*Anaphors, agreement and case**

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Abstract

This article presents an alternative explanation for the Anaphor-Agreement effect, the generalisation that anaphors do not occur in syntactic position construed with agreement (cf. Rizzi 1990). I propose that this effect finds its explanation in the theory of argument marking. Arguments must be marked by either case or agreement for reasons of LF visibility (cf. Chomsky 1986). However, when an anaphor occurs in an argument position marked by agreement, the anaphor and the predicate cannot enter into an agreement relation, so that the anaphor fails to be argument-marked and the Visibility Condition cannot be satisfied.

1 Introduction

It is well known that an anaphor cannot appear freely in a sentence. The distribution of anaphors is constrained by several conditions such as c-command, locality etc. But it is not entirely clear what kind of constraint the following ungrammatical sentence violates:

(1) *John said that himself is clever.

A number of proposals for the problem have been proposed since the early days of generative grammar. For example, Chomsky (1986) attributes the ungrammaticality of sentences like (1) to a violation of the ECP. He proposed, following Lebeaux (1983), that anaphors move to INFL at LF. In the sentence in (1), therefore, *himself* moves to the matrix INFL, and the trace of the reflexive is not properly governed.

In Chomsky (1981), on the other hand, he proposes that agreement plays a role in ruling out the sentence in (1). In his formulation of binding domain, agreement is counted as SUBJECT, one of the elements which defines binding domain.

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Rizzi (1990) proposes that the absence of nominative anaphors is to be understood in terms of what he calls the 'Anaphor-Agreement effect': anaphors cannot occur in agreeing positions. Rizzi relates this generalization to the properties of chains and a referential autonomy hierarchy.

While there are reasons to be critical of all the above proposals, the empirical evidence for the Anaphor-Agreement effect is overwhelming. This raises the question what alternative explanation might be offered for its existence. In this paper I develop an answer based on a particular view of what agreement is for. Following a well-established tradition, I adopt the view that arguments must be 'marked' in order to be made visible for θ-assignment (cf. Chomky's (1986) Visibility Condition). One way in which an argument may be so marked is through agreement (Nichols 1986).

The theory of argument marking suggests an alternative take on the existence of the anaphor-agreement effect. None of the above proposals adopts the view that anaphors cannot agree. It is just that, when they do, they end up violating some grammatical constraint (Principle A, the ECP, or the chain condition). But suppose instead that anaphors literally cannot enter into a syntactic agreement relation, such as subject-verb agreement. Then they cannot be argument-marked by agreement. As a result, they will be invisible for theta-marking whenever they occur in a position where they must be marked by agreement.

In some languages, such as Japanese and Chinese, nominative is a true case and not associated with agreement. Therefore, these languages can argument-mark a subject anaphor with case, so that nominative anaphors are available.

In yet other languages, internal arguments may enter into an agreement relation with the verb. The theory developed in this paper predicts that such internal arguments cannot be anaphors. Everaert (1990), Woolford (1999) and others have shown that this is indeed the case.

My proposal has two components: an explicit theory of argument marking and a proposal for how case and agreement relations are established in syntax. The theory of argument marking that I adopt is that of Neeleman & Weerman (1999); section 2 presents a brief outline of their views. In section 3 I argue that case and agreement relations must be syntactically encoded in the manner proposed by Neeleman and van de Koot (2002 and in prep). Section 4 demonstrates that the combination of these proposals suffices to capture Rizzi's Anaphor-Agreement effect, given natural assumptions about the content and internal structure of anaphors. We consider data from a variety of languages. We then turn to a comparison of my proposal to competing approaches (section 5). Section 6 concludes the paper.

2 Arguments, case and agreement

2.1 Agreement and case as marking of arguments

During the GB era, case was assumed to have the role of marking arguments. For example, the visibility condition states that "an element is visible only if it is assigned Case" (Chomsky 1986: 94). According to this condition, a noun/determiner phrase can receive a theta role only if it is in a position to which Case is assigned or if it is linked to such a position via a movement chain. However, in the minimalist program (e.g. Chomsky 1993, 1995 and 2001), the role of case in grammar has been dissociated from argument marking. Instead, case makes a DP 'active' for agreement-related processes such as Agree. In this paper, I will adopt the traditional view that case is for argument marking.

