surface to semantics/pragmatics.

1 Introduction

Kaplan (1989) proposes an elegant way to reconcile the meaningfulness of \( I \) with its immunity to embedding and lack of propositional content. In his two-dimensional semantics indexicals are context-dependent and intensionally rigid, while descriptions carry intensional content (but are contextually inert):

\[
[I]_w^c = \text{the speaker of } c; ~ [\text{the speaker}]_w^c = \text{the speaker of } w.
\]

The semantics emerging from this distinction has proven very successful in analyzing such key notions of semantics as context-dependence, proposition, meaning and attitudes. I defend Kaplan’s analysis of \( I \) against the recently popular view of \( I \) as a syntactically bindable variable, like he.

That \( I \) resists binding by other speakers than the one uttering the very words, seems clear enough:

(1) Every speaker, has difficulty stopping when \( I \) should [Partee 1989]

But how about first person pronouns bound by other first person pronouns? At first sight, it may seems hard to distinguish variable binding from rigid coreference in such cases. But the linguistics literature provides a number of constructions supposed to tease them apart. Tests that indicate bound \( I \)s include sloppily bound first person pronouns under only and in ellipsis, and de se bound ones in first person attitude reports. I investigate the argumentation behind these tests, and argue that they provide insufficient basis for discarding Kaplan by proposing syntax-free alternative analyses that do not violate direct reference.

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This paper is structured as follows. In section 2 I start with the sloppy binding phenomena. After reviewing Heim’s original examples and line of argumentation, I first point out that her analysis depends on a rather questionable non-conservative quantifier only. Then I present my alternative accounts, starting with the higher-order unification account of ellipsis (following Dalrymple et al. 1991), and then applying that general mechanism in a focus-based account of only (following Pulman 1997). In section 3 I discuss the de re/de se ambiguity in first person reports. I first show how Heim uses Chierchia’s (1989) syntactic analysis to argue that the first person subject of a de se report is a bound variable. Then I again present a simpler, syntax-free alternative analysis (following Lewis 1979 and others). All three alternatives proposed in these sections however, seem to overgenerate sloppy and de se readings, for instance when coreferential names replace the pronouns. In section 4 I propose a pragmatic mechanism to keep this proliferation of sloppiness and de se in check.

2 Sloppy I under only and ellipsis

Kaplan’s analysis implies that when there are several occurrences of I (or its case forms me, my) in a sentence, each of them refers to the speaker. This is not true, 1st person pronouns are in fact just like 3rd person pronouns in that they can be interpreted as bound variables rather than referring terms. Thus, Heim (1991) initiates the attack on Kaplan. The crucial examples purported to bring out this bound variable behavior of the first person are:

(2) a. Only I did my homework [Heim 1991]  
    b. I did my homework, but my classmates didn’t [Heim 1991]

Both have two readings, a strict one, where nobody else did my homework, and a sloppy one, where nobody else did their own homework. Heim argues as follows: Logically, my in the sloppy reading of (2a) plays the role of a variable ranging over everybody in the domain. And in the sloppy reading of (2b), the elided VP (did their homework) can only be reconstructed from the source clause (=first clause), if that source already contained a bound variable my. As I will show, this argumentation depends on some non-trivial and unnecessarily limiting assumptions about the syntax/semantics of the constructions involved.

2.1 Only as a non-conservative quantifier?

One such assumption in Heim’s analysis of (2a) is that only is a quantifier:

(3) (only(i))(λx[did homework of (x,x)])

This logical form captures the sloppy reading, but to derive it from the surface requires non-trivial syntactic machinery: the possessive my can be bound by Ax because of feature agreement, since the abstracted x gets its features from the
quantifier *Only I*, which in turn inherits its from *I*. Note that the first person feature has thus become purely morphosyntactic, not semantic, as can be brought out by adding *x*’s alleged first person feature as a semantic condition (*x* = *i*) to the sloppy If in (3):

\[(4) \quad (\text{only}(i))(\lambda x [x = i \land \text{did\_homework\_of}(x,x)])\]

In words: ‘I am the only one who is a homework-maker that coincides with me’, which is a much weaker, nonsensical statement. We can attribute this problem to the fact that Heim’s quantifier *only* is *non-conservative*, i.e. *only*(X,Y) ≠ *only*(X,X∩Y), while conservativity is generally considered a global constraint on natural language quantifiers. I conclude that Heim’s analysis of (2) relies on the dubious assumptions that *only* is a non-conservative quantifier and that the first person feature of *I* is a purely morphosyntactic affair.

