Indexicality, Logophoricity, and Plural Pronouns[1]

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0   Two Puzzles

Several languages, including Amharic (Semitic; Leslau 1995), Engenni (Kwa; Thomas 1978) and possibly Aghem (Bantu; Hyman 1979) display a curious pattern in which an indexical pronoun such as 'I' or 'you' can refer to the speaker or hearer of a *reported* speech act rather than of the actual discourse (see also Hale & Platero 1996 and Speas 1999 for related facts in Navajo). The following is an example from Amharic[2]:

(1)   *Situation*: John says: 'I am a hero'

   ǰon   ǰəgna   nə-ññ   yɨl -all
   John   hero   be.PF-1sO   3M.say-AUX.3M
   "John says that he is a hero"

No serious theoretical problem would arise if such examples could be explained away as instances of quotation. In some cases, however, such a strategy won't do, at least if quotation is taken to function as in English. Consider the following Amharic sentence, which involves a shifted 2nd person pronoun:

(2)   *min amt' -a   ind-al-ə -ññ   al-səmma-hu-mm*   (Leslau 1995 p. 779)
   what bring.IMPER-2M   COMP-say.PF-3M-1sO   NEG-hear.PF-1S-NEG
   'I didn't hear what he told me to bring' (lit. I didn't hear that he said to me bring what)

If the embedded clause had been quoted, the original discourse should have been of the form: 'bring what!'. However this is not the correct reading, as the translation shows (in fact, such a direct discourse would presumably be meaningless). Rather, the report means that he told me 'Bring X!', and I didn't hear what X was. The fact that there is an indirect question shows that the embedded clause is not quoted. Despite this, the embedded 2nd person pronoun can be evaluated with respect to the context of the reported speech act. A similar argument can be given concerning the following sentences from Aghem and Engenni:

(3)   a.wìzÍn 'vÚ   ndzÈ   à   wÍn   NÍ'á   **é**   Ngé   'lÍghá   **wò**
   [woman that]   said   to   him   [that   LOG-3   much   like   you]
       'the woman said to him that she liked him a lot', or
       'the woman said to him "I like you"'   [Aghem, Bantu; Hyman 1979]
   b. ò   wei   ga ...   bhú   tou   eì   ka   òkì nàà ìwó wu   zà
                            2-sub   3(-ref)-obj   3-ref-sub 2-obj
       he   say   [sp   you should-take him seq   he and you should-die stay]
       'He said, "Look after me, and I will die with you"' or
       'He said that she should look after him, and he would die with her'
                                                              [Engenni, Kwa; Thomas 1978]

In both cases one element of the embedded clause shows that indirect discourse rather than standard quotation is used: a logophoric pronoun appears in (3)a; and a 3rd person pronoun is used in (3)b to refer to the speaker of the reported speech act. Still, the object 2nd person pronoun in (3)a and the subject 2nd person pronoun in (3)b refer to the hearer of the *reported* speech act, something that could not, in English, happen in indirect discourse ('John told Mary that you are sick' cannot normally mean that John told Mary that *Mary* was sick).

These examples are difficult to classify, since they have properties both of direct and of indirect discourse (Thomas 1978 coins the term 'semi-indirect discourse' to describe them). One could attempt an analysis in terms of 'quotational intrusions', in the spirit of Recanati 2000. The idea would be that despite appearances it *is* possible, even in English, to quote a proper subpart of an embedded clause in indirect discourse. Recanati cites the following examples, from Cappelen & Lepore 1997:

(4)   a. My three-year old son believes that I am a 'philtosopher'.
        b. M. Greenspan said he agreed with Labor Secretary R. B. Reich 'on quite a lot of things'.
        Their accord on this issue, he said, has proved 'quite a surprise to both of us'.

In (4)a the word 'philtosopher' would seem to be part of the vocabulary of the believer rather of the speaker. And in (4)b the word 'us' denotes a group that includes the speaker of the reported speech act (=Greenspan) rather than of the actual speech act. Thus one could argue that the examples in (3) and (4) only involve a more radical variety of quotational intrusion than is commonly allowed in English. The grammar of quotational intrusion would presumably have to be parametrized across languages so as to account for the apparent differences between English and the languages cited above. But on the face of it such an attempt might be viable[3].

I will explore a different route, however, and leave it to the experts of the relevant languages to evaluate the competing proposals empirically. The above examples, I will argue, are standard cases of indirect discourse *without* any quotational intrusion. What is not 'standard', however, is the *scopal* behavior of certain lexical items. The English 1st person pronoun, I will suggest, bears a feature (call it -as a first approximation - +*actual*) which forces it to be evaluated with respect to the actual speech act. Being devoid of such a feature, the Amharic 1st person pronoun knows no such restriction, and can happily be evaluated with respect to the context of a reported speech act. This analysis makes the prediction that there could be pronouns that are specified for -*actual*, i.e. indexicals that may only be evaluated with respect to the context of a reported speech act, and never with respect to the actual speech act. I will argue that these pronouns are simply the logophoric elements that have been described by Clements 1975 for Ewe (Kwa), by Hyman & Comrie 1981 for Gokana (Benue-Congo), and by Frajzyngier 1993 for Mupun (Chadic) (see also Hagège 1974, Hyman 1979, Thomas 1978). As Clements (1975) described it, the logophoric pronoun "is used exclusively to designate the individual (other than the speaker) whose speech, thought, feelings, or general state of consciousness are reported or reflected in the linguistic context in which the pronoun occurs" (p. 141). Frajzyngier (1993) provides a similar characterization for his 'Set B' pronouns in Mupun. These must be used whenever coreference is intended between the embedded pronoun and the matrix agent of the report; a non-logophoric element yields a disjoint reference effect:

