First and Second Person Pronouns as Bound Variables

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Dechaine and Witschko (2002) argue that, in English, 1st and 2nd person pronouns belong to a different syntactic category than 3rd person pronouns. One of their main arguments is the claim that English 1st and 2nd person pronouns cannot be used as bound variables, unlike 3rd person pronouns. In this squib, I discuss data showing that English 1st and 2nd person pronouns actually do allow bound variable interpre-

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1 Dechaine and Witschko propose a new and very interesting typology of pronouns supported with observations from a wide variety of languages, arguing that pronouns fall into three different categories: pro-DP, pro-P, and pro-NP. They claim that in English, 1st and 2nd person pronouns are pro-DPs, whereas 3rd person pronouns are pro-Ps (see Ritter 1995 for a similar proposal), and since—according to them—DPs are R-expressions, English 1st and 2nd person pronouns cannot function as bound variables.
tations. In one set of cases, the pronoun’s person and number features appear to have no semantic import; these examples seem to involve purely syntactic agreement between the pronoun and its antecedent. A second set of cases points in the opposite direction; in these examples, the person and number features of the variable do play a crucial role in the semantics. The facts discussed in this squib therefore raise interesting theoretical questions about the nature of pronominal agreement and the semantics of the features person and number.\footnote{In addition to discussing sloppy identity readings of VP-deletion sentences (see below for comments), Déchaine and Wiltshko present two empirical arguments in support of their claim that 1st and 2nd person pronouns differ in syntactic category from 3rd person pronouns. The first argument is the observation that plural 1st and 2nd person pronouns can be used as determiners (\textit{we linguists, us linguists, you linguists}), whereas 3rd person pronouns cannot, at least not in standard varieties of English (*they linguists, *them linguists) (Postal 1966). However, this argument is not compelling because forms like *them linguists are actually found in many dialects of English, as Déchaine and Wiltshko acknowledge. Their second argument is the claim that only 3rd person pronouns participate in word formation. They cite attested compounds like \textit{he-man} or \textit{she-oak} and plurals like the \textit{hes}, contrasting these with supposedly impossible compounds like *\textit{me-male} and *\textit{you-goat}; however, they overlook such well-worn examples as \textit{the me-decade} (= the 1970s) and \textit{the me-generation}. A quick Internet search turned up many nonce formations of this type, including \textit{me-page, me-journalists, me-quilt, we-society, we-generation, you-factor, and you-section}. Note that in compounds both with 3rd person pronouns and with 1st and 2nd person pronouns, the pronoun has no deictic force; a \textit{he-man} is not a man who is related in some way to a certain contextually salient male individual, and similarly the \textit{me-decade} is not a decade that bears some relevant relation to the speaker. In compounds, therefore, the pronoun can contribute only whatever descriptive content is associated with it. Since the descriptive content of a 3rd person pronoun is its gender, that is what the pronoun contributes to the meaning of the compound as a whole (e.g., a \textit{he-goat} is a male goat and a \textit{he-man} is a very masculine or macho male). First and 2nd person pronouns, however, have no descriptive content in their ordinary deictic use (Kaplan 1989), and therefore their semantic contribution to a compound has to be of a more metaphorical nature; for instance, \textit{the me-decade} refers to the decade in which people (supposedly) only cared about themselves. As far as I am aware, there is no evidence for any morphological difference between the two types of compounds, nor is there any support for the idea that compounds with 1st or 2nd person pronouns can only be “phrasal compounds” as claimed by Déchaine and Wiltshko (2002:fn. 16).}

\section{Person and Number Agreement}

Kratzer (1998) discusses examples such as (1), which she attributes to Irene Heim.

(1) Only I got a question that I understood.