### 2.2 Sloppy ellipsis through higher-order unification

The argument from ellipsis, (2b), does not involve such a questionable quantifier, but similarly depends on a very syntactic conception (of ellipsis), in which the strict/sloppy ambiguity corresponds to an ambiguity in the source clause. I apply Dalrymple et al.’s (1991) semantic/pragmatic alternative based on Higher-Order Unification (henceforth HOU) to restore the transparent Kaplanian semantics of strict and sloppy *my* in (2b).

In the HOU account of ellipsis, the first conjunct gets a classic, compositional interpretation: *did\_homework\_of*(i,i). In the second conjunct *didn’t* introduces a free, 2nd order variable *P*, to be resolved by HOU at the next stage of interpretation. The compositionally derived ‘preliminary logical form’ of the entire sentence thus looks like:

\[(5) \quad \text{did\_homework\_of}(i,i) \land \forall x [\text{classmate}(x,i) \to \neg P(x)] \quad \text{[pre-Lf of (2b)]}\]

The next step is to determine what it is that the classmates didn’t do, i.e. to resolve *P*. This is done by first finding the parallel, contrasting elements in the two conjuncts. In this case, there’s a clear contrast: *my classmates* didn’t do *P* but *I* did. Moreover, it is stated that *I* did my homework, so we equate *I did P* with *I did my homework* to get a second-order matching equation:

\[(6) \quad P(i) = \text{did\_homework\_of}(i,i)\]

Among the unifying substitutions that solve this equation we find:

\[(7) \begin{align*}
a. \quad P & \rightarrow \lambda y [\text{did\_homework\_of}(y,y)] \\
b. \quad P & \rightarrow \lambda y [\text{did\_homework\_of}(y,i)]
\end{align*}\]

The last step is to apply these substitutions to the pre-Lf, deriving both the strict and the sloppy readings, without having to resort to ambiguity in the source clause or non-referential *my*:

\[(8) \quad \text{did\_homework\_of}(i,i) \land \forall x [\text{classmate}(x,i)]\]
2.3 Only as focus particle

Pulman (1997) extends the HOU analysis of ellipsis resolution to the interpretation of focus and focus particles like only. I apply a simplified version to Heim’s only example. The simplest account would be a full reduction, analyzing (2a) literally as (2b). However, (2b) asserts rather than presupposes, derives, or implicates that I did my homework. As the exact status of this information in (2a) is the subject of an ongoing debate that does not concern us here, it would be better to leave it unspecified (as Heim does too). This leads to the following analysis.

We assume that the focus is given (say, by intonation), in this case as I (If: i). Where there’s a focus, there’s also a background, and we are going to use HOU precisely to determine that background (B), because the asserted contribution of the only sentence depends on it: everybody distinct from the focus does not have the background property:

\[(9) \forall x [x \neq i \rightarrow \neg B(x)]\]  

(pre-lf of (2a))

The next step is to construct a suitable matching equation to solve B. We assume the sentence minus only \(\text{did\_homework\_of}(i, i)\) consists of the background applied to the focus, which gives rise to the following matching equation, unifying substitutions and outputs:

\[(10) B(i) \equiv \text{did\_homework\_of}(i, i)\]  

[cf. (6)]

\[a. \quad B \rightarrow \lambda y [\text{did\_homework\_of}(y, y)] \quad [\text{cf. (7a)}]\]

\[\sim \forall x [x \neq i \rightarrow \neg \text{did\_homework\_of}(x, x)] \quad [\text{cf. (8a)}, \text{sloppy}]\]

\[b. \quad B \rightarrow \lambda y [\text{did\_homework\_of}(y, i)] \quad [\text{cf. (7b)}]\]

\[\sim \forall x [x \neq i \rightarrow \neg \text{did\_homework\_of}(x, i)] \quad [\text{cf. (8a)}, \text{strict}]\]

Again, the semantic HOU approach allows my to be interpreted as a regular Kaplanian indexical (in the matching condition (10)), even in the derivation of the sloppy reading. Note also that the strict/sloppy ambiguity is no longer a matter of syntactic ambiguity, but rather of semantic underspecification inherent in HOU.

