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# V-MOVEMENT, LEVELS OF REPRESENTATION AND THE STRUCTURE OF S<sup>1</sup>

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## I - THE NATURE OF THE DISCUSSION: THE DEFINITION OF "RICHNESS"

In his analysis of the differences between English and French, Pollock (1989) argues that the movement of the verb out of VP in a language is dependent on the "opacity" or "transparency" of the inflectional nodes. If Agr(ement) or Tense are "opaque" in a given structure, this would prevent the raising of a verb, because if it did raise, it could not assign its thematic properties to its arguments, which would result in a violation of the th-criterion which requires that every argument bear one (and only one) thematic role (henceforth "th-role").<sup>2</sup> According to Pollock, Agr is an opaque node in English because it is morphologically "poor". This accounts for the following paradigm, originally noted by Emonds (1978):

- (1) a. \*John likes not Mary  
b. Jean n'aime pas Marie
- (2) a. \*John kisses often Mary  
b. Jean embrasse souvent Mary
- (3) a. \*My friends love all Mary  
b. Mes amis aiment tous Mary

<sup>1</sup> Este artigo é versão revisada (em 1991) da comunicação que apresentei ao XIII Colóquio do GLOW, em Cambridge (UK) em abril de 1990. Uma publicação das Atas desse colóquio está prevista, sob o título *Levels of Representation*, pela Editora de Gruyter. Mas como até agora nada se concretizou nesse sentido, acho importante publicar este texto no Brasil, uma vez que ele contém a primeira formulação de uma análise da gramática do português brasileiro que retomei em trabalhos subsequentes (Galves 1993 a e b), e a que outros pesquisadores também se referem.

A única modificação que sofreu o artigo, foi a atualização das referências bibliográficas. Agradeço a Ian Roberts e Mary Kato por terem discutido comigo, de maneira extremamente esclarecedora, as idéias contidas neste texto. Essa pesquisa foi parcialmente financiada pelo CNPq processo nº 301086/85-0.

<sup>2</sup> Pollock claims that in this case "the assignment of both internal and external th-role is blocked, even though the latter are assigned 'compositionally' via the VP of which (the trace of the raised) V is the head" (1989, p. 305).

- (4) a. He hasn't understood  
b. Il n'a pas compris
- (5) a. He is seldom satisfied  
b. Il est rarement satisfait
- (6) a. They are all satisfied  
b. Ils sont tous satisfaits

Assuming that the negation elements *pas/not*, the adverbs *seldom/rarement* and the quantifiers *all/tous* are adjoined to VP, one can clearly observe in (1)-(6) that verbs which have a thematic grid such as those in (1)-(3) behave differently in English and in French: they raise in the latter but not in the former. On the other hand, auxiliary verbs display similar raising behaviour in both languages (4-6). According to Pollock, only auxiliary verbs can raise to the opaque Agr of English, since they have no *th*-role to assign, whereas in French all verbs can raise because Agr is transparent and there is no blocking of *th*-assignment.

As Pollock points out, the same contrast in behaviour between main verbs and auxiliary verbs shows up in French and English infinitival sentences, but with an important difference: in French, auxiliaries can undergo "long movement" across negation, as shown in (7-10), while main verbs can only move across adverbs (11-12). In English, only auxiliaries move across adverbs (13-18). Pollock identifies the landing site of "long movement" as being Tense, higher than Agr in the sentence.

- (7) Ne pas avoir de voiture en banlieue rend la vie difficile  
Ne to not have a car in the suburbs makes life difficult
- (8) N'avoir pas de voiture en banlieue rend la vie difficile  
Ne to have not a car in the suburbs makes life difficult
- (9) Ne pas posséder de voiture en banlieue rend la vie difficile  
Ne to not have a car in the suburbs makes life difficult
- (10) \*Ne posséder pas de voiture en banlieue rend la vie difficile  
Ne to have not a car in the suburbs makes life difficult
- (11) Souvent paraître triste pendant son voyage de noce, c'est rare  
Often to look sad during one's honeymoon, that is rare
- (12) Paraître souvent triste pendant son voyage de noce, c'est rare  
Often to look sad during one's honeymoon, that is rare
- (13) I believe John to often sound sarcastic
- (14) \*I believe John to sound often sarcastic
- (15) I believe John to often be sarcastic
- (16) I believe John to be often sarcastic
- (17) John is believed to frequently have criticized Bill
- (18) John is believed to have frequently criticized Bill

As for movement to Agr (across adverbs), the picture is the same as in tensed clauses: only auxiliaries can undergo such movement in English since

this position is opaque, whereas in French, it is transparent an main verbs can raise. The agramaticity of (10), however, is accounted for if [-finite] Tense, like poor Agr, is opaque to *th*-assignment, which would prevent a thematic verb from undergoing "long movement" in French infinitival clauses. Pollock relates the opacity of [-finite] Tense to the fact that it is not an operator. The notion of opacity is therefore related to morphological "richness" for Agr, and interpretative "richness" for Tense.

Central to Pollock's work is the claim that AGR and Tense are separate nodes, contrary to the previous analysis in which they were considered to be two components of a single node of Infl(ection) (Chomsky (1981)). In Pollock's representation of the clause, Agr is lower than Tense in the tree so that given the Head Movement Constraint (Travis (1984)), movement to Tense depends on prior movement to Agr.

The existence of this node is strongly questioned by Iatridou (1990) for both English and French, however. According to this author, the phenomena presented by Pollock as evidence for the existence of an independent Agr node in the two languages do not provide convincing proof since they can be shown to derive from a different structure, and be constrained by other principles. She presents two arguments to account for the apparent movement of auxiliaries to Agr in English infinitival clauses. First is the fact that two or more positions are basically available for adverbs. Considering auxiliaries as verbs which head their own VP, then an adverb can be adjoined to either auxiliary or thematic VP. The structure of a sentence like (18), therefore, will not be (19), as proposed by Pollock, but (20):

- (19) John is believed to [AGRP have [VP frequently [VP criticized Bill
- (20) John is believed to [VP<sub>1</sub> have [VP<sub>2</sub> frequently [VP<sub>2</sub> criticized...]
- (20) is supported by the argument that both VPs can be modified by an adverb
- (21) John is believed to [VP<sub>1</sub> frequently be [VP<sub>2</sub> rudely criticizing

The second argument is a semantic one based on the contrast between (13) and (14) repeated below in (22) a) and b) Pollock explains the impossibility of verb movement of *sound* in terms of its thematic verb status.