It has been proposed that argument-marking is not a uniform phenomenon. Nichols (1986) argues that an argument may be marked by either case or agreement (see also Kerstens 1993, Bittner and Hale 1996, Neeleman and Weerman 1999, etc). For example, consider the following sentence:

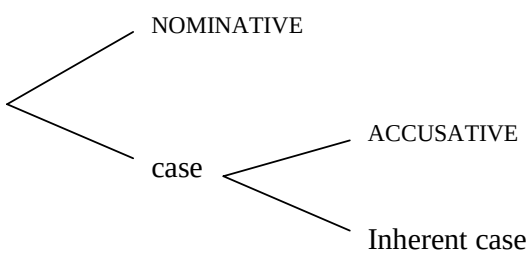
(2) John blames them.

In (2), the verb agrees with the subject *John*, and the subject is licensed by agreement. There is no agreement between the verb and the object *them*, so the object must be licensed by case, which has no morphological realisation in English, except in pronouns. Now it is generally assumed that subjects bear nominative case in English. If this assumption is correct, a finite subject in English is doubly marked by agreement and case. This redundancy is not desirable.

Nichols (1986) and Neeleman and Weerman (1999) suggest that in many languages nominative is the manifestation of the lack of case and that a finite subject is licensed only by agreement and not by case. They propose that English has the following case paradigm, where nominative (the null case) is the default with respect to the other cases, and accusative is the default with respect to inherent case:[1]

[1] This idea of case paradigms goes back to Jakobson (1933/1966).

(3)



According to Neeleman and Weerman, the basis of the taxonomy shown in (3) is the following. First, there is an asymmetry between nominative and other cases regarding agreement. If there is overt agreement in a language like English, it is always subject agreement and never object agreement.

Second, nominative subjects do not carry a case affix, whereas lexical items bearing other cases do:

(4)

Classical Latin	'woman'	'consul'
NOMINATIVE	femina	consul
GENITIVE	feminae	consulis
DATIVE	feminae	consuli
ACCUSATIVE	feminam	consulem
ABLATIVE	femina	consule

Middle Dutch	'that man'
NOMINATIVE	die man
GENITIVE	dies mans
DATIVE	dien manne
ACCUSATIVE	dien man

(taken from Neeleman and Weerman (1999, 65))

The nominative does not only contrast with the accusative but with the other cases as well. As can be seen in (4), accusative, dative, genitive and ablative all have case affixes, but only nominative does not.[2]

Third, there is an asymmetry of selection between nominative and the other cases. Let us consider the types of complements selected by lexical categories. In the Germanic languages, nouns take genitive complements, and in languages like Russian other cases are also available for complements of nouns. However, it

[2] There are some apparent counter examples such as Modern Icelandic, which looks as if it had a nominative morpheme. However, the nominative case affix in these cases is not a pure case affix, but rather a fusion of other features. See Neeleman and Weerman (1999) for details.

seems that nominative never appears. In other words, it seems that nominative cannot be selected.

The fourth asymmetry is case attraction. In Old and Middle High German, the case assigned to the noun can be superimposed on the relative operator but only if certain combinations of cases are selected in the construction shown in (5) (cf. Pittner 1995). Some examples of case superimposition are genitive instead of nominative, dative instead of nominative, accusative instead of nominative and so on. However, there is no pattern in which nominative appears instead of other cases.

(5) $[\ldots V \ldots [_{DP} \ldots N_1 [_{CP}\, REL_1 \ldots V \ldots . t_1 \ldots]]]$

Finally, the acquisition of case morphology also shows an asymmetry between nominative and other cases. It has been observed that in early stages of acquisition nominative DPs appear where dative and accusative DPs should (cf. Clahsen, Eissenbeiss and Vainikka 1994). Overgeneralization of the nominative can be understood in the following fashion. If the morphological manifestations of accusative and dative are not yet part of the child's grammar, case-marked DPs will have a morphologically null case (or empty case shell in terms of Neeleman and Weerman). But such a DP is identical to a DP without case, namely, nominative.