(5)   a.   wu   sat   nə   ɗi   nas   an
                  he$_1$ said   that   he-LOG$^B_1$ beat   me
        b.   wu   sat   nə   wu   nas   an
                  he$_1$ said   that   he$_2$ beat   me

Our goal, then, will be to provide a unified account of Amharic-style indexicals and of logophoric pronouns (a theory based on quotational intrusions could presumably not offer such a unification). We start by revisiting in some detail the morpho-semantics of indexical pronouns in English (Section 1). We then extend the analysis to the indexical pronouns of Amharic (Section 2), and finally to the logophoric elements of Mupun, Ewe and Gokana (Section 3).

1   Indexical Pronouns: Standard Cases

A powerful analysis of pronominal features was offered in Cooper 1983 (see also Heim & Kratzer 1998). Cooper followed Scott 1970 in assuming that pronouns are variables, which may be bound by a quantifier or left free. In the latter case their value is contextually supplied, and encoded in an assignment function (=an assignment of values to variables). Cooper's contribution was to add that pronominal features are *presuppositions* on the value of these variables. Suppose that s is a an assignment function which represents the referential intentions of the speaker. Cooper offers the following analysis, in which felicity and truth are relativized to s, as is usual in inductive truth definitions ['is felicitous$_s$' is thus shorthand for: 'is felicitous under the assignment s'; similarly 'is true$_s$' is the abbreviation of: 'is true under the assignment s']:

(6)   a. She$_i$ is clever.
    b. (a) is felicitous$_s$ iff s(i) is female. If so, (a) is true$_s$ iff s(i) is clever.

This simple account has desirable consequences when it is combined with a theory of presupposition projection. For instance it correctly predicts that '[Every director]$_i$ [t$_i$ likes her$_i$ mother]' should be felicitous if and only if every director in the domain of discourse is female (speakers of politically correct English may have more liberal judgments. French speakers may consider the sentence 'Chaque ministre pense qu'elle est très populaire', which to my ear has the desired presupposition). This is because a standard rule of presupposition projection in universally quantified structures requires that *every element that satisfies the restrictor* (here: 'director') *should also satisfy the presuppositions of the nuclear scope* (here: [t$_i$ likes her$_i$ mother]). In the case at hand this means that every director should be female, which is the desired result (see Heim 1983).

In this paper I will mostly concentrate on the simple cases, which involve unbound pronouns. Some cases of 'partial binding' will be explained as the account is developed, but I must leave the general analysis of indexical presuppositions of bound pronouns for another occasion. Finally, let me point out that the analysis to be developed here does not narrowly depend on the treatment of pronouns as bound variables. A number of researchers now believe that pronouns can sometimes go proxy for definite descriptions (e.g. Evans 1980; Heim 1990). If so the present account needs to be adapted but not radically modified. Variables should simply be replaced with definite descriptions, analyzed in a Strawsonian or Fregean fashion so as to allow for presupposition failure. Pronominal features will then appear in the restrictor of these descriptions, and they will trigger semantic failure when the conditions they impose are not met.

1.1 Singular indexical pronouns

Cooper's account of 'she' can be extended without difficulty to indexical features. Consider the pronoun 'you'. First, we observe that it too may function as a variable, as in the following example, where it must be bound in order to allow for a sloppy reading (different examples that make the same point are discussed in Heim 1991):

(7)   a. You did your homework and John did too (=John did his homework).
    b. You$_i$ λx$_k$ [x$_k$ did your$_k$ homework].

Given standard assumptions on ellipsis resolution, the availability of a bound reading in the elided conjunct indicates that the antecedent is itself interpreted on a bound reading. Further provisions have to be added to allow the 2nd person feature to be disregarded in the second conjunct (possibly because of 'vehicle change', a mechanism which allows certain features to be altered in the course of

ellipsis resolution)[4]. Still, the point remains that indexical pronouns may *sometimes* behave as variables. Positing that they *always* do provides a direct analysis of the following example, in which two occurrences of 'you' denote distinct individuals in one and the same sentence:

(8)   You$_i$ [pointing] are clever but you$_k$ [pointing again] are not.

Certainly it won't do to analyze 'you' as denoting the one and only hearer of the context, as there are clearly several hearers in this case. On a Cooperian treatment the problem disappears: the demonstrative component is provided by the context, as is the case with demonstrative pronouns quite generally (e.g. 'He [pointing] is clever, but he [pointing again] is not'). That the individuals that are pointed at should be hearers is now a *presupposition* of the sentence, which yields the following truth/felicity conditions (for ease of exposition I introduce in the object language a context variable c* which, by convention, denotes the context of the speech act):

(9)   (8) is felicitous$_s$ iff s(x$_i$) and s(x$_k$) are both hearers of s(c*). If so, it is true$_s$ iff s(x$_i$) is clever and s(x$_k$) is not clever.