3 First person de re and de se belief reports

Heim’s (1991) next argument against rigid I involves first person belief reports in Kaplan’s mistaken self-identity scenario: Kaplan is thinking about the time he saw a guy on TV whose pants were on fire without him noticing it (yet). A second later he realized he was watching himself through the surveillance camera system and it was his own pants that were on fire. He reminisces:

\[(11) \quad \text{I thought I was at a safe distance from the fire}\]
What he thought at the time was “I am at a safe distance from the fire”, which makes (11) true de se (i.e. from a first person perspective). However, the coreferential first person report construction can also report a 3rd person de re belief that just happens to be about the subject himself:

(12) I thought that I was remarkably calm

The reported thought here must be something like “That guy is remarkably calm!” with that guy really referring to Kaplan, the belief subject himself.

### 3.1 From Chierchia’s ambiguity to Heim’s bound I

Chierchia (1989) postulates a syntactic/semantic ambiguity: the lf of (11) features a λ-abstractor binding the embedded I to turn the complement into a self-ascribed property (being at a safe distance from the fire):

\[
\text{Bel}_{i}^{\text{self-ascr}} \lambda x [\text{safe}(x)]
\]

In (12) on the other hand, the speaker simply believes the (singular) proposition expressed by the complement with its Kaplanian, rigid I:

\[
\text{Bel}_{i} [\text{calm}(i)]
\]

On this account, the de se reading of a first person report comes about by de-rigidifying and binding the embedded I. So, arguably, we have another example of a first person pronoun I interpreted not as a rigidly referential expression, but as a bound variable.

Note that the argument clearly depends on Chierchia’s analysis of the de re/de se distinction. Heim herself notices this dependence on Chierchia and, as counterargument, points out that one alternative, Higginbotham’s, also requires a nonstandard semantics of belief embedded I. As with the previous section’s bound I, however, there are perfectly viable alternatives that leave the Kaplanian semantics of I intact. In the next example I discuss a well-known unified analysis of de se and de re reports that fits the bill.

### 3.2 De re/de se unification through acquaintance relations

Based on Kaplan’s (1969) and Lewis’ (1979) work on de re and de se attitudes, Cresswell & Von Stechow (1982) reduce the semantics of de re and de se reports to ‘relational lfs’ featuring acquaintance relations as modes of presentation of the object of belief. Thus, coreferential reports (x believes that x is . . .) are underspecified for belief modality (de re or de se): a report like (11) or (12) is true if the belief in question is held under any acquaintance relation that holds

\footnote{For uniformity, note that belief in a proposition can be reduced to self-ascription of the property of inhabiting the worlds picked out by the proposition (Lewis 1979), so (14) may be paraphrased as \text{Bel}_{i}^{\text{self-ascr}} \lambda x [\text{calm}(i)]}
between matrix and embedded subject, where acquaintance relations can encode either the first person perspective ('de se') or any relevant second or third person one ('de re'). The lfs of both (11) and (12) are thus of the following form:

\[
\exists R(R(i, i) \land \text{Bel}^{\text{self-ascr}}_i \lambda x[P(y|R(x, y))]])
\]

Paraphrase: I was acquainted with myself in a certain way (R) and I believed (through property self-ascription) that whoever I was R-acquainted with had property \(P\).

The 'de se' reading of (11) is verified by taking \(R\) to be equality, the non-'de se' reading required for (12) to, say, \(R = \lambda x \lambda y[\text{see on tv}(x, y)]\). This immediately brings out one of the main advantages of this approach over Chiercha and Heim: we need not postulate a syntactic ambiguity in coreferential reports to get both 'de re' and pure 'de se' truth-conditions.