(1) has a reading on which the second occurrence of the pronoun \textit{I} functions as a bound variable. On this reading, the sentence expresses the proposition that the speaker of the sentence is the only person who has the property $\lambda x [x \text{ got a question that } x \text{ understood} ]$. Clearly, on
this interpretation the second occurrence of the pronoun is a bound variable, and not a deictic pronoun that refers to the speaker. (In this squib, I will use the term deictic in the sense that philosophers of language use the term indexical (Kaplan 1989); that is, an expression is deictic if its reference is determined by the utterance context.) The person feature of the second occurrence of I in (1) does not seem to play a role in its semantic interpretation; it is there merely because of agreement with its antecedent only I. Kratzer proposes that pronouns like this start out in the derivation as ‘zero’ pronouns, whose agreement features are filled in later, at PF. The general point that the person/number features of these pronouns are not semantically interpreted is independent of this specific implementation, however.

Bound variable readings can also be observed in examples such as (2a–b), in which plural 1st and 2nd person pronouns are bound by floating quantifiers.

(2) a. We all think we’re smart.
   b. You (guys) all think you’re smart.

Just like (1), these sentences are ambiguous between a variable and a nonvariable interpretation of the pronoun. The nonvariable reading of (2a) can be paraphrased as ‘Each of us thinks that we are smart’, which is represented quasi-formally in (3).

(3) $\forall x [x \in WE \rightarrow x \text{ thinks that } WE \text{ are smart}]$

Here, WE stands for the intended referent of the 1st person plural pronoun in the utterance context, some salient plurality that includes the speaker. On this reading, the second occurrence of we is deictic, just like the first occurrence. More important for present purposes is the bound variable reading of (2a), which can be paraphrased as ‘Each of us thinks that he/she is smart’.

(4) $\forall x [x \in WE \rightarrow x \text{ thinks that } x \text{ is smart}]$

On this reading, the second occurrence of we functions as an individual variable that is bound by the universal quantifier, and not as a deictic pronoun.

In the bound variable reading of (2a–b), it is not just the pronoun’s person feature that is irrelevant for its semantic interpretation, but also its plural number. The plural pronoun in the bound variable reading of (2a–b) represents a variable ranging over individuals rather than pluralities, as can clearly be seen in examples like (5) and (6).

(5) a. We each/all think we’re the smartest person in the world.
   b. #We’re the smartest person in the world.

(6) a. Al and I both believed we were going to be elected president.
   b. #We were going to be elected president.

In these sentences, the VP in the embedded clause can normally only
be predicated of a singular entity and not of a plurality, either for logical reasons (only one person can be the smartest person in the world), or owing to world knowledge (only one person can be elected president). Thus, the embedded clauses of these sentences are infelicitous in isolation, as seen in (5b) and (6b). The use of such predicates forces the bound variable reading, making (5a) and (6a) unambiguous.

Déchaine and Wiltschko’s main empirical argument for claiming that 1st and 2nd person pronouns cannot be interpreted as bound variables is that—according to them—in VP-deletion sentences, these pronouns do not admit a sloppy identity reading. As evidence, they cite (7) (their (40)), which they claim can have only the strict interpretation.

(7) I know that John saw me and Mary does too.

Whether the sloppy identity reading is indeed excluded here is not clear to me, but it does seem possible in other cases.3

(8) a. I got a question I understood, but John didn’t.
   b. I hope that I will win, but of course you do too.
   c. You may think you’re the smartest person in your class, but so do most of the other kids.

Although the judgments tend to be somewhat variable, my informants accept sloppy readings in these examples. Interestingly, Déchaine and Wiltschko claim that there is a crucial difference between English and French, in that French 1st and 2nd person pronouns do admit sloppy identity readings; they also note, though, that the judgments on the French equivalent of (7) vary from speaker to speaker. This strongly suggests that there is in fact no categorical difference between the two languages in this respect, and that sloppy identity readings of 1st and 2nd person pronouns are possible in principle in both languages, although individual speakers may differ in the extent to which they accept such examples.

In all the cases discussed in this section, the morphosyntactic person and number features of the bound variable pronouns do not seem to have any semantic import. These data suggest that bound variable pronouns have the person and number features they do solely because they must agree with their antecedent for purely syntactic reasons.

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3 In sentences like (7), sloppy identity readings do not seem to be impossible either, if we replace and by but and add some descriptive content favoring the intended interpretation, as for instance in (i) provided to me by Elizabeth Ritter. As an anonymous reviewer points out, even Déchaine and Wiltschko’s own example (7) is easier to interpret with a sloppy reading if and is replaced by but, as in (ii).