The same account may be extended to 'I', except that due to the meaning of the presupposition the demonstrative component will typically be redundant. For whenever 'I' can be used felicitously it must refer to a speaker of the context; but each speech act has exactly one speaker, which makes any further specification idle. Apart from this minor difference, 'I' appears to behave in every respect as 'you'.

To take one more step, let us follow standard morphological practice and assume that pronouns are not atomic, but rather spell out bundles of person, gender and number features. In the syntactic component each feature receives either a positive or a negative value (in this sense syntactic nodes are 'fully specified'). On a late insertion view of morphology (e.g. Halle & Marantz 1994), lexical items are inserted after the syntactic computation proper, in the phonological component. They must express a subset of the features that are present in the syntax, though not necessarily all of them. This leads to all sorts of syncretisms, since feature bundles with a non-empty intersection may in principle be expressed by the same affix (in addition a default affix may be inserted in case no other affix is more highly specified and compatible with the features present in the syntax)[5]. We may then define 'I', 'you', 'he' and 'she' as expressing the following feature bundles (note that 'you' is underspecified for number, as is plausible in English):

(10)   /he/ <-> [-author*, -hearer*, +masculine, -plural]
       /she/ <-> [-author*, -hearer*, -masculine, -plural]
       /I/ <-> [+author*, -hearer*, -plural]
       /you/ <-> [-author*, +hearer*]

Our working assumption, then, is that what gets spelled out in a pronoun is not the variable itself, but rather (a subset of) the presupposed predicates that constrain its reference. In what follows I write presuppositions within curly brackets, and assume (as is standard) that the interpretive component has access to the syntactic rather than to the morphological representation. 'She' and 'you' may then receive the following syntactic, morphological and semantic analyses:

(11)   'she'
       a. *Syntax:* x$_i$ {-author*(x$_i$, c*) & -hearer*(x$_i$, c*) & -masculine(x$_i$) & -plural(x$_i$)}

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[4] See Heim 2002 for further considerations on this complex issue.

[5] In case several underspecified items can be inserted in the same syntactic node, the one which is most highly specified wins over its competitors in the insertion procedure. This mechanism is described by Halle (1997) under the name of 'Subset Principle':
"The phonological exponent of a Vocabulary item is inserted into a morpheme [=a node with a feature bundle -PS] if the item matches all or a subset of the grammatical features specified in the terminal morpheme [i.e. node -PS]. Insertion does not take place if the Vocabulary item contains features not present in the morpheme [i.e. node -PS]. Where several Vocabulary items meet the conditions for insertion, the item matching the greatest number of features specified in the terminal morpheme must be chosen."

b. *Morphology:* insert /she/ <-> [-author*, -hearer*, -masculine, -plural]
c. *Interpretation:* (a) is felicitous$_s$ iff s(x_i) is a female hearer of s(c*). If so, (a) denotes$_s$ s(x_i).

(12) 'you' (used to refer to a male hearer)
a. *Syntax:* x_i {-author*(x_i, c*) & +hearer*(x_i, c*) & +masculine(x_i) & -plural(x_i)}
b. *Morphology:* insert /you/ <-> [-author*, +hearer*]
c. *Interpretation:* (a) is felicitous$_s$ iff s(x_i) is a (male) hearer of s(c*). If so, (a) denotes$_s$ s(x_i).

The rules of semantic interpretation are now relatively straightforward. I assume an ontology of singular and plural individuals, with a part-of relation defined so that any individual is a part of itself (as is the case on mereological approaches). The general rule is that a variable with a presupposition is felicitous under an assignment (i.e. denotes anything at all) just in case the value it is assigned by the assignment satisfies the presupposition:

(13) $x_i\{\varphi\}$ is felicitous$_s$ iff φ is true$_s$. If so, $x_i\{\varphi\}$ denotes$_s$ s(i).

All that remains to be defined are the features themselves. A first approximation of their truth-conditions would be as follows:

(14) a. +author*(x_i, c*) is true$_s$ iff s(x_i) is the speaker of s(c*). Otherwise it is false$_s$.
b. +hearer*(x_i, c*) is true$_s$ iff s(x_i) is a hearer of s(c*). Otherwise it is false$_s$.
c. +masculine(x_i) is true$_s$ iff s(x_i) is male. Otherwise it is false$_s$.
d. +plural(x_i) is true$_s$ iff s(x_i) is a plural individual. Otherwise it is false$_s$.

Negative features can be given the same semantics, with a negation added in the right-hand side of the biconditional[6].