On the other hand, I am well aware that subsequent data on the 'de re'/'de se' distinction pose severe challenges for the relational approach (e.g. reports with PRO+infinitive, or only embedded reports), but also for the ambiguity approach (e.g. universally quantified reports). For an overview of these issues and a defense and further development of the relational approach I refer to Maier (2006).

For our purposes, the important thing to note is that on a relational analysis the embedded \(I\) is in effect moved outside the belief and represented logically as \(i\) (the second one in (15)'s \(R(i, i)\)), that is, as a standard Kaplanian indexical. Thus, we get representations that correctly predict the felicity of both (11) ('de se') and (12) ('de re') without giving up Kaplan's analysis of \(I\) as a rigid designator.

4 Overgenerating sloppy and 'de se' readings of coreferential proper names?

We have seen analyses of Heim’s sloppy 'only', sloppy ellipsis, and first person 'de se' examples where the first person is treated as a regular Kaplanian indexical, rather than as a bound variable. The proposed analyses relied solely on coreference of the first person forms to get both strict and sloppy, and 'de re' and 'de se' readings; no syntactic binding and accompanying ambiguity was required.

It has been objected\(^2\) that this overgenerates sloppy and 'de se' readings, in particular, when the pronouns are replaced with coreferring proper names. In this section I explore these objections and give counterarguments, first for the strict/sloppy examples, then for the 'de re'/'de se' reports.

4.1 How to avoid sloppy names

Replace the pronouns of Heim’s 'only' example (2) with coreferential proper names, which, like indexicals are usually analyzed as directly referential:

\(^2\) The problem of the overgeneration of sloppy readings was also raised by two of the referees. For 'de se' it has been noted by Chierchia (1989:22), cf. also Maier (2006:128–9) for further discussion.
The result is slightly odd due to a “Principle C effect”. Some context or just some extra stress on the first name will make such sentences perfectly felicitous. The relevant observation is that, if and when such sentences are felicitous they allow only a strict reading, that is, nobody else did John’s homework. This contrasts with Heim’s first person variant (2a), which also allows (and even prefers) a sloppy reading, where nobody else did their homework.

With ellipsis we find the same contrasts between coreferring names and indexicals:

(17)  John did John’s homework, (but) his classmates didn’t  [only strict]

The first clause is fine with some extra stress on either of the two Johns. The ellipsis however does not allow a sloppy reading, (which makes the contrastive but rather odd).

It seems that first person pronouns behave differently from names, the paradigm of direct reference. In allowing both strict and sloppy readings, I indeed patterns more with third person pronouns than with names:

(18)  John did his homework, but his classmates didn’t  [strict/sloppy]

This seems to directly support Heim’s claim, cited in section 2 above, that “1st person pronouns are in fact just like 3rd person pronouns [rather than like names]” against my claims to the contrary.

To answer this challenge, I propose a pragmatic account to block the sloppy readings that HOU indeed generates for any coreferring terms in constructions like the above. The crucial observation is that I differs from John, not in being a pronoun and thus allowing a non-referential interpretation, but in having no ‘lighter’ alternative means of expression. In other words, the highly marked principle C violating sentences have perfectly fine paraphrases with third person pronouns: (18) for (17), and (19) for (16).

(19)  Only John did his homework  [strict/sloppy]

To express the fact that the only student that did his homework was John (sloppy), a speaker generally prefers (19) over the repeated proper name (and that over variants with demonstratives or definite descriptions coreferring to John). If the speaker would nonetheless choose a ‘heavier’ (e.g. more content) or otherwise more ‘marked’ (e.g. Principle C violation) form, she must have some ulterior motive for choosing that form. What could be the motive for repeating the name? Apparently the speaker wants to emphasize that it’s John whose homework is under discussion, i.e., that it’s John’s homework that the others didn’t do—the strict reading. Thus, the very fact that the repeated coreferential name has a lighter pronominal alternative helps us to block the sloppy reading. For coreferential first person pronouns there is no easier alternative means of
expression. This explains why we find both strict and sloppy readings in Heim’s first person examples, but not with proper names.\(^3\)