- (22) a. \*I believe John to sound often sarcastic  
b. I believe John to often sound sarcastic

Iatridou argues that the restriction has nothing to do with V-movement but derives from the interpretation of the verb and the compatibility of the adverb with the adjective of the predicate. The inacceptability of the order *V adv*

*adj* depends on the choice of the adverb, as shown by (23) where the contrast between a) and b) disappears:

- (23) a. John is believed to sound deliberately sarcastic  
 b. John is believed to deliberately sound sarcastic

As for French, she argues that Pollock's analysis is unable to explain sentences in which the verb occurs between two adverbs, like in (24):

- (24) Souvent faire mal ses devoirs, c'est stupide  
 Often to do badly one's homework is stupid

Iatridou's analysis has two important consequences. First, by arguing against the universal existence of an independent Agr head for all language, she is led to negate the existence of Agr as a node or a feature in Infl in languages like English or French. She thus claims that "Agr is not a structural position but a relationship, specifically a spec(ifier)/head relationship" (op. cit. p. 569). This results in a clear distinction between languages which have an Agr node, and those which treat it merely as a relationship. In the light of her discussion, this could be a reasonable move for languages which have no agreement morpheme, but it seems somewhat strong for French. In other words, she adopts a drastic attitude to solve the problem of the pooriness of Agr by positing the total inexistence of Agr. Second, instead of deriving the absence of movement of non-auxiliary verbs in English tensed sentences from the opacity of Agr, she attributes it to the opacity of Tense. This seems to be an interesting move since it amounts to saying that what makes the node Tense opaque is not universally given in terms of the feature [ $\pm$  finite] but depends, as has been argued for Agr, on its morphological nature, parametrized among languages. This means that the inflectional nodes Agr and Tense have a comparable behaviour, and in particular, that there is a strong co-relation between their morphological and syntactic properties.

Diachronically, this co-relation is strongly supported by evidence presented by Roberts (1993) who shows that English Tense and Agreement became syntactically weak when they lost their morphology. For Tense, the crucial loss was that of the morphological ending of the infinitive form, and for Agr, the distinction between singular and plural. Roberts proposes that functional heads differ as to whether or not they project an  $X^{-1}$  node, and affixal node which obligatorily selects some other category under  $X^0$ . This yields what Roberts calls selected substitution, and forces movement to the selected position. According to him, the presence vs absence of such a node is made visible by the existence of the morphological marks mentioned above. With this argument, Modern English would lack  $X^{-1}$  for both Agr and Tense.

However, there is another case for which things are not so straightforward. As initially shown by Belletti (1990), languages with a richer AGR than English differ with respect to the possibility of V-raising in infinitival sen-

tences, apparently related to the pro-drop parameter. Both null subjects and V-raising in non-finite clauses are prohibited in French, whereas they are permitted in Italian (Belletti 1990) and Spanish (Lois 1989). In other terms, French has a richer Agr than English with respect to verb movement in tensed sentences, but a poorer Agr than Italian and Spanish with respect to the movement of the verb in infinitival sentences. This difference cannot be directly derived from the morphological shape of the inflectional morpheme since Italian does not have an agreement morpheme in the infinitive either. It is, however, indirectly related to the nature of Agreement in Tensed clauses. How is this relation to be formulated? Belletti's account is based on Roberts' theory of the different types of heads. She proposes that difference between French and Italian is that the former has an Agr<sup>-1</sup> only in tensed sentences, where Agr has both person and number features, whereas the latter has Agr<sup>-1</sup> in both tensed and infinitival sentences, independent of the overt shape. Though descriptively adequate, this analysis has the inconvenience of weakening Roberts' morphological hypothesis that it is the existence of an overt distinction which attests to the presence of  $X^{-1}$ , and gives rise to the possibility of V-movement.

These data will now be confronted with those of a different, somehow atypical null subject language, Brazilian Portuguese (BP). Brazilian Portuguese seems conform to Roberts' analysis with respect to V-movement. V-movement occurs (as shown in the next section), and there is a morphological distinction between singular and plural, as can be observed in (25) which shows the flexional paradigm for present and past:

- |                         |                  |
|-------------------------|------------------|
| (25) eu canto / cantei  | I sing / sang    |
| você canta / cantou     | you sing / sang  |
| ele canta / cantou      | he sings / sang  |
| nós cantamos / cantamos | we sing / sang   |
| vocês cantam / cantaram | you sing / sang  |
| eles cantam / cantaram  | they sing / sang |

However, there seems to be a problem with respect to the pro-drop parameter. Although speakers show a clear tendency to use the lexical pronouns in many contexts, BP can be shown to be a pro-drop language, since it shows up the entire range of properties defined by Chomsky (1981) as associated with this parameter:

- The lexical pronoun can (or must) be omitted in a great many contexts:

- (26) (Nós) chegaremos pela manhã  
 (We) shall arrive on the morning
- (27) O João não sabe se (ele) passará nos exames  
 J. doesn't know if (he) will
- (28) \*(ele) parece que \*(ele) vai chover  
 seems that is going to rain

- Free inversion is possible, at least with ergative verbs:<sup>3</sup>

- (29) Saíram vários livros sobre esse assunto  
came out several books about this subject

- Apparent violations of the "that-t" filter show up:

- (30) Quem você acha que e virá na tua festa?  
Who do you think that will come to your party?

- null resumptive pronoun are legitimate in islands:

- (31) Essa é a menina que eu não sei que acha que (ela) possa VP  
This is the girl who I don't know thinks that (she) may VP

According to Roberts (1993) the pro-drop parameter encompasses two different types of "richness" for Agr: a "formal richness" and a "functional richness". A paradigm is formally rich if it provides a separate slot for every person (there is no zero form). It is functionally rich if it allows as most one syncretism, and one zero form. What about the paradigm in (25)? Certainly, it is not functionally rich since it allows two syncretisms: the second and third persons, in both the singular and the plural have exactly the same shape. Evaluating the formal richness is more complex because it depends on whether we consider that there is a slot for each of the persons or not. If compared with European Portuguese, we see that this paradigm lacks a second person form. In other words, there are not six forms, which include two syncretisms, but only four forms, as represented in (32):<sup>4</sup>

(32) BP	EP	
(eu) canto	(eu) canto	I sing
	(tu) cantas	You sing
você/ele canta	(você/ele) canta	You/he sings
(nós) cantamos	(nós) cantamos	We sing
vocês/eles cantam	(vocês/eles) cantam	You/they sing

The confusion between the second and third person, i.e. the absence of a slot in the paradigm, is supported by the absolute interchangeability of the second and third person forms of the possessive adjective:

- (33) Você trouxe seu/teu livro?  
You brought his/your book?