1.2 Plural indexical pronouns

1.2.1 Redefining the semantics of indexical features

The above account isn't optimal, however, because it doesn't easily extend to the case of plural indexical pronouns. There is ample *morphological* evidence that first person plural pronouns should sometimes be analyzed as the plural of first person pronouns. This is illustrated by the following paradigm from Mandarin, where plural pronouns are transparently derived from the singular pronouns with an added suffix, '-men' which *is* 'occasionally used to express plurality with nouns referring to people' [Li & Thompson 1981 p. 12]; in other cases Mandarin does not mark plurality):

(15)
I	**wo^3**	we	**wo^3-men**
you	**ni^3**	you-pl.	**ni^3-men**
he/she	**ta^1**	they	**ta^1-men**

Given the foregoing *semantics*, however, conjoining first person and plural features would only yield an expression which is presupposed to denote... a set of speakers. While this is a possible interpretation of 'we', it surely isn't the only one. The problem can be solved by modifying the rule of interpretation for first person features in such a way that it only requires that the speaker be *a part of* the individual which is denoted. In the singular, nothing will really change; for the only way for a singular individual to contain the speaker as a part is to *be* the speaker. But in the plural this system will yield the far weaker -and undoubtedly more correct- presupposition that the plural individual that is denoted should simply *include* the speaker. The new rules of interpretation for the positive features will thus look as follows:

(16) a. +author*(x_i, c*) is true$_s$ iff s(x_i) contains the speaker of s(c*). Otherwise it is false$_s$.
b. +hearer*(x_i, c*) is true$_s$ iff s(x_i) contains a hearer of s(c*). Otherwise it is false$_s$.

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[6] A more sophisticated treatment of negative features is offered in Schlenker 2002.

In the plural we now obtain the following feature combinations (I disregard gender):

(17)   a. -author*(x_i, c*) & -hearer*(x_i, c*) & +plural(x_i)   => 'they'
   b. +author*(x_i, c*) & -hearer*(x_i, c*) & +plural(x_i)   => exclusive 'we'
   c. +author*(x_i, c*) & +hearer*(x_i, c*) & +plural(x_i)   => inclusive 'we'
   d. -author*(x_i, c*) & +hearer*(x_i, c*) & +plural(x_i)   => you-pl.

(17)a defines 'they', b. defines exclusive 'we', c. defines inclusive 'we', and d. defines plural 'you'. No other possibilities are predicted to be possible in the syntax. As morphologists have often pointed out (e.g. Noyer 1997), this is a desirable result: no other combinations are morphologically realized. In particular, no language appears to distinguish between two kinds of 'you', one that includes only hearers while the other includes both hearers and other third persons (this distinction would be easy to define if there were a feature '3rd person'; the former case would come out as [+hearer, +3rd, +plural] while the latter would be [+hearer, -3rd, +plural]). By contrast, the inclusive/exclusive distinction is commonly realized in the first person plural, as predicted by the analysis: inclusive 'we' spells out the combination [+author*, +hearer*, +plural], while exclusive 'we' expresses [+author*, -hearer*, +plural]. It is also unsurprising that inclusive and exclusive 'we' should often syncretize, as is the case in English. For an underspecified entry /we/<->[+author*, +plural] may readily be defined, which can be inserted in both types of environments.

   This minor re-definition of the semantics of features turns out to be necessary in the case of gender as well. For in French the masculine plural pronoun 'ils' need not denote a group that only includes males; rather, the requirement is simply that at least *one* member of the group be male. This suggests for +*masculine* a semantics that is formally similar to that of +author*:

(18)   a. +masculine(x_i) is true$_s$ iff s(i) contains a male individual. Otherwise it is false$_s$.
   b. -masculine(x_i) is true$_s$ iff s(i) does not contain a male individual. Otherwise it is false$_s$.

In this case as well nothing really changes in the singular since the only way for a singular individual to contain a male part is to *be* male.

1.2.2   Partial Binding: Partee's Examples

   Having separated features from variables, we may further extend our mechanism to give an account of some puzzling data first discussed in Partee 1989:

(19)   John often comes over for Sunday brunch. Whenever someone else comes over too, we (all) end up playing trios. (Otherwise we play duets). [Partee 1989]

If one were to treat 'we' as denoting a fixed group of individuals that includes the speaker, the wrong truth-conditions would be predicted. For in this case 'we' means something like: 'I, John and *whoever else comes over too*'. To put it differently, 'we' appears to be partially bound by 'someone', even though it is still constrained to denote a group that includes the speaker. Since Partee's example involves both partial binding and donkey anaphora ('whenever someone...'), it will prove easier to deal with the following example, which only involves standard binding:

(20)   Each of my colleagues is so difficult that at some point or other we've had an argument.

Here too the pronoun 'we' appears to be *partly* bound by the quantifier 'each of my colleagues'; as before, however, its denotation must still include the speaker.

   This phenomenon is not unique to plural indexical pronouns. Similar cases can readily be constructed with third person plural pronouns. The same pattern is thus found with split antecedents:

(21)   [Talking about John] Each of his colleagues is so difficult that at some point or other they've had an argument.