Now, let us consider Japanese. This language has a full range of morphological case, as can be seen below:

(6)

Japanese	'book'
NOMINATIVE	hon-ga
GENITIVE	hon-no
DATIVE	hon-ni
ACCUSATIVE	hon-o

Contrary to English and other Germanic languages, Japanese has a morphological case marker for nominative (compare the table in (4)). This suggests that subjects in Japanese are licensed by case and not by agreement. Indeed, because Japanese has a full range of morphological case, it should lack agreement. This seems to be true.

A potential problem for this view is that Japanese has honorification, and some researchers consider the Japanese honorification system a kind of agreement.[3] However, following Namai (2000), I reject this view. Suppose honorific features fulfil the same function in Japanese as φ-features do in English. Then checking of

[3] For instance, Aikawa (1993) treats honorification as agreement to explain her theory of reflexivity in Japanese.

honorific features is case-related and therefore obligatory.[4] Namai conclusively demonstrate that the distribution of honorific features is incompatible with this view. The basis of Namai's argument is as follows. First, subject honorification can trigger agreement even on an adverbial:

(7) Sensei-ga go-seisiki-ni o-yame ni natta.
teacher-NOM officially resigned
"The teacher officially resigned." (Namai 2000, 171)

In the above sentence, the adverbial *seisiki-ni* gets an honorific marker *go-*. To capture this, it would be required to posit feature checking (or some equivalent mechanism) between the adverbial and the subject noun phrase. However, this does not seem to be a tenable conclusion.

Second, Namai shows that the syntactic feature [+SH] (subject honorification) of a subject is not always matched by a similar feature on the predicate. If checking of honorific features were case-related, then absence of such features on the predicate should result in a crashing derivation, as the uninterpretable case feature of the subject DP will fail to be checked.

(8) [A sensei to B sensei]$_1$-ga [otagai$_1$-ga kyougisita
A teacher and B teacher-NOM each.other-NOM discussed
koto]-o o-mitomeni natta.
fact-ACC admitted
Lit. "The teacher A andn Teacher B admitted that each other discussed." (i.e. Teacher A and Teacher B admitted that they'd talked) (Namai 2000, 172)

In this sentence, the honorific marker *o-* is attached to the matrix verb *mitomeni natta* 'admitted' but not to the embedded verb *kyougisita* 'discussed'. The grammaticality of this example falls into place if [+SH] in nominal expressions is interpretable and does not have to be erased/deleted.

The behaviour of honorific marking on predicates also differs from that of agreement marking. When subject honorification takes place in a sentence in which the predicate consists of two conjoined adjectives, as Namai observes, the honorific marker need not appear on the two adjectives simultaneously:

[4] See Chomsky (2000 and 2001) for the idea that agreement is case related.

(9) a. C sensei-ga wakaku-te o-utukusii.
b. C sensei-ga o-wakaku-te utukusii.
c. C sensei-ga o-wakaku-te o-utukusii.
C teacher-NOM young-and beautiful
"Teacher C is young and beautiful." (Namai 2000, p173)

In (9a) the honorific marker *o-* is attached only to the second predicate (*utukusii*), in (9b) only to the first predicate (*wakakute*), and in (9c) to both predicates. This is in stark contrast with the distribution of English agreement in a similar structure:

(10) John studies and plays on every Sunday.
*John studies and play on every Sunday.
*John study and plays on every Sunday.

In English, as can be seen in the above sentences, when two verbs are co-ordinated both of them have to agree with the subject.

In some dialects of Japanese it is even possible for an honorific marker on a DP not to be matched by an honorific marker on the predicate at all:

(11) C sensei-no o-kaa-sama-ga utsukusii.
C teacher-GEN HON-mother-Ms.-NOM beautiful.
"Teacher C's mother is beautiful."

In these examples the honorific features on the DP do not appear to enter into an agreement relation at all. Since they are nonetheless grammatical, it must be the case that honorific agreement is not necessary for case-checking.