If BP is not formally rich either, how can it be a pro-drop language?

<sup>3</sup> Inversion in BP is studied among others by Nascimento (1984) and Tarallo e Kato (1989).

<sup>4</sup> This hypothesis suggests a strong relation between the loss of the use of *tu* as a form of address in BP and the reorganization of the grammar. It is interesting to note that EP has also lost the 2nd person plural *vós*.

In this paper, an alternative explanation will be proposed to account for the richness of Agr, an argument based on the presence vs absence of the semantic feature "person". Morphologically, the basic requirement for richness will be the existence of three distinct forms, corresponding to the persons of the discourse, whether singular or plural. The basic claim is that there are two notions of person in UG: a semantic one and a syntactic one. The former is defined with respect to the three persons of the discourse. The latter, like syntactic features in general, has only a positive or a negative value. Languages can differ in this respect.

Note that this proposal satisfies part of Roberts' requirements in terms of the quantity of distinct forms in his definitions of formal and functional richness. Given that the feature *number* intervenes in the agreement paradigm, we would expect that the number of forms produced by a syntactic person or a semantic person may not be the same. If the former is present, there will be at most four distinctions, since the forms are produced by the combination of the positive or negative values of the two features of person and number. In his definition of functional richness Roberts requires at least five distinctions, since only a single syncretism is allowed. An agreement system containing only the syntactic notion of person cannot underly a functionally rich pro-drop language.

Formal richness cannot be satisfied by a purely syntactic Agr either since, by definition, it is not related to the semantic notion of person which seems to be at stake in Roberts' definition.

If this analysis is on the right track, the question is how Brazilian Portuguese, as a "poor" Agr language, can display both verb movement effects and pro-drop properties.

In order to answer this question, an analysis of the structure of the sentence in BP will be proposed in conjunction with a general hypothesis about the generation of Agr. The morphological nature of Agr will be taken to be responsible for the level at which it is attached to another functional head in a given language. Assuming Pesetsky (1989)'s Earliness Principle, it will be claimed that the affixal nature of Agr must be satisfied as soon as possible, and that, in some languages, it can be affixed to Tense at D-structure. In these languages, there will be no split of Infi at any level. It will be argued that this is the case for both English and Brazilian Portuguese, which have poor Agr. However, they differ with respect to Verb-movement. This will be explained by their having a very different Tense element, as proposed by many researchers (Ambar (1988), Iatridou (1990), Roberts (1993)). Following Roberts (1993), it will be argued that movement to Tense (=Infi) in BP is a selected substitution, since Tense projects  $X^{-1}$ , as evidenced by the existence of the morphological distinction between infinitival and finite forms whereas it is a free substitution in English, such substitution being barred for thematic verbs.

Finally, it will be shown in the final section that this analysis can account for the existence of V-movement in pro-drop infinitival sentences.

## 2 – THE STRUCTURE OF THE CLAUSE IN BP

### 2.1 – V-movement

According to Roberts' analysis, BP, as a pro-drop language, is expected to be a language where the verb undergoes obligatory movement, since "formal" as well as "functional" richness imply the existence of Agr<sup>-1</sup>. In this section, it will be shown that this prediction is borne out. However, the facts are not immediately clear and deserve some discussion.

#### Floating quantifiers

When compared with European Portuguese (henceforth EP), BP seems to display a slightly different behaviour. Ambar (1988/92) gives (34) as a perfectly well formed sentence in EP.

- (34) Os alunos deram **todos** flores ao professor  
The students gave all flowers to the teacher

According to her (35) and (36) are strongly marginal.

- (35) Os alunos deram flores **todos** ao professor  
The students gave flowers all to the teacher  
(36) Os alunos deram flores ao professor **todos**  
The students gave flowers to the teacher all

As in the other languages which display this phenomenon, (34) has the same meaning as (37), in the sense that the quantifier *todos* universally quantifies over the set denoted by the NP in both sentences:

- (37) **Todos** os alunos deram flores ao professor  
All the students gave flowers to the teacher

This phenomenon strongly reminds what happens in other Romance languages like French, Spanish and Italian.

Sportiche (1988), following Koopman and Sportiche (1991) derives this phenomenon from the D-structure generation of the subject inside VP. His analysis, which will be adopted here,<sup>5</sup> assigns a sentence like (34) the following structure:

- (38) [<sub>IP</sub> os alunos<sub>i</sub> ofereceram<sub>j</sub> [<sub>VP</sub> [<sub>NP</sub> todos t<sub>i</sub>] t<sub>j</sub> flores...]

<sup>5</sup> See below the modification suggested by Koopman and Sportiche (1991).

In BP, speakers vary a great deal in their judgements about this kind of sentences, however. Some speakers definitely reject (34), whereas others accept it without reservations; others still accept it but only insofar as there is stress on *todos*.

Among these speakers for whom (34) is possible, some accept (35) as long as *todos* is stressed. (36), however, remains marginal for most BP speakers. And in general, the sentences in which *todos* is in final position or followed only by a very light phrase are rejected. There is thus a difference in acceptability between (39)-(40) and (41)-(42) in BP:

- (39) Que tarefa os alunos fizeram **todos**?  
What homework the students did all  
(40) Que tarefa os alunos fizeram **todos** com muita dificuldade?  
What homework the students did all with much trouble?  
(41) ?Os alunos fizeram **todos** a tarefa  
The students did all the homework  
(42) Os alunos fizeram **todos** a tarefa que a professora pediu  
The students did all the homework that the teacher asked

It is very clear what conclusion is to be drawn from these facts, which serve to illustrate that BP does not function exactly like EP or the other Romance languages which display verb movement. Is BP more similar to English? (43) could lead us to think that the answer is positive:

- (43) Os alunos **todos** deram flores ao professor  
The students all gave flowers to the teacher

But, from (44) it becomes clear that the order **subject todos verb** is not due to the absence of movement of the verb but to the possibility of the order **N todos** inside the NP:

- (44) A professora castigou os alunos todos  
The teacher the students all

Ambar acknowledges the existence of sentences like (43) in EP but affirms that they are marginal, although they become perfectly acceptable with a stress on *todos*; no such stress is necessary in BP.