Of particular interest are cases in which the two binders (or the binder and the contextually supplied referent) do not agree in gender. The following French example suggests that in such cases gender agreement is triggered by exactly the same rule as in the unbound case, i.e. the plural pronoun must

be masculine as soon as one member of the plural individual it denotes$_s$ (under an assignment s) is male; while feminine features appear just in case every member of the group is female:

(22) a. Chacune des anciennes copines de Jean était si embêtante que, à un moment ou à un autre,
    Each of-the former girlfriends of Jean was so annoying that, at a point or at another,
    'Each of Jean's former girlfriends was so annoying that, at some point or other, they had a
    *elles / ils se sont disputé(e)s.
    they-fem./they-masc. each-other are quarreled
    fight'
  b. Chacune des anciennes copines de Marie était si embêtante que, à un moment ou à un autre,
    Each of-the former girlfriends of Marie was so annoying that, at a point or at another,
    'Each of Marie's former girlfriends was so annoying that, at some point or other, they had a
    elles / *ils se sont disputé(e)s.
    *they-fem./*they-masc.   each-other are quarreled*
    fight'

Partee's facts are but a special case of this general pattern. Nothing special needs to be said about the feature +author*, which has its usual interpretation. The data can be explained if it is assumed that *variables may be conjoined in the syntax*. On the present approach there is no reason to exclude this possibility, since our working assumption is that pronouns express sets of features (predicates) rather than the variables they constraint. If sums of variables are allowed in the syntax, 'we' may spell-out any of the following configurations (I have represented a situation that corresponds to exclusive 'we'):

(23) a. $x_i\{$+author*(x_i, c^*) & -hearer*(x_i, c^*) & +plural$(x_i)\}$
    b. $x_i+x_k\{$+author*(x_i+x_k, c^*) & -hearer*(x_i+x_k, c^*) & +plural$(x_i+x_k)\}$
    c. $x_i+x_k+x_l\{$+author*$(x_i+x_k+x_l, c^*)$ & -hearer*$(x_i+x_k+x_l, c^*)$ & +plural$(x_i+x_k+x_l)\}$

Given the present ontology, we may simply assume that x_i+x_k denotes$_s$ the sum of the individual $s(x_i)$ and of the individual $s(x_k)$. The presuppositions are thus computed globally with respect to the denotation of the sum individual. Our version of Partee's example, as well as the French example with a plural 'ils', can then be represented roughly as follows (I omit gender in the first example):

(24) a. [$\forall x_i$: colleague(x_i)] argument$(x_i+x_k\{$+author*(x_i+x_k, c^*) & -hearer*(x_i+x_k, c^*) &
    +plural$(x_i+x_k)\})$
    b. [$\forall x_i$: girlfriend(x_i)] argument$(x_i+x_k\{$+masculine*(x_i+x_k, c^*) & -author*(x_i+x_k, c^*) & -
    hearer*(x_i+x_k, c^*) & +plural$(x_i+x_k)\})$

To this one could oppose an alternative theory, according to which each feature must constrain the denotation of a specific variable. This would give rise to representations such as the following:

(25) a. $x_i\{$+author*$(x_i, c^*)\}+x_k\{$-hearer*(x_k, c^*) & +plural$(x_k)\}$

While it is conceivable that this second mechanism is also available (the predictions are intricate and complex), it certainly cannot be the *only* one. For plural features must be allowed to apply globally to a sum of variables of cases of split antecedents:

(26) a. Each boy was so convincing to some girl he was dating that they ended up having an affair.
    b. [all x_i: boy(x_i)][some x_k: girl(x_k)](affair$(x_i+x_k\{$...+plural(x_i+x_k)...$\})$

Both x_i and x_k range over singular individuals, and it is only their sum which licenses plural marking. I will henceforth assume (pending further inquiry) that the same applies to all other features.

2 Shifted Indexicals

With this background in mind, let us go back to the case of non-standard indexicals in Amharic, Aghem and Engenni. They differ from their English counterparts in being allowed to be evaluated with respect to the context of a reported speech act. Why do English indexicals lack this

property? We will see that the answer is less trivial than it might appear, and we will develop a theory of indirect discourse and of indexical features that leaves room for language variation in this domain.

2.1 Why are indexicals rigid in English?

So why can't indexicals be evaluated with respect to a reported speech act in English? Why can't 'John says that I am a hero' mean that John claims to be in a context who speaker is a hero? Within our notational system, there is an easy answer: we have introduced context variables; but we haven't defined any operator that can manipulate them. Let us consider two (very conservative) theories of what indirect discourse operators do. According to Theory I, a verb such as 'say' manipulates a world variable. What is a world? A state of affairs, or a way things could be. But one that does not come with a 'point of view', so to speak. On this analysis contexts are strictly more fine-grained than possible worlds: to every context there corresponds a world, namely the world in which the speech act is taking place. But of course a variety of contexts correspond to the same possible world (for instance the context in which Bush addresses the American people and that in which Chirac addresses the French people are distinct, but they occur in the same world). Thus worlds and contexts are different kinds of objects. Suppose further that Theory I provides the following analysis: 'John says that p' is true just in case every world compatible with John's claim is one in which 'p' is true. More formally (and writing $s[w_i\text{->}w]$ for the assignment of values to variables which is identical to s, except that w is assigned to w_i):

(27)   *John says$_{w_i}$ that p* is true$_s$ iff every world w compatible with John's claim is such that *p* is

   true$_{s[w_i\text{->}w]}$

On such a theory it is unsurprising that indexicals should never be evaluated with respect to a reported context. Since every indexical is evaluated with respect to some context, and since attitude operators do not manipulate any context variable, how could indexicals be evaluated with respect to anything but the original value that was assigned to our one an only context variable, c*?