Finally, even in dialects that normally require honorific marking on adjectives there is a class of adjectives that do not tolerate an honorific marker at all and are therefore always used without such markers:

(12) *o-yuumei *o-kodoku *o-muti *o-tadashii *o-okuyukasii
"famous" "lonely" "ignorant" "right" "graceful"
(Taken from Namai 2000)

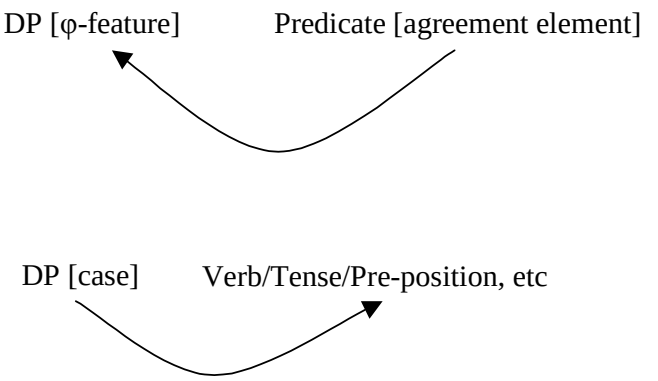
These examples illustrate that honorific marking is independent of the case-system. Taking these various arguments together, it seems to me that the properties of honorification in Japanese are not those of syntactic agreement.

To summarise, in English, other Germanic languages and Classical Latin arguments in subject positions are licensed by agreement and other arguments are licensed by case. In Japanese, on the other hand, all arguments are licensed by case.

2.2 Asymmetry of argument marking

Following Neeleman and van de Koot (in prep), I assume that marking of arguments by agreement is done from the predicate to an argument. In other words, an agreeing predicate is a dependent element that selects the φ-features in the argument. The external argument is visible for theta-marking as a result of the fact that the argument that satisfies this role also satisfies the verb's agreement requirement. I also assume that licensing of arguments by case is done from an argument to an appropriate licenser such as a verb, tense or a pre/post position. In other words, a case-marked argument is a dependent element that selects a particular head.[5] See (13).

(13)



Let us consider the following example (14).

(14) John likes Bill.

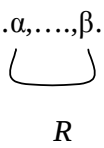
Here, the φ-features of the subject argument *John* license the agreement in the verb *likes*. Agreement is not relevant to the object *Bill*: in English an object argument is licensed through case. *Bill* in (14) has accusative case, and this case is matched with a verb.

3 The Syntax of case and agreement

3.1 Case and agreement involve a syntactic dependency

As Koster (1987) states, grammatical relations are dependency relations of some kind between a dependent element β and an antecedent α:

[5] The asymmetry of argument marking between agreement and case is originally due to Nichols (1986).

(15) 

The relation ***R*** has the following five properties:

(16) 1) A dependent must have an antecedent. (obligatoriness)
2) The antecedent must have only one antecedent. (uniqueness of the antecedent)
3) The antecedent must c-command the dependent. (c-command)
4) A dependent must have its antecedent within its local domain. (locality)
5) An antecedent can have more than one dependent. (non-uniqueness of the dependent)

(cf. Koster 1987 and Neeleman and van de Koot 2002)

Anaphoric binding, θ-role assignment and movement have these five properties and may therefore be assumed to be mediated by ***R***:

(17)

BINDING	antecedent	R	anaphor
Θ-ROLE ASSIGNMENT	argument	R	predicate
MOVEMENT	antecedent	R	trace

It seems that case and agreement are also established by ***R***:

(18)

AGREEMENT	argument	R	predicate
CASE	V, P, Tense, etc.	R	argument

As observed by Koster, both agreement and case assignment/checking have the properties stated in (16). The examples in (19) show the five properties of a dependency for agreement. In (19a), there is no antecedent for the predicate agreement, that is, the verb does not have a subject that agrees with it in the sentence. The uniqueness property of agreement is observed in (19b) from Dutch. In this sentence, the plural agreement on verb takes *Jan* and *Marie* as split antecedents, and the sentence is ungrammatical. The sentence in (19c) shows that a predicate has to agree with a lexical element that c-commands it. In this sentence, the verb is not c-commanded by *his*, which has the φ-features compatible with the verb. The property of locality is shown in (19d) where the embedded verb agrees with the matrix subject. In (19e), both of the verbs agree with the subject, and this shows the property of non-uniqueness of dependents.