However, it is interesting to note that both BP and EP differ from the other Romance languages because the order **N tous/todos/tutti** is impossible in French, Spanish and Italian.

The differences observed in the acceptable positioning of *todos* between EP and BP can be stated as follows:

- in EP, but not in BP, the postnominal *todos* requires stress
- in EP, stranding *todos* results in a fully acceptable sentence, whereas the judgements of BP speakers varies. For many of them, stress on *todos* seems to be requirement for its separability from the noun. However, in this

case, more than one position is available, provided that it is not stranded in final position, or followed only by a light phrase.

In BP, a further question can be raised: since *todos* can appear in both prenominal and postnominal positions, without phonological marking, is there a difference in interpretation associated with the two positions? The answer is not straightforward for the plural, but the singular can provide a very interesting indication about the way the two positions are interpreted. Observe the following sentences:

- (45) **Todo** (o) dia ela faz tudo sempre igual  
All (the) day she does all (thing) always identical  
(46) Eu passei o dia **todo** procurando uma solução  
I spent the day all looking for a solution

In (45), *todo dia* means the same as *todos os dias*, that is *every day*. In this order, *todo* therefore receives the interpretation of the universal quantifier. In contrast, the interpretation of *o dia todo* is the same as *o dia inteiro* "the entire day", where *todo* is interpreted as an attribute of *dia*.

Assuming that the same difference holds in the plural, though less visible because of the nature of the interpretation of the plural, it appears that the sentences with floating *todos* can be derived from two different structures, one in which it is prenominal position (47) and the other where it is in postnominal position (48):

- (47) Os alunos fizeram [<sub>VP</sub> [todos t] [<sub>VP</sub> t a tarefa ...  
(48) Os alunos fizeram [<sub>VP</sub> [t todos] [<sub>VP</sub> t a tarefa ...

(47) is identical to the corresponding structure in languages like French, but (48) is not in that what is stranded is not a quantifier, but an attribute. This state of affairs can explain the variation among speakers, if we assume that the position of *todos* corresponds to a different type of phrase. As suggested by Koopman and Sportiche (1991), *Todos t* would be analysed as a QP<sup>6</sup> and *t todos* as an NP, in which lexical material can only be stranded if secondary predication is possible. This would explain the necessity of a relatively heavy complement.<sup>7</sup>

This analysis is supported by the behaviour of *cada um* ("each"). Contrary to *todos*, *cada um* requires the interpretation and position of a quantifier.

<sup>6</sup> Koopman and Sportiche (1991)'s footnote 10 states that the authors "follow Koopman (in prep.) (for English and French) and Schlonsky (1990) (for Hebrew) who argue that the Q is actually the head of the constituent [all [the people]] taking an NP complement. NP moves through [Spec, QP] leaving Q stranded."

<sup>7</sup> In order to derive (35), we must assume that NP can be generated at, or moved to, the right of VP, and that the indirect object is extraposed.

- (49) \*Eu falei com as crianças cada (uma)  
I spoke with the children each  
(50) Eu falei com cada (uma das) criança(s)  
I spoke with each (of the) the children  
(51) \*As crianças cada (uma) comeram dois pedaços de bolo  
The children each (one) ate two pieces of cake  
(52) As crianças comeram cada uma dois pedaços de bolo  
The children ate each one two pieces of cake

The contrast between (49) and (50) shows on the one hand that *cada um* cannot be generated to the right on the NP. On the other hand, the contrast between (51) and (52) shows that V-movement is obligatory in BP.<sup>8</sup>

#### - The position of adverbs

Like other pro-drop romance languages (Belletti 1990, Lois 1989), BP does not illustrate strictly complementary distribution of adverbs with thematic verbs in English and French. Both preverbal and postverbal positions are available for several classes of adverbs:<sup>9</sup>

- (53) a. Essa refeição *normalmente* leva meia hora ou mais  
This meal normally takes half an hour or more  
b. Essa refeição leva *normalmente* meia hora ou mais  
This meal takes normally half an hour or more  
(54) a. Uma mesma questão *muitas vezes* pode exigir diferentes processos mentais  
The same question often can different mental processes  
b. Uma mesma questão pode *muitas vezes* exigir diferentes processos mentais  
The same question can often require different mental processes  
(55) a. Eu *sempre* viro as folhas  
I always turn over the sheets  
b. Eu viro *sempre* as folhas  
I turn over always the sheets  
(56) a. Esses apresentam *normalmente* ou *habitualmente* digamos assim os chamados ...  
These present normally or usually let's say the so-called ...  
b. Esses *normalmente* apresentam os chamados ...  
These normally or usually present let's say the so-called ...

<sup>8</sup> Observe that *cada um* may also appear in the final position of the sentence: "as crianças comeram dois pedaços de bolo cada uma". This shows that *cada um* can be also generated to the right of the VP.

<sup>9</sup> The a) examples are drawn from the corpus of the NURC (Norma Urbana Culta), a research project whose aim is to describe the language spoken by educated people of the five largest Brazilian towns.

The important fact is that no topicalization effect can be detected in the order *adv V*, neither with aspectuals as in (53)-(56), nor with sentential adverbs (57), a finding in contrast to that of Belletti (1990) for Italian.

- (57) As crianças provavelmente ficam em casa a tarde toda  
The children probably stay at home all the afternoon

As evidence for her analysis, Belletti shows that the indefinite quantifiers can only appear in this context with a strong contrastive stress, indicative of topicalization. In BP, on the contrary, sentences like (58)-(59) are fully acceptable with a neutral intonation:

- (58) Ninguém provavelmente fica em casa o dia todo  
Nobody probably stays at home all day  
(59) Alguém possivelmente terá achado a solução  
Somebody possibly will have found the solution

However, since these adverbs are arguably generated at a higher location in the sentence than VP (Travis 1988, 1988, Rochette 1989), this fact doesn't indicate anything about V-movement. What it shows is that I' is somehow more permeable in BP than in Italian. In the next section, this observation will be tentatively expressed in terms of differences in sentential structure.