Consider now an alternative, which we'll call Theory II. Theory II posits exactly the same kind of semantic analysis for 'say' as Theory I, except that the parameter that gets manipulated is a context variable rather than a world variable. In this theory, then, *John says that p* is true iff every *context* compatible with John's claim is one in which p can be uttered truly. More formally:

(28)   *John says$_{c_i}$ that p* is true$_s$ iff every context c compatible with John's claim is such that *p* is

   true$_{s[c_i\text{->}c]}$ when uttered in c.

The difference between Theory I and Theory II is that Theory II allows indexicals to be evaluated with respect to a non-actual context when they appear in indirect discourse. This is obviously a desirable feature if one wishes to analyze Amharic-style indexicals, which can be evaluated with respect to the context of a reported speech act.

Is there any independent argument for deciding between the two theories? Surprisingly, there is. For on Theory I an attitude operator may not discriminate semantically between embedded clauses that are true in the same worlds. For Theory II, by contrast, two clauses that are true in the same worlds may still fail to hold of exactly the same *contexts,* and may thus be semantically distinguished. To be concrete, consider the sentence 'I am President' (uttered by me, P.S.) and the sentence 'P.S. is President'. Both are true in the same worlds, i.e. in those worlds in which P.S. is President. Still, they cannot be uttered truly in the same contexts. Even in those (distant) worlds in which P.S. is President, 'I am President' may not be uttered truly by Smith; but certainly Smith may in those worlds utter truly: 'P.S. is President'. Consider now the following examples, modeled after Morgan 1970 and Chierchia 1987:

(29)   a. Smith hopes to be elected.
        b. Smith hopes that he/Smith is elected.

In a situation in which Smith is a candidate in an election, but is drunk and observes a candidate which, unbeknownst to him, is Smith himself, it would seem that b. has a true reading but a. doesn't. The infinitive ('Control') structure appears to require that Smith's thought be of the form: 'I am elected', in the first person. As a result, precisely the sort of distinction that Theory I predicts to be impossible is in fact instantiated here. Thus even in English there appear to be arguments for a theory (such as Theory II) that allows a context parameter to be manipulated by indirect discourse verbs.

In this case it was the semantics alone that lead us to this conclusion. In other cases, however, the morphology is more generous. Consider for instance the following French examples, in which 'dans deux jours' ('in two days') contrasts minimally with 'après-demain' ('the day after tomorrow') in that the former but not the latter may be evaluated with respect to a reported speech act:

(30)   Jean m'a souvent promis qu'il me rendrait mon argent après demain / dans deux jours.
       Jean to-me has often promised that he to-me would-give-back my money the day after
       tomorrow/ in two day

'Après-demain' ('the day after tomorrow') displays the standard behavior of other French and English indexicals, and appears to be evaluated rigidly with respect to the context of the actual speech act. By contrast, 'dans deux jours' ('in two days') is more permissive, and can be evaluated both with respect to the actual speech act or with respect to the reported speech act, which in (30) yields the reading: 'Jean has often promised that he would give me my money back *two days after the time of his speech act*' (this reading is not possible with 'après-demain'). When other properties of 'dans deux jours' are investigated in greater detail, it appears to behave to a large extent like garden-variety indexicals, except in indirect discourse. This suggests that it *is* an indexical, with the only peculiarity that it may (like the Amharic 1st or 2nd person pronouns) be evaluated with respect to the context of a reported speech act. This can be explained easily if Theory II is correct, and indirect discourse verbs manipulate a context variable; Theory I is at a loss to explain such facts (see Schlenker 2002 for a more detailed study).

It appears, then, (i) that there is no deep reason why indexicals are always rigid in English, i.e. must always be evaluated with respect to the context of the actual speech act, and (ii) that in fact some indexicals are *not* rigid. Still, we must account for the fact that *some* indexicals are rigid Technically we may simply stipulate that a distinguished variable c^* represents the context of the actual speech act, while context variables introduced by indirect discourse operators take a different form, say c_i. But it remains to add that certain lexical items may depend only on c^*, while others are more liberal.

2.2 Features

How should these stipulations be encoded? We suggest that the features we have already used, namely ±author* and ±hearer*, are by definition predicates which may only take c^* as an argument (this is the reason these features bear a star, too). We now introduce two additional features, ±author and ±hearer, which have no such requirement. In other words, the predicate +author may as an argument either c^* or some other context variable, say c. Amharic 'I' will be specified as: +author, -hearer, -plural. English 'I' will be specified as: +author*, -hearer*, -plural

Let us consider in greater detail all the feature combinations that are possible in a clause embedded under 'John says$_c$ that __', where 'says' manipulates the context variable c (as usual- c^* is taken to denote the context of the actual speech act):

