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## ANAPHORIC INDICES AND INALIENABLE POSSESSION IN BRAZILIAN PORTUGUESE

Daniel Everett

In this squib, I want to draw attention to some previously unnoticed but intriguing facts about inalienably possessed NPs (INPs) in Brazilian Portuguese (BP). I argue that these differ from both pronouns and anaphors in that (i) they must always be c-commanded in their minimal Complete Functional Complex (CFC) by an argument with an independent  $\theta$ -role and (ii) the Binding Theory (BT) applies to IPNPs algorithmically: first the BT attempts to treat them as anaphors; if successful, the BT is satisfied; if not, then it treats them as pronouns<sup>1</sup>. First, let us examine the evidence for (i).

IPNPs are like anaphors in that they may not appear as unaccusative subjects, (1) and (2). Unlike anaphors, however, they may appear as passive subjects, (3):

(1) \*Se chegou. (reflexive in unaccusative construction)  
'Self arrived.'

(2) \*A (sua) perna de (Sérgio)  $\left\{ \begin{array}{l} \text{operou} \\ \text{quemou} \\ \text{quebrou} \end{array} \right\}$  (por João).<sup>2</sup>

'The (3rd person's/Sérgio's) leg  $\left\{ \begin{array}{l} \text{operated on} \\ \text{burned} \\ \text{broken} \end{array} \right\}$  (by John).'

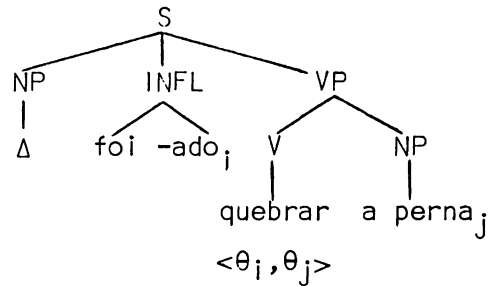
(3) a. A perna (de Sérgio) foi operada/etc. (por João).  
'The (Sérgio's) leg was operated on/etc. (by John).'

b. \*Se foi operado.  
'Self was operated on.'

If IPNPs and reflexives are both anaphors, (1) and (2) are expected since there is no c-commanding antecedent available in unaccusative constructions. But, if both are anaphors, why may inalienably possessed forms (3a), but not reflexives (3b) appear as passive subjects? The answer is that IPNPs and reflexives are not exactly alike: whereas reflexives, as anaphors, require an antecedent (in the appropriate domain, see (7) below), IPNPs merely need to be c-commanded by an argument.

To see how this applies to (1)-(3), recall how the passive differs from unaccusatives. Some researchers, e.g. Baker (1988) and Everett (1986), have argued that the passive morpheme, -ado in BP, is an argument, generated under INFL, receiving the external  $\theta$ -role of the verb, as in (4):

(4)



Given (4) and the stipulation that IPNPs in BP must be c-commanded in their minimal CFC by an argument with an independent  $\theta$ -role, we account for the contrasts in (1)-(3). The CFC of an unaccusative verb will not contain a c-commanding NP for its subject but the CFC of a passive will. Note that the reference to CFC is crucial:

(5) \*João disse [que a (sua) perna (de Sérgio) quebrou].  
'John said that the (his/Sérgio's) leg broke.'

In (5) João c-commands perna 'leg', but the example is still ungrammatical since João occurs outside the CFC of perna. As shown, the appearance of an optional possessor is not enough to satisfy the CFC requirement, whether the possessor is pre- or postnominal. This results from the fact that the IPNP as a whole must be c-commanded. Although a possessor c-commands its head, it does not c-command the IPNP which dominates it, failing to save the structure. How can this requirement be formalized? I submit that a means is already available, namely, anaphoric indices.

In Chomsky (1980), two types of nominal indices were distinguished: the referential index, which indicated the reference of the NP bearing it, and the anaphoric index, the set of referential indices of those NPs c-commanding the NP in question. For example:

(6) John<sub>i</sub> said that Bill<sub>j{i}</sub> hit him<sub>k{i,j}</sub>.

Since no NP c-commands John, it bears no anaphoric index. Bill's anaphoric index contains the referential index of John, which c-commands it. Likewise, him contains in its anaphoric index the referential indices of John and Bill, both of which c-command it. Chomsky (1980) proposed to account for the binding properties of sentences via the interaction between referential and anaphoric indices.

After Chomsky (1981), however, anaphoric indices were abandoned as superfluous, their effects subsumed under the Binding Conditions. Nevertheless, the data here suggest that something like the anaphoric index must be retained. An account of reflexive facts in BP must express the fact that IPNPs, although not required to be bound, must be c-commanded by a nominal argument, exactly what is expressed by

anaphoric indices. The intuition is that an IPNP will appear to be disembodied (and such structures are no longer interpreted by native speakers as possession structures but as weird or ungrammatical) unless a potential possessor is available in the form of an independent argument. This can be formalized as in (7):

- (7) For  $\alpha$ , an inalienably possessed noun, there must be a  $\beta$ , Domain of Possession, such that  $\alpha$  assigns  $\theta_{\text{poss}}$  to  $\gamma$ , NP, in  $\beta$ , where:  
 $\beta$  is a Domain of Possession iff:  
 a.  $\beta$  is the minimal CFC containing  $\alpha$  and  
 b. the anaphoric index of  $\alpha$  is nonnull in  $\beta$ .<sup>3</sup>

We have now established and formalized (i) above, arguing for the retention of anaphoric indices. Now, let us examine claim (ii), that the BT applies algorithmically to IPNPs.