Note that the same argument explains that, *a fortiori*, an even heavier coreferring term, such as a demonstrative or description, would have only a strict interpretation as well:

\[
\begin{align*}
(20) & \quad \text{a. Only John did that guy’s [pointing to John] homework [only strict]} \\
& \quad \text{b. I did that guy’s [pointing to myself on TV] homework, (but) my classmates didn’t [only strict]} \\
\end{align*}
\]

### 4.2 Blocking unwanted *de se* names

More or less the same argument and counterargument hold with the *de re/de se* examples. It has been noted many times that coreferring third person pronouns allow both *de re* and *de se*, just like the first person case in section 3:

\[
\begin{align*}
(21) & \quad \text{a. Kaplan thought he was at a safe distance from the fire [de se]} \\
& \quad \text{b. Kaplan thought he was remarkably calm [de re]} \\
\end{align*}
\]

With coreferential proper names, Chierchia (1989:22) claims, *de se* readings are unavailable:

\[
(22) \quad \#\text{Kaplan thought Kaplan was at a safe distance from the fire}
\]

The contrast between names and pronouns here is not as clear as in the previous subsection, but we’ll assume that Chierchia’s judgment is valid.

It seems that the unifying proposal of section 3.2 would indeed overgenerate a true reading for (22), as the logical form, (23), includes the possibility of an egocentric acquaintance relation of equality:

\[
(23) \quad \exists R(k,k) \land \text{Bel}_i^{\text{self-asr}} \lambda x [\text{safe}(y[R(x,y)])]
\]

The same pragmatic reasoning as in 4.1 can block out this *de se* possibility. The violation of Principle C in (22) indicates that the speaker must have wanted to emphasize that it’s Kaplan who was thought to be at a safe distance from the fire. This kind of emphasis seems appropriate only if the speaker wanted to report Kaplan as having a rather marked mistaken identity thought of the form “Kaplan is at a safe distance from the fire”. Such a thought however did not occur in the scenario described. What Kaplan thought was simply “I am at a safe distance from the fire”. Assuming that the marked/stressed name was meant to indicate that the name was a noteworthy constituent of the reported thought, we predict that (22) is indeed infelicitous in the given context. Again, in the first person case, there is no simpler alternative, which explains the difference between names and pronouns in allowing *de se* interpretations.

\(^3\) My pragmatic account predicts that in Motherese, Legalese and Lolspeak dialects, where certain repeated coreferential descriptions or names are unmarked, we would get sloppy readings: *Mommy can clap Mommy’s hands, can Baby do that too?*
The proposed account does one further prediction, namely that a repeated
proper name report doesn’t just block *de se*, it also blocks most *de re*
construals. In particular, though Kaplan does believe *de re* about himself that he was
remarkably calm, we cannot report this with (24a). If we want to use a name
or description rather than the unmarked, all-purpose (*de re/de se*) third person
pronoun, we have to use one that matches the actual acquaintance relation of
the belief reported, as in (24b):

(24) a. #Kaplan thought that Kaplan was remarkably calm
    b. Kaplan thought that the guy on TV was remarkably calm

As far as I can tell, this prediction is borne out. Moreover, there is nothing in
the syntactic Heim-Chierchia account to explain the contrast in (24), because
it concerns different referential terms for which that account only predicts the
absence of *de se* readings.

5 Conclusion

To account for sloppy and *de se* readings of the first person pronoun *I*, Heim
and others introduce a syntactic LF level, a non-conservative quantifier, and a
purely morphosyntactic first person. I claim that we can bypass the LF level and
go straight from the surface to the semantics. I’ve shown how Heim’s data are
captured by (i) a straightforward Kaplanian semantics of *I* as a rigid designator,
(ii) a simple analysis of *only* as a focus particle rather than a non-conservative
quantifier, (iii) a pragmatic account of ellipsis and focus relying on HOU to gen-
erate strict and sloppy readings, (iv) a unified analysis of *de re* and *de se* as
relational attitudes, and (v) a pragmatic mechanism of blocking by lexical alter-
natives to constrain the semantic overgeneration of sloppy and *de se* readings
for constructions with non-pronominal co-referential items.

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4 In fact, reports like (24b) with descriptions that match the reported belief’s content
as well as its ‘mode of presentation’ could well be classified as *de dicto* reports