(31)   a. [+author*, +author] = author of the actual speech act
       +author*(x_i, c^*) & +author(x_i, c^*)   =   author of the actual speech act
       +author*(x_i, c^*) & +author(x_i, c)   =   <never obligatory>
       b. [-author*, +author] = author of a reported speech act
       -author*(x_i, c^*) & +author(x_i, c^*)   =   contradiction
       -author*(x_i, c^*) & +author(x_i, c)   =   author of a reported speech act

c. [+author*, -author] = author of the actual speech act but not author of a reported speech act
(might not exist)
+author*(x_i, c*) & -author(x_i, c*)   = contradiction
+author*(x_i, c*) & -author(x_i, c)   = author of the actual but not of a reported speech act
d. [-author*, -author] = non-author of the actual speech act
-author*(x_i, c*) & -author(x_i, c*)   =   non-author of the actual speech act.
-author*(x_i, c*) & -author(x_i, c)   =   <never obligatory>

For starred features, the context argument must by definition be c*. But for non-starred features no such requirement holds. As a result, there are in each case two possibilities to consider: the context argument may be c*, or it may be c. Furthermore, since a speaker who uses a given lexical item can choose any indexing possibilities compatible with the features of that item, only the more liberal of the two possibilities will make itself felt. For instance in (31)a +author* must (by definition) take as an argument c*; +author, by contrast, may take either c or c* as an argument. But since the speaker can always decide to choose c*, this makes the second feature semantically redundant; thus the only interpretive effect of this combination of features will be to force the pronoun on which they appear to denote the author of the actual speech act. By going through all possibilities, we obtain the results listed above.

Let us now consider the (potentially underspecified) lexical entries that might exist. These are all the combinations in the list above, as well as:
/+author*/, which would simply yield an English-style first person pronoun;
/+author/, which yields our beloved Amharic first person pronoun.
What about the other combinatorial possibilities? a. would be indistiguishable from an English-style first person pronoun. c. does not appear to exist, and unless this is proven wrong this is a defect of the analysis. On the other hand b. predicts a possibility which *is* instantiated, and is very common: that of logophoric pronouns, i.e. pronouns that are used to denote the speaker of a reported speech act but never that of the actual speech act.

3   Logophoric pronouns

3.1 The singular case

As noted in the Introduction, logophoric elements in Ewe and Gokana appear solely in indirect discourse, and normally denote the speaker or sometimes hearer of a reported speech act. Mupun displays roughly the same patterns, with a few idiosyncrasies that are discussed below. Logophoric elements do not normally appear to be constrained by locality conditions, and are thus sharply different from reflexive pronouns.

These facts follow if logophoric pronouns instantiate the combination [-author*, +author]. Because of the feature +author they must denote the author of some speech act. But due to the feature -author* this may not be the author of the actual speech act. As a result, logophoric pronouns may only appear when an indirect discourse verb manipulates a context variable. As a by-product, we also get an interesting prediction. Since by definition logophoric pronouns must be specified for [-author*, +author] it would seem that a logophoric element should not be allowed to denote the speaker of the actual speech act. For this would be a contradiction in terms: such a pronoun would have to spell-out the combination [-author* +author] to count as logophoric; but then the '-author*' feature would prevent it from denoting the author of the actual speech act. We derive in this way a typological generalization that appears to be relatively strong: there may not exist any logophoric pronouns that denote the author of the actual speech act. Roncador 1988, who provides a survey of the literature, notes only two apparent exceptions to this general absence: Ngbaka, for which he claims that the descriptions are contradictory; and Gokana, where the logophoric agreement marker can in principle be applied to all persons. For Gokana Roncador relies on the description of Hyman

& Comrie 1981. The latter point out, however, that although logophoric marking is morphologically possible in the first person, it is 'dispreferred', so that (32)b is degraded by comparison with (32)a:

(32) Gokana (Hyman & Comrie's (11))

    a. Ok: mm̀   kɔ   mm̀   dɔ̀
                          I   *said*   *I*   *fell*

    b. 'Dispreferred to [a]':   mm̀   kɔ   mm̀   dɔ̀-ɛ̀
                          I   *said*   *I*   *fell-LOG*

The fact that (32)b appears to be relatively degraded is all the more striking since in the other persons logophoric marking is *preferred* whenever it is possible; the opposite pattern is thus found in the first person[7]. Although far more fieldwork is needed to confirm these data, I take this to be preliminary evidence in favor of the proposed theory.

      One final point is in order. Just as the combination [-author*, +author] defines a pronoun which may only denote the speaker of a reported speech act, [-hearer*, +hearer] suffices to define a pronoun that may only denote the *hearer* of a reported speech act. Such addressee-denoting logophoric pronouns appear to exist in Mupun according to Frayzingier (Frayzingier 1985, 1993). Alongside Frayzingier's 'Set B' pronouns, which behave much like logophoric elements in Ewe and Gokana, there exist 'Set C' pronouns, which must be used whenever 'the third person pronouns in the embedded clause refer to the addressee rather than to the speaker of the main clause (in the following, from Frajzyngier 1993 p. 113, I indicate nothing for Set A pronouns, LOG^B for Set B and LOG^C for Set C pronouns):

(33) a. n-sat n-wur   nə   wur   ji
      I-say *PREP-him*   *COMP* *he*   *come*
    'I told him$_1$ that he$_2$ should come'

    b. n-sat n-wur   nə   gwar   ji
      I-say *PREP-him*   *COMP* *he-LOG^C*   *come*
    'I told him$_1$ that he$_1$ should come'