In order to find evidence in favour of or against the movement of a verb, we must observe the behaviour of the adverbs which are arguably generated in adjunction to a projection of V, the adverbs of manner. In the case, there is no more variation to be found:

- (60) \*O João *completamente* acabou seu trabalho  
J. completely finished his work  
(61) O João acabou *completamente* seu trabalho  
J. finished completely his work  
(62) \*As crianças *cuidadosamente* acabaram sua tarefa  
The children carefully finished their work  
(63) As crianças acabaram *cuidadosamente* sua tarefa  
The children finished carefully their work

(60)-(63) clearly show that the verb must leave the VP, confirming the conclusion drawn in the previous section, as well as Robert's hypothesis, that in pro-drop languages the verb is required to move.<sup>10</sup>

<sup>10</sup> The question of verb movement in infinitival sentences will be left aside, since it involves the question of the inflected infinitive, a question which is beyond the scope of this paper. Galves 1991 argues that there is an additional Agr node which dominates Infl, and that is the place where the inflected verb is at S-structure in inflected infinitival sentences. This analysis predicts that the verb raises in these structures as well, which seems to be confirmed by the facts. But the reason why it raises must not be the same as in other pro-drop languages, cf section IV below.

## 2.2 - The nature of Agr and the structure of the clause

It has been shown above that the paradigm of BP conjugation is defective in that there is no independent slot for the second person. This morphological deficiency will now be shown to have an interpretative correlate. In effect, BP reveals a very peculiar interpretation of the third person singular null in tensed sentences which differs from what happens in other well-described pro-drop Romance languages like Italian, Spanish, and European Portuguese.<sup>11</sup>

As shown in (64), the null subject of a tensed sentence may be interpreted as indeterminate in reference:

- (64) Aqui  $e_i$  conserta sapatos  
Here (one) repairs shoes

This is totally impossible in the other languages mentioned above, in which *se/si* is obligatory in order to obtain the same interpretation, as, for example, in EP:

- (65) Aqui conserta(m)-se sapatos

In these languages, a sentence like (64) indeed permits interpretation with a specific reference for the null subject, so that the English gloss would be: "here *he* repair shoes". In order for this interpretation to be unambiguously available in BP, the use of the lexical pronoun becomes obligatory. This is why BP seems to be losing its pro-drop nature. However, the above description, as well as the absence of a lexical expletive pronoun, show that the problem is not one of formal licensing, but rather of identification. Agr, at least in the third person singular, seems to be referentially too weak to identify a null subject as a specific null pronoun. In fact, this null subject is like PRO. In the absence of a potential antecedent, it is interpreted as indeterminate. It can also be controlled, as in:

- (66) O João<sub>i</sub> disse que  $e_i$  viria  
John said that (he<sub>i</sub>) would come

Furthermore, in the absence of a controller, the use of the lexical pronoun becomes obligatory, especially when the verb bears the mark of the third person, which is used for both the second and third persons of the discourse.

It has been shown above that, in Roberts' terms, the agreement paradigm of BP is neither formally nor functionally rich. Its interpretative weakness can now be seen to be related to its morphological weakness. As already mentioned, this raises the question of the apparent incompatibility of the Brazilian flexional system and the fact that BP is a pro-drop language.

<sup>11</sup> The proposed analysis of the structure of the clause in BP is taken from Galves (1991).

Returning to the proposal of person in Agr as a syntactic feature in BP, observe that the four morphemes of the conjugation can be derived by combining the positive and negative values of the two syntactic features *person* and *number*:

- |                           |            |
|---------------------------|------------|
| (67) +person/-plural > -o | (canto)    |
| +person/+plural > -mos    | (cantamos) |
| -person/+plural > -m      | (cantam)   |
| -person/-plural > -O      | (canta)    |

This would account for the lack of referential identification of the null subject, since the morphemes represented in (67) cannot be taken to be functioning as pronominal elements which are capable of replacing the missing pronominal subject. What about the formal licensing?

The answer to this question will be based on an extension and a slight modification of the claims made by the researchers who have been working on this object. There is general agreement that the level at which Agr and V merge varies from language to language, and that it is dependent upon the nature of Agr (Pollock (1989), Belletti (1990), Roberts (1993)). This is also true for V and Tense. However, the question is generally not raised for the merging of Agr and Tense. It is generally claimed that Agr and Tense merge as a consequence of the movement of V-Tense to Agr – in the representation where Agr dominates Tense – or V-Agr to Tense – as in Pollock (1989). Furthermore, the Head Movement Constraint prohibits movement of V to the highest node if it is not possible to move to the lowest. But recent proposals for the structure of the clause imply that there is an independent relation between the split elements of Infl: the higher one selects the lower. This relation is guaranteed by both X' theory and morphological constraints. Due to their affixal nature, both Agr and Tense must satisfy a condition of well-formedness (a filter) which could be stated in these terms.<sup>12</sup>

- (68) An affixal head must be morphologically supported by the head it selects.

Given the representation proposed by Belletti (1990), based to a large part on Baker (1988)'s Mirror Principle, this means that Agr must be morphologically supported by Tense.

Let's assume now that morphological support is constrained by the Earliness Principle proposed by Pesetsky (1989), whose formulation is the following:

- (69) *Earliness Principle*: Satisfy filters as early as possible on the hierarchy of levels: (DS>) SS>LF>LP.

<sup>12</sup> (68) is a reformulation of Lasnik (1981)'s filter: "A morphologically realized affix must be a syntactic dependent at surface structure".

Pesetsky argues that "Satisfaction at a level" means that at this level, the actual requirements of the filter have been met "and the chains of all elements affected by the filter have been made legal". In other words, a filter is satisfied when the structural realization it requires does not violate any principle. For instance, though Affix lowering applies between D and S-structure, it only satisfies the Earliness Principle at LF, because, it is only at this level that it does not violate ECP (Chomsky 1989).

Now the relation between Tense and Agr implies that, independently of what happens with the verb, they must merge at some level of the derivation, and by the Earliness Principle, as soon as possible. Pesetsky excludes D-structure from the levels relevant for the application of the Earliness Principle, claiming in a note that, "neither principle can be allowed to constrain lexical insertion". However, Baker (1988) characterizes Morphology as "the theory what happens when a complex structure of the form [<sub>Z</sub> X+Y ] is created", one of its tasks being to "determine whether a structure dominated by a X<sup>o</sup> level category is grammatical or not in a given language," and concludes: "from this perspective, the same morphological principles may apply when two morphemes come together in the lexicon in the standard way, and when the same morphemes come together in the syntax as a result of incorporation". (Op. cit. pp. 68-69). If we show that morphological principles can be satisfied at D-structure, this level must be included in the Earliness Principle, and by this same principle, incorporation can be forced to be a D-structure operation in some contexts.