(i) I think I am John’s favorite ex-wife, but Mary does too.

(ii) I know that John saw me, but Mary does too.
2 Partial Binding

Another set of cases showing that 1st and 2nd person plural pronouns can function as bound variables consists of sentences in which the pronoun is bound by more than one antecedent. This type of sentence was first pointed out by Partee (1989), whose own example is cited below as (12). (See also Vallée 1996.) First consider (9a–d), in which a plural 1st or 2nd person pronoun has two singular antecedents.

(9) a. I told my wife we were late.
   b. I told you we were late.
   c. You told him that you (guys) were late.
   d. The woman I am dating wants us to get married.

In these and subsequent examples, I use the device of a set index introduced in Higginbotham 1983 and Sportiche 1985 to indicate the intended interpretation of a plural pronoun. The designated indices $S$ and $A$ stand for speaker and addressee, respectively, while arbitrarily chosen integers (1, 2, 3, ...) represent other individuals.

Since we can refer deictically to any group of people consisting of the speaker and one or more others (possibly including the addressee), and plural you can denote any group that includes the addressee and one or more others but not the speaker, examples like those in (9) could be explained as instances of “accidental” coreference, without positing a syntactic binding relation between the pronoun and its antecedents. More interesting are cases like the following, in which one of the antecedents is a quantifier.

(10) a. Every woman wants us to get married.
   b. Even in the middle of the divorce proceedings, each of my ex-wives pretended that we were a happy couple.
   c. Whenever I share an apartment with a woman, we end up arguing about housework.

(10a) has a reading in which us acts as a variable ranging over pairs of people one of whom is the speaker and the other of whom is a woman dated by the speaker. I will say that in such a case, us is “partially bound” by every woman in the sense that the choice of the woman in the pair covaries with the quantifier, whereas the choice of the other member of the pair (the speaker) is fixed and determined deictically. (11) is an informal attempt to represent this reading, where ME stands for the speaker.

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4 Some of these examples are easier to process when presented in an appropriate context that brings out the intended reading. Also note that in (10a), the presence of I in the sentence helps; it is much harder, if not impossible, to get the same reading for (i).

(i) ??Every woman wants us to get married.
(11) \( \forall x[\text{woman}(x) \land \text{date}(ME, x)] \rightarrow x \text{ wants } ME \text{ to get married} \)

(10b) has a similar reading, with \( we \) ranging over pairs consisting of the speaker and one of his ex-wives; note here that the predicate be a happy couple can only be true of pairs.

(10c) is a somewhat different case in which one of the antecedents of \( we \) is a non-c-commanding indefinite NP a woman. This is a “donkey sentence” in which the adverb always provides the quantificalional force for the indefinite. Partee’s (1989) example is a more complex instance of this kind (with the indexing added by me).

(12) John \( _2 \) often comes over for Sunday brunch. Whenever someone else \( _5 \) comes over too, \( we_{[S, 2, 5]} \) (all) end up playing trios.

(Otherwise \( we_{[S, 2]} \) play duets.)

Here, \( we \) acts as a variable ranging over triplets consisting of the speaker, John, and a third person. The referent of \( we \) is determined partly by the utterance context, partly by coreference with a linguistic antecedent (John), and partly by donkey anaphora to an indefinite noun phrase (someone else).

In (10a–c) and (12), the plural 1st person pronoun \( we \) ranges over pluralities consisting of the speaker and one or more others. Similar examples can be constructed in which \( we \) ranges over pluralities that contain not only the speaker, but also the addressee.

(13) a. Maybe you \( _{A} \) can come over this Sunday for brunch. If you \( _{A} \) bring a friend \( _{6} \), \( we_{[S, A, 6]} \) can play trios.

b. Every friend \( _{4} \) you \( _{A} \) bring over to my \( _{S} \) house insists that \( we_{[S, A, 4]} \) play trios.