The notions of Binding Theory and Binding Domain (BD) are given by Chomsky (1986:171-172):

- (8) "a. The indexing I and the pair ( $\alpha$ ,  $\beta$ ) are compatible with respect to the binding theory (BT) if  $\alpha$  satisfies the binding theory in the local domain  $\beta$  under the indexing I:  
 I is BT compatible with ( $\alpha$ ,  $\beta$ ) if:  
 (A)  $\alpha$  is an anaphor and is bound in  $\beta$  under I<sup>4</sup>  
 (B)  $\alpha$  is a pronominal and is free in  $\beta$  under I<sup>4</sup>
- b. The licensing condition for a category governed by a lexical category in the expression E with indexing I:  
 For some  $\beta$  such that  $\alpha$  is an anaphor or pronominal and  $\beta$  is the least functional complex (CFC) containing  $\gamma$  for which there is an indexing J BT-compatible with ( $\alpha$ ,  $\beta$ ), I is BT-compatible with ( $\alpha$ ,  $\beta$ )."

Previous studies, such as Burzio (1986,265ff), have argued that inalienably possessed NPs are like reflexives in that their antecedent (i.e., possessor) must occur within the minimal S in which the pronoun occurs:

- (9) \**Maria<sub>i</sub> ha detto [che Giovanni alzasse la mano<sub>i</sub>].*  
 'Maria<sub>i</sub> said that Giovanni should raise her hand.<sub>i</sub>'

This example is bad, according to Burzio, because the possessor is outside the BD of the IPNP. The same generalization holds true for Portuguese.

- (10) *Maria<sub>i</sub> disse [que João deve levantar a mão<sub>i</sub>].*  
 'Maria<sub>i</sub> said that Giovanni should raise her<sub>i</sub> hand.'

- (11) a. Maria<sub>i</sub> disse[que a mão<sub>i</sub> foi levantada(por João)].  
 'Maria<sub>i</sub> said that {her<sub>i</sub> } hand was raised (by João).'  
                                 {someone's}
- b. ??/\*Maria disse [que a mão levantou.]  
 'Maria said the hand raised.'

In (11a), but not in (10), the antecedent of the possessive pronoun may appear in the matrix clause. While in (11b) only the disembodied, non IPNP reading is available, (11a) admits several interpretations. Mão may be disembodied, a non IPNP reading, or it may belong to an arbitrary possessor, including Maria. It is the possessor reading that we are interested in. This reading is grammatical because mão occurs in a DP and although it has no antecedent in its BD, it is nonetheless grammatical since it may alternatively be treated as a pronominal (i.e. its possessor position may be, see note 5). Given these facts, we can define the conditions on inalienable possession in BP as in (12):

- (12) a. For any  $\alpha$ ,  $\alpha$  an IPNP, there must be a DP;  
 b. If BC-A can apply to  $\alpha$ , it must apply.  
 c. If BC-A cannot apply to  $\alpha$ , apply BC-B.

Note that (11) shows that it is not the passive morpheme itself which binds the possessed noun. The mão belongs to Maria but Maria is not the agent of levantar, which would have to be the case if the real binder of the possessed noun were the passive morpheme. In other words, mão is subject to BC-A IN (10) and BC-B in (11), just as predicted by (12). There is no 'implicit' binder.

Thus, the facts of inalienably possessed nouns in BP can be expressed simply - but only if anaphoric indices are retained in the theory.

#### NOTES

1. Chomsky (1986:169) defines Complete Functional Complex (CFC) as the domain in which "...all grammatical functions compatible with its head are realized in it - the complements necessarily, by the projection principle, and the subject, which is optional unless required to license a predicate, by definition." By IPNP, I refer to human body parts, although this probably does not exhaust the class. I will not consider in detail the role of pre- or postnominal possessors in IPNPs, but see note 5.

2. As discussed in Everett (in preparation), operar and the other verbs listed here may appear in unaccusative-like constructions in BP.

3. Verbs of sensation, e.g. esquentar 'to warm up'; sangrar 'to bleed'; and cocar 'to itch', violate this. In Everett (in preparation),

I argue that this is because their lexical structure renders them inherent DPs.

4. In Everett (in preparation), I argue that IPNPs always assign a  $\theta_{\text{poss}}$  (possessor) role in a DP, as per (7). Consequently, IPNPs will always be CFCs and BDs. Thus, pronominal possessors of IPNPs may be bound, as in John<sub>i</sub> broke his<sub>i</sub> arm, without violating (8). This means that IPNPs will always have an overt or ec possessor, although I take no stand here as to what kind of ec that might be. I will refer to (A) of this definition as BC-A and (B) as BC-B.

5. Actually, since these binding facts hold only for IPNPs without an overt possessor, the real generalization must ultimately be stated in terms of the IPNP possessor rather than its head. When an overt possessor is present, the IPNP is subject to BC-B if it is pronominal and is treated as a name if the possessor is an R-expression (Chomsky 1982) cf. also note 4). I avoid this issue here though.

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