The question therefore is: what conditions must be fulfilled by an affixal head for it to be morphologically supported at D-structure? Note that this question is compatible with the hypothesis that for every morpheme there is a corresponding a head in a derivation (Baker (1988)). However, an answer to this question could lead us to a better understanding of the differences between languages, since it would be possible for a head never to have been an independent one at any level of derivation in a given language. This would be a way of reconciling Baker's proposal with Iatridou's criticism. Especially in the case of Agr and Tense, it would be a way of justifying the fact that some languages can be argued to have a single inflection node, the former Infl. This will be argued for here for English, in agreement with Iatridou's analysis, and also for Brazilian Portuguese.

The obvious problem is that at D-structure, each head must be able to satisfy its selectional requirements, whatever they are. It must be remembered that this is the crucial level once we adopt the Government Transparency Corollary which states that "a lexical category which has as item incorporated into it governs everything which the incorporated item governed in its original structural position" (Baker (1988), p.64). Once a head is moved, it does not lose its former properties. But crucially, at D-structure, nothing should prevent it from fulfilling these properties, which are realized under government. Coming back to the case of Agr and Tense, affixation of the former to the lat-



ter satisfies its basic property, which is precisely the selection of Tense. But what about Tense? Tense selects V, and T-marks it (a notion to which we shall come back below). Does Agr prevent this relation from being established? That is the crucial point. And the answer lies in the nature of Agr.

The intuition behind what follows is that if Agr is in some sense weak, it does not prevent Tense from governing VP, and correctly T-marking it. But if it is strong, it will block this relation. The formal implementation of this proposal will be based on the notion of the head of a word (Williams (1981) among others), revised by Emonds (1989)'s definition of "functional head", although this definition too will be slightly modified.

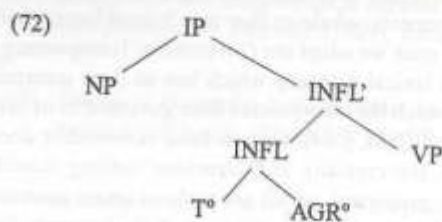
Emonds introduces the notion of "functional head" of a word, which he defines as follows:

- (70) The "functional head" of  $W^2$  is the rightmost lexical  $Z^0$  dominated by  $W^2$

Emonds' contrast between lexical and non lexical heads is related to his theory of S-structure insertion of lexical items which are part of closed categories and not associated with semantic features. Note that we can adopt his proposal without making a decision about the controversial issue of the lexical insertion at S-structure by replacing "lexical  $Z^0$ " with " $Z^0$  containing semantic features":

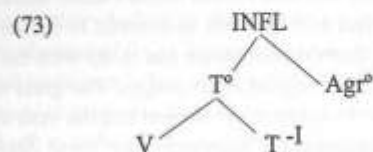
- (71) The functional head of  $W^2$  is the rightmost  $Z^0$  containing semantic features

What (70) and (71) mean is that a head lacking semantic features does not count as the functional head of a word, or complex head, and consequently does not interfere in the relationship of the head it is affixed to and its complement. More accurately, following Emonds' basic argument, the effect of (71) is that  $W^2$  (Infl in our case) has a dual nature. Its distribution depends on its *categorial head* (the rightmost  $Z^0$ ), but it behaves as the projection of its *functional head*. Its specifier position is an A-position, and not an A' position as argued by Roberts (1993) for SPEC/TP because, since it is the specifier of the projection of Agr, it is the position of the subject. But its complement is VP because internally it is a projection of Tense. The basic structure of the clause in BP therefore has the following form:



As argued above, the semantic feature lacking in Agr is the semantic "person". This lack is morphologically visible in the lack of distinction between the three persons, in both the singular and the plural.<sup>13</sup>

We must now deal with the apparent contradiction displayed by BP. It has been shown that it has a poor Agr, as does English, so that at first sight, it should not display verb movement. But this contradiction is only apparent, since there is another element in Infl which attracts V: Tense. In effect, since there is an infinitival morpheme in BP, we can assume, following Roberts (1993), that BP has  $T^{-1}$ . At S-structure, Infl therefore has the following form:



Galves (1991) argues that it is also Tense which licences *pro* in subject position, and that this explains its rather peculiar interpretative properties. This licensing is related to the way nominative case is assigned in BP. Following Roberts' system of case assignment (based on Koopman and Sportiche (1991)), it is proposed that in BP nominative can be assigned under agreement with Tense (or Infl), a possibility not considered by Roberts. Note that in this case what is meant by agreement is the relationship between a head and its specifier, which, according to Sportiche and Koopman (1991), corresponds to one of the two ways government can be realized in languages. Tense being the functional head of Infl in (73), it is the relevant node both for government of its complement VP, and for its specifier NP.

Assuming Rizzi (1986)'s theory of *pro* licensing, it is therefore assumed that Tense is the formal licenser of *pro*. However, there are no features for the identification of the null subject in Tense. When Agr is positively specified, it can play this role, by the application of Rizzi's rule:

- (74) Let X be the licensing head of an occurrence of *pro*: then *pro* has the grammatical specification of the features on X coindexed with it.

But when Agr is negatively specified for both of its syntactic features, (person and number) (74) cannot apply. In this case, unless there is some NP capable of functioning as an antecedent for *pro* (as in (62), see also Galves (1991)), the only remaining possibility is interpreting the reference of the null subject as indeterminate. To account for this fact, one must extend Rizzi's

<sup>13</sup> It is interesting to note that all the languages Roberts (1993) presents to support his claim that the relevant morphological feature for V-movement is the distinction between singular and plural do have a distinction between the three persons, either in the singular or in the plural.

analysis of *arb* assignment so that it applies when *pro* is assigned an indirect theta-role, making the natural assumption that whenever a licensing head does not have features adequate for the recuperation of the content of *pro*, and no other means of recovery is available, *arb* is assigned. Since *Tense* is a licensing head which does not obligatorily bear positive agreement features, one would expect the *pro* it licences to be interpreted like the *pro* object of a verb in a language like Italian, in which there is no other means of recovering its content.

Finally, this analysis is supported by the behaviour of the adverbs described above. In order to explain the fact that French doesn't allow sentential adverbs to appear between the subject and the verb, in contrast to Italian and Spanish, Lois (1989) hypothesizes that this difference has to do with the difference in the way nominative case is assigned in languages. The great naturalness of the placement of such adverbs between the subject and the verb in BP could be due to the fact that the assignment of nominative by Tense does not imply feature transmission or checking, but is fundamentally positional. The presence of the adverb therefore doesn't interfere in the relation between the subject and the verb.