It is also possible to construct sentences in which the 2nd person plural pronoun \( you \) is partially bound by a 3rd person quantifier and ranges over pluralities consisting of the addressee and one or more others (but not the speaker).\(^5\)

(14) a. Every woman \( _{4} \) you \( _{A} \) ever broke up with still thinks that you \( _{[A, 4]} \) (guys) were a happy couple.

b. Whenever John \( _{6} \) comes over to your \( _{A} \) house and brings a friend \( _{2} \), you \( _{[A, 2, 6]} \) (guys) can play trios.

In all these examples, the plural 1st or 2nd person pronoun is partly deictic and partly bound by a quantifier. Plural 1st and 2nd

\(^5\) Of course, partial binding is also possible with plural 3rd person pronouns, and just like \( we \) and plural \( you \), they can also act as a semantically singular bound variable.

(i) Every woman told her husband that they should invest in the stock market.

(ii) They all think they’re smart.

See Rullmann 2003 for an analysis of such 3rd person cases.
person pronouns may be thought of as having both a deictic and a nondeictic component (Nunberg 1993). What the cases of partial binding show is that the nondeictic component may be interpreted anaphorically (as in (9)), but also as a bound variable (as in sentences like (10) and (12)–(14)).

3 Discussion

Unlike the examples in section 1, the partial binding cases in section 2 cannot be handled with an agreement rule that simply copies or checks atomic features like [1st person] or [plural], because in these cases there is no single NP in the sentence that the pronoun agrees with in both person and number. What is needed is a rule saying in effect that, for instance, a pronoun must be 1st person plural if it is bound by two (or more) antecedents, at least one of which is 1st person, while the other(s) may be either 2nd or 3rd person. To implement this, I suggest that features such as [1st person] and [2nd person] should not be treated as atomic, but should be decomposed in terms of the more basic notions ‘‘speaker’’ and ‘‘addressee’’ (see Zwicky 1977, and more recently Dalrymple and Kaplan 2000 and Harley and Ritter 2002 for related proposals, motivated respectively by the resolution of the person feature in conjoined NPs and by crosslinguistic variation in the inventory of personal pronouns). Suppose that all pronouns start out the derivation without any person/number features (i.e., as zero pronouns in Kratzer’s sense), but with indices of the kind used in the above examples. We can then let the person and number of the pronoun be defined by its index, according to the following principles:

(15) If pro is a pronoun with an individual index $i$, then pro is singular and
   a. pro is 1st person (I) iff $i = S$;
   b. pro is 2nd person (you) iff $i = A$;
   c. pro is 3rd person (he/she/it) iff $i \in \{1, 2, 3, \ldots\}$.

(16) If pro is a pronoun with a set index $i$, then pro is plural and
   a. pro is 1st person (we) iff $S \subseteq i$;
   b. pro is 2nd person (you) iff $S \not\subseteq i$ and $A \subseteq i$;
   c. pro is 3rd person (they) iff $S \not\subseteq i$ and $A \not\subseteq i$.

(16) is essentially the person hierarchy proposed by Zwicky (1977). Note that, apart from bound variable readings, a principle like (16) is needed anyway to handle the choice among different plural pronouns when these are used purely deictically: we can refer to any plurality

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6 As suggested by a reviewer, this semantic fact about plural 1st and 2nd person pronouns may fruitfully be tied to their morphosyntactic structure. For instance, in Harley and Ritter’s (2002) theory the feature structure for pronouns contains separate ‘‘participant’’ (deictic) and ‘‘individuation’’ nodes (nondeictic), while in Déchaine and Wiltschko’s (2002) analysis 1st and 2nd person pronouns contain the heads D (deictic) and $\phi$ (nondeictic).
that includes the speaker, *you* (pl.) can refer to any plurality that includes the addressee but excludes the speaker, and *they* can refer to any plurality containing neither the speaker nor the addressee.

In the kind of account sketched here, “agreement” between a pronoun and its binder(s) is not simply a matter of copying or matching features; instead, it transparently reflects the semantics of person and number. Such a theory should be integrated with the important insights into the pragmatics of deictic reference found in Nunberg 1993. And if the indexing system is to be more than just a convenient notational convention, we need a model-theoretic semantics as well that can deal with set indices and partial binding by a quantifier. These are nontrivial issues, and I leave them for further research. (See Rullmann 2003 for an attempt to give a formal account for parallel cases involving plural 3rd person pronouns.)