The simplest assumption would be that Set C pronouns are simply specified for the features [-hearer* +hearer] (Set B pronouns, the standard logophoric elements, are specified for the features [-author* +author]). Unfortunately, this does not appear to quite fit the data. For Set C pronouns can also be used to refer to non-addressees in a clause embedded under 'say' (in such cases Set C pronouns are in free variation with Set A pronouns, i.e. with the non-logophoric forms). This is illustrated in the following example (Frajzyngier 1993 p. 115):

(34) wu   sat   nə   gwar / wu   ta   ɗee   n-jos
    he   *say*   *COMP* *he-LOG^C/he* *stop*   *stay*   *PREP-Jos*
    'He$_1$ said that he$_2$ stopped at Jos'

This would certainly appear to be inconsistent with a specification [-hearer* +hearer], which would force Set C pronouns to denote only the hearer of a reported speech act. How these data should be accounted for is unclear, and is left here as an open problem. [8]

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[7] Hyman & Comrie 1981 and Roncador 1988 give a functional explanation of this asymmetry.

[8] I should mention that the distribution of logophoric pronouns in Mupun is puzzling in another respect. As Frajzyngier (1993) reports, logophoric elements are sometimes found in environments that do not appear to be reportive contexts at all:

(1) a. kat la reep ɓeer am   kaa la mis ɓe la mis nə   man nə   paa pə dem ɗin mənə
    if girl pour water on boy CONS boy DEF know COMP she-LOG^B PREP like him-LOG-B then
    'If a girl pours water on the young man, then he knows that she loves him'
    b. wu   le   kɔ́   namwes cet mbise   ɗi   n-ɗin
    he$_1$ made   COMP   Namwes cook   food   COMP   PREP-him$_1$-LOG^B
    'He$_1$ made Namwes cook for him$_1$'.

3.2 The plural case

As Frajzyngier 1993 observes, the Mupun logophoric system 'makes explicit whether or not third person singular is a part of the set referred to by the third person plural', as in the following:

(35) a. wu   sat   nə   n   nas   mo
        he₁   said   that   I   beat   them₂ (i.e. he₁ is not part of them₂)
     b. wu   sat   nə   n   nas   ɗun
        he₁   said   that   I   beat   them-LOG^B ₁ (i.e. he₁ is not part of them₂)

Frajzyngier notes, however, that 'when the subject of the matrix clause is plural and the subject of the embedded clause is singular, the distinction between logophoric and non-logophoric reference is neutralized'. The non-logophoric form is apparently used even when the subject of the matrix clause and the embedded pronoun are non-disjoint in reference[9].:

(36) mo   sat   nə   wur   mbə   yol   kwat   lusim
     they   said   that   he   FUT   go   hunt   lepoard
     'They said that he will go to hunt a leopard'

(Similar facts are noted for Gokana by Hyman & Comrie 1981 and for Ewe by Clements 1975.)

How should this asymmetry be explained? The facts in (35) are unsurprising from the present perspective if the feature +*author* is given the same semantics as its starred counterpart +*author**, i.e. if it indicates that the author of a speech act (whether actual or reported) is *included* in the denotation of the relevant variable. This is nothing but the counterpart in indirect discourse of the observation we made for English 'we', namely that its only requirement is that it should include the speaker. By contrast, logophoric marking could not be used in (36), for it would force the denotation of the embedded pronoun to include the speaker of each of the reported speech acts, so to speak; which is not the intended reading (this would force a situation described by: 'They each said: 'I/we will go hunt a leopard''). Thus the present analysis would seem to provide an initial account of the noted asymmetry.[10]

Obviously much more remains to be done. Some of the crucial data are simply not well established at this point. Theoretically-informed fieldwork on Amharic, Aghem, and Engenni indexicals would be highly desirable. Similarly it would be very interesting to study in greater detail the apparent person asymmetries that are found in logophoric systems; and the phenomenon of addressee-denoting logophoric pronouns in Mupun would certainly deserve closer scrutiny. While the present study did not contribute much to the empirical side of the discussion, I hope it will have hinted at the potential fruitfulness of a closer interaction between theoretical work in semantics and cross-linguistic research.

Frajzyngier comments that 'the hypothetical event' in a. 'is treated as an event that belongs to the domain de dicto rather than de re, hence the participants are referred to through logophoric pronouns'; similarly for b. he suggests that 'the causative constructions are conceptualized as involving in one way or another a process of speaking'. These facts are puzzling because the distribution of logophoric pronouns is otherwise restricted; in particular, logophoric elements do not appear to be licensed in every modal context. Why are *these* modal contexts different, even though they do not seem to be reportive in any clear sense?

[9] There is apparently a typo in Frajzyingier's description. He writes (p. 110) that in this case 'the subject of the matrix clause may, but does not have to, be properly included in the subject of the main clause'. I assume that he means that the subject of the *embedded* clause need not be included in the subject of the main clause.

[10] Kratzer 1997 describes similar facts for inclusive 'man' in German. She observes that 'man' can be plural, but must always include the speaker of the actual or of the reported speech act. She proposes a semantic decomposition into two parts: one element, MAN, denotes the speaker of a context; while the other, IN (an inclusive marker) denotes a function which associates to an individual a 'the group of a'.

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