### 3 – THE DIFFERENCE BETWEEN ENGLISH AND BP: THE RELEVANCE OF T-MARKING

Agr in English is even weaker than Agr in BP.<sup>14</sup> one can therefore attribute to this language an Infl element generated at D-structure by the affixation of Agr to Tense, as in BP. But why is V-movement completely forbidden for thematic verbs, contrary to what happens in BP? The important difference between the two languages is indeed the nature of Tense, which, according to Roberts (1990) does not project T<sup>-1</sup> in English, as evidenced by the lack of infinitival morphology. V-movement to Infl is therefore not a "selected substitution" but a "free substitution". The question is why only auxiliary verbs can undergo this type of substitution. Roberts' answer is based on Rizzi and Roberts (1989)'s theory of incorporation which states that, contrary to selected substitution, which does not interfere in the projection of the incorporated node, free incorporation yields a structure where the dominating head becomes hybrid. Thus a verb freely incorporated in Infl makes it become Infl/V. Roberts reformulates Pollock's analysis in these terms, claiming that "if

<sup>14</sup> Kayne (1989) argues that the only agreement morpheme in the English verbal system *-s* / *is* is not a mark of person but of number. In the analysis developed so far, the absence of a mark of person is not the decisive feature. However, if we are right in attributing the same nature of syntactic feature to both *number* and *person* in languages like BP and English, we can expect that it should be possible to find a system in which the only morphological alternation is that of *person*. This seems to be confirmed by some dialects of BP which show a contrast only between the first person singular and all the others: *eu canto / você, nós, eles canta*.

a verb undergoes "free" (non selected) substitution into another head position, there will be two V<sup>0</sup>'s in the clause, both with identical thematic properties to be checked by the Projection Principle... On the other hand, verbs which have no thematic properties at all, i.e. auxiliaries, will not cause any violations if they undergo "free" incorporation".

There is another way to deal with the contrastive behaviour of of thematic and auxiliary verbs, which, rather than based on the thematic properties of the former, is based on the "temporal" – including "modal" – properties of the latter. Guéron and Hoekstra (1988) claim that the "reason auxiliary verbs can optionally raise in Infl in both finite and non finite Ss is that auxiliary verbs, contrary to lexical verbs, can pass on a T-index to the VP they govern... in the absence of finite Tense, only an auxiliary verb can T-mark and identify a verbal projection". For these authors, lexical and auxiliary verbs are complementary in the sense that the former must receive a temporal reference (be T-marked) in order to be interpreted, whereas the latter attribute or transmit temporal reference. The main difference between auxiliary and non auxiliary verbs is therefore that the latter "absorb rather than assign a T-index". As for the former, they function as operators on VP. In the terms of Guéron (1989), they are Q-VP, in the same way determiners are Q-NP. This is what allows them to appear in a [-Tense] Infl.

In this view, the restriction on V-Raising to *Tense* is not related to theta-marking but to T-marking. In free substitution contexts, the verb becomes the head of INFL. This entails the interpretation of the verb as a QVP in the terms of Guéron (1989), which would be incompatible with the semantic interpretation of a lexical verb. Only auxiliaries are compatible with such an interpretation.

The hypothesis that the properties of the auxiliaries rather than the properties of the thematic verbs are responsible for V-movement is supported by the fact it accounts for the behaviour of some hybrid verbs more simply.

Pollock points out that modal verbs *pouvoir* (*can*), *vouloir* (*want*) and *devoir* (*must*) optionally undergo long movement in infinitival sentences:

- (75) a. Je pensais ne pas **pouvoir** dormir dans cette chambre  
I thought *ne* to not "can" not sleep in this room  
b. Je pensais ne **pouvoir** pas dormir dans cette chambre  
I thought *ne* to "can" not sleep in this room  
(76) a. Il avait dit ne pas **vouloir** donner suite à ma demande  
He had said *ne* to not "will" to take action concerning my letter  
b. Il avait dit ne **vouloir** pas donner suite à ma demande  
He had said *ne* to "will" not to take action concerning my letter

Lexically, these verbs are not modals in French because they select CP as an argument, and they th-mark it as well as their subject. Their behaviour in the b) examples above lead Pollock to claim that they cannot be associated with "ordinary th-role assignment", and that they "can also behave like modifiers".

A problem of the same kind occurs with *avoir/have* which raise in French infinitival sentences and in British English tensed clauses even when used in a possessive sense, a behaviour which contrasts with their synonyms *posséder* and *own* (cf, for example, the contrast between (8) and (10) above). Again, this is a problem for an analysis based on th-role assignment, since the conclusion must be that these verbs do not assign th-role to the NPs which show up as their subject and object. No such problem arises if the crucial property is T-marking. In effect, we can assume that the th-roles are always assigned by the trace of the verb (as a consequence of the Government Transparency Corollary),<sup>15</sup> but only those verbs which also have the property of T-marking can, or must raise to a [-finite Tense]. In this view, T-marking and th-marking are not contradictory properties: a single lexical element can have both.

The fact that this seems to be a highly parametrized aspect of languages in coherent with the idea that it constitutes a lexical property of the verbs. However, there is a very tight relation between these properties and the syntax of the language. The relation goes both ways. For example, Roberts (1993) argues that the class of modals developed in English when the language lost its T<sup>-1</sup> element. Another interesting case is Spanish which, in contrast to what happens in other Romance languages like French, Italian and Portuguese, lexically distinguishes the perfective auxiliary and the verb meaning *own*. The former is *haber*, and the latter *tener*. Lois (1989) shows that this fact has syntactic consequences: the auxiliary cannot raise alone. In contrast to what happens in the other three languages, *haber* and the past participle cannot be separated by an adverb or a floating quantifier unless this element is strongly emphasized. Lois attributes this fact to the absolute lack of semantic content of *haber*, a condition which requires strict adjacency with the thematic verb. Note that a parallelism can be drawn between Spanish and American English on one hand, and the other Romance languages mentioned and British English on the other. The former provide different treatment for the two semantic notions associated with *have*, (aspectual/T-marking and possessive/ th-marking). Spanish does this lexically, by means of two different verbs, whereas American English does it syntactically, with the use of *do-support* for the th-marking *have* of possession. The latter do not differentiate these notions neither in the lexicon nor in the syntax. This gives rise to the problem in Pollock's

<sup>15</sup> Note that this is also implicit in Roberts' account, since for him, when T<sup>-1</sup> is instantiated, only V assigns th-roles, and when V undergoes free substitution, there are two Vs in the clause, both with thematic properties.

analysis, which incorrectly predicts that there should always be a contrast in behaviour between auxiliary and thematic verbs.