Although this approach seems promising for dealing with the partial binding cases, it is not obvious how it should be extended to the examples from section 1, in which the pronoun’s person and number features appeared to be “invisible” for the semantics, as in the floating quantifier cases. This problem is particularly acute because the latter phenomenon can be combined with partial binding in one and the same sentence. Imagine John is in one room with all of his ex-wives, and he says to them:

(17) Even in the middle of the divorce proceedings, you all/each pretended that we were a happy couple.

Just like (10b), this sentence has a reading in which *we* ranges over pairs of individuals consisting of the speaker and one of his ex-wives.\(^7\) Whereas in the earlier examples of partial binding the variable part of the pronoun was always bound by a 3rd person antecedent and hence ranged over individuals who are neither speaker nor addressee, in (17) the variable part ranges over the addressees of the utterance. We might be able to handle this example by assuming that the index A, rather than always referring deictically to a single addressee, should be able to act as a variable ranging over a set of addressees (or the members of a contextually salient plurality that includes the addressee(s)). The sentence could then perhaps be indexed as in (18) (here

\(^7\) To add yet another twist, suppose again that John is in one room with all his ex-wives, but this time it is one of them who speaks to John, uttering (i).

(i) *For your sake, we all/each pretended that we were a happy couple.*

The intended reading here is one in which the first *we* refers to the ex-wives, but the second *we* is a variable ranging over pairs consisting of one of the ex-wives plus the addressee (“each of us pretended that she and you were a happy couple“). This example seems to be much harder to process than (17), probably because the intended reading requires each occurrence of *we* to be interpreted differently.
I have assigned the floating quantifier the index $A$ because it rather than the pronoun $you$ is the quantifier that partially binds $we$).\(^8\)

(18) You\(_{A,\ldots}\) all/each\(_A\) pretended that $we\{S,A\}$ were a happy couple.

Although an analysis along these lines might be worked out, it raises a new problem. If (18) is possible, then why don’t we get a similar bound variable reading for the index $S$ on $I$ in (19), which would make this sentence equivalent to *We all think we’re smart?*

(19) *We\(_{S,\ldots}\) all\(_S\) think $I_S$ am smart.*

It might seem attractive at this point to rule out (19) on the grounds that $I$ fails to agree in number with its antecedent $we$, but of course that would take us back to square one, because the data in section 2 show that there is no general agreement restriction of this kind on bound variable pronouns. I do not know how to solve this problem, but it reinforces my general point that we need an integrated theory of person/number agreement, variable binding, and deixis.

References


\(^8\) Another issue I leave unresolved here is whether in (18) plural $you$ should have a set index of the form $\{A, \ldots\}$, which means that the pronoun refers to some set including the addressee in accordance with (16), or whether plural $you$ should be allowed to have a simple index $A$; in the latter case, $A$ should be able to refer not only to a single addressee but also to a plurality of addressees. See also Rullmann 2003 for more discussion of the semantic status of indices on plural noun phrases.


Recent studies of the relationship between verbal morphology and syntax have led to two major approaches to verbal inflection in English. In one approach, proposed by Chomsky (1995), the inflectional morpheme is considered to be part of the verb that enters syntactic derivation. Thus, this approach claims that the finite verb enters syntactic derivation fully inflected and its inflectional features are licensed by a checking relation with the (abstract) functional head T. The other approach, argued for by Halle and Marantz (1993), Bobaljik (1994), and Lasnik (1995), claims that the finite verb is bare (uninflected) in syntax, with the inflectional morpheme located in T, and that the verbal root is merged with the inflectional morpheme in the phonological component (i.e., in the derivation from Spell-Out to PF) under the condition of adjacency.¹

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¹ Here we are concerned with main verbs. The treatment of auxiliaries differs among the advocates for the latter approach (see the works cited in the text). The advocates for both approaches all agree that whereas English main verbs stay within vP, English auxiliaries overtly raise to T, to account for the well-known differences between main verbs and auxiliaries in the language.