This analysis also provides a very simple explanation for a problem noted in one of Pollock's footnote: "what evidence concerning *be/être* the child draws on to arrive at the correct lexical entries?". This analysis suggests that what the child knows is that *be/être* and *have/avoir* can be used as auxiliaries, whereas *exist/exister* and *own/posséder* cannot.<sup>16</sup>

In French, the modals do not constitute a special lexical class, although their semantic properties allow them to function, only marginally in contrast to *have* and *be*, as T-markers when Tense is [-finite]. It is important to remember that in other languages where the modals do not constitute a special class, they are subject to special usages make them approximate auxiliary verbs (Guéron and Hoekstra 1988). In pro-drop languages, for example, they induce clitic climbing. This link between V-raising and clitic climbing can be explained in terms of T-marking properties (as Guéron and Hoekstra (1988) suggest) rather than in terms of th-marking properties.

Let's summarizing what has been proposed so far:

- V-movement in tensed sentences is not entirely dependent of the nature of Agr. A language with a poor Agr (without Agr<sup>-1</sup>, in Roberts' terms) can undergo V-movement. Roberts' generalization (77) should therefore be replaced by (78):

- (77) If a language has null subjects then it has V-to-Agr movement  
(78) If a language has null subjects then it has V-to-Infl movement

This change is necessary because Tense in Infl can both attract V and license pro.

- In English tensed sentences, the absence of V-movement with thematic verbs is not due to the opacity of Agr but rather to the weakness of Tense.

Such an analysis allows us to accept Iatridou's proposal that some languages have no independent Agr, which she derived from the convincing empirical criticism of certain aspects of Pollock's analysis, without the need of her claim that are such extreme differences between languages that some have an Agreement node whereas for others agreement is simply a head/specifier relationship.

The same argument proposed here can also clarify the behaviour of French infinitives that has been identified. This will be done in conjunction with an explanation for the question raised in the first section as to why pro-drop languages have V-raising in infinitival sentences.

<sup>16</sup> This is also subject to parametric variation since, as noted by Pollock, existential verbs can undergo Aux-to-Comp in Portuguese.

#### 4 - PRO-DROP AND V-RAISING IN INFINITIVAL CLAUSES

As originally shown by Belletti, French differs from the pro-drop Romance languages in that there is no V-movement of thematic verbs in infinitival sentences. Compare (79) with (80) from Belletti (1990) and (81) from Lois (1989):

(79) a \**Ne comprendre pas l'italien après cinq ans d'études*  
*ne to understand not italian after five years of study*  
*dénote un manque de don pour les langues*  
*denotes a lack of gift for languages*

b \**Ne pas comprendre l'italien après cinq ans d'études*  
*ne to not understand italian after five years of study*  
*dénote un manque de don pour les langues*  
*denotes a lack of gift for languages*

(80) a. *Gianni ha deciso di non tornare piú/mai/ancora*  
*G. has decided to not come back anymore/ever*

b. \**Gianni ha deciso di non piú/mai/ancora tornare*  
*G. has decided to not anymore/ever come back*

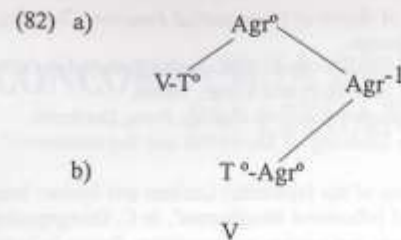
(81) a. *No me puedo imaginar a los deputados dimitir todos al mismo tiempo*  
*I cannot imagine the deputies resign all at the same time*

b. \**No me puedo imaginar a los deputados todos dimitir al mismo tiempo*  
*I cannot imagine the deputies all resign at the same time*

This parallelism between French infinitival sentences and English tensed sentences can be accounted for if we claim that in both of them the Infl node has Tense as its functional head, although this Tense does not dominate T<sup>-1</sup>. This means that V-movement results in a free substitution, which would be barred for the thematic verbs for the reasons already cited above.

This amounts to saying that there is no independent Agr node at D-structure in French infinitival sentences, which would be in agreement with Iatridou, and it should be noted this is also coherent with the fact that Agr has no overt morphological mark for person in infinitival sentence in this language. But we must now explain why the absence of the same mark in Italian and Spanish does not have the same effect.

The first step is to derive the behaviour of these languages from the hypothesis that they have an independent Agr node at D-structure. At S-structure, their Infl would be as in (a) rather than that corresponding to French (b):



In a) there is a selected substitution by V-T of the node selected by Agr<sup>-1</sup> but not in b), where V is dominated by T<sup>0</sup>. According to Roberts' hypothesis, the nature of V in the former would not affect Infl, although in the latter it would.

But why is this so? As mentioned above, this behaviour cannot be explained by morphological considerations, since French and Italian infinitives have exactly the same form. In the terms of the analysis proposed so far, the question is that, since no distinction of person is in evidence, something else must prevent Agr from being affixed to Tense at D-Structure in Italian infinitival clauses.

An answer can be found in the analysis of the pro-drop phenomenon provided by Rizzi (1982). Rizzi proposes that in pro-drop languages Agr has the feature [+pronoun]. If one makes the natural assumption that this feature implies the semantic feature [person], even if this is not morphologically realized, one can explain the observed facts. This also justifies Belletti's proposal that Agr<sup>-1</sup> is always present in Italian, even when it is not visible. Furthermore this explanation confirms the overall analysis in the syntax of verb-movement, the fundamental role is played by the semantic person.<sup>17</sup>

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<sup>17</sup> This analysis also predicts the existence of two kinds of pro-drop languages, corresponding to those which have Agr<sup>-1</sup>, like Italian, and those which haven't, like BP. This could be the reason for the difference in the position of the clitics in infinitival sentences (Kayne 1990), if, may be for morphological reasons, we relate the postverbal position with the pronominal nature of Agr. It is interesting to note that BP has preverbal clitics in infinitival sentences as well as in finite sentences. This could be due to the absence of a [+semantic person] Agr in infinitival sentences as well. However, BP seems to undergo V-raising in both cases. As noted in note (10) above, this may be related to the existence of the inflected infinitive, which can be analysed as resulting from the existence of an upper Agr node (cf Cardinaletti and Roberts, to be published).

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