(19) a) *You loves Bill. (obligatoriness)
b) *dat Jan$_1$ Marie$_2$ zagen$_{1+2}$ (uniqueness)
that Jan Marie see+3PL
c) *His$_1$ friends blames$_1$ Bill. (c-command)
d) *John$_1$ said that they likes$_1$ Tom (locality)
e) John$_1$ studies$_1$ and plays$_1$ at home. (non-uniqueness)

That case licensing also has these five properties is demonstrated by the examples in (20).

(20) a) *John is envious him$_1$. (obligatoriness)
b) *John-ga [Bill-ga Tom-ga-o semeta to] itta. (uniqueness)
John-NOM Bill-NOM Tom-NOM-ACC blamed COMP said
c) *Him$_1$ loves$_1$ John. (c-command)
d) *Frank hat in den Ferien seinem Sohn besucht. (locality)[6]
Frank has in the-DAT-PUL holidays his-DAT son visited
"Frank has visited his son on holiday"
e) John believed$_1$ him$_1$ to be sensitive and her$_1$ to be melancholic. (non-uniqueness)

In (20a), the accusative pronoun *him* is not licensed by anything. The property of uniqueness is demonstrated in the Japanese sentence (20b). Here, the object in the embedded clause is doubly case licensed, nominative by embedded T (which is accessible on V, so that locality is not violated) and accusative by embedded V itself, and the sentence is ungrammatical. In (20c), the accusative pronoun *him* is not c-commanded by the accusative case assigner, that is, a verb, and the sentence is ungrammatical. The property of locality is shown in the German example in (20d). In this sentence, the possessive pronoun has the dative form *seinem* instead of the accusative form *seinen*. The sentences is ungrammatical because the case of the pronoun is licensed by the preposition and not by the verb, which is nearer than the preposition. The non-uniqueness of dependents is shown in (20e). In this sentence, two accusative pronouns, *him* and *her* are licensed by one verb, *believe*, and the sentence is grammatical.

In this section, we have seen that ***R*** captures the relations between arguments and case/agreement. Next, let us consider how the dependency relation R is encoded in syntax.

[6] I thank Dirk Bury for providing this example.

3.2 Syntactic encoding of syntactic dependencies

Following Chomsky (1995), let us assume that the computational system of human language can only access the information in lexical items:

(21) **Inclusiveness**
"outputs consist of nothing beyond properties of items of the lexicon (lexical features) – in other words, that the interface levels consist of nothing more than arrangements of lexical features" (Chomsky 1995, 225)

Therefore, at the level of narrow syntax, there are no indices. This raises the question how syntax can establish syntactic dependencies. In other words, we need an answer to the question how the relation *R* discussed in the previous section is encoded in syntax.

It is often proposed that the relation *R* is established through the copy operation. For example, Hornstein (1999 and 2001) attempts to reduce both control and binding to movement. Similarly, Chomsky (1986) and Reuland (2001a and 2001b) suggest that anaphors undergo movement to establish a dependency with their antecedent. However, there are problems with reducing all syntactic dependencies to movement.

Firstly, in the absence of indices or some other enrichment of the theory, it is not possible to distinguish between 'accidental' identity of lexical items (through merger of more than one instance of the same lexical item) and identity as a result of copying. For this reason, it must be assumed that items in the numeration are distinguished through indexation (see Chomsky 1995). But given Inclusiveness, this does not appear to be the optimal solution.

Secondly, the approaches by Hornstein and Reuland do not say anything about why dependency relations show the five properties in (16). Indeed, even if all dependencies could be reduced to movement, it would still remain unexplained why this relation has these five properties.

Finally, as pointed out by Neeleman and van de Koot (2002 and 2004 and in prep), the movement approach cannot capture the differences between various dependencies. For example, movement usually abides by Relativised Minimality (Rizzi 1991) or the Minimal Link Condition, MLC, (Chomsky 1995), but anaphoric binding appears to violate these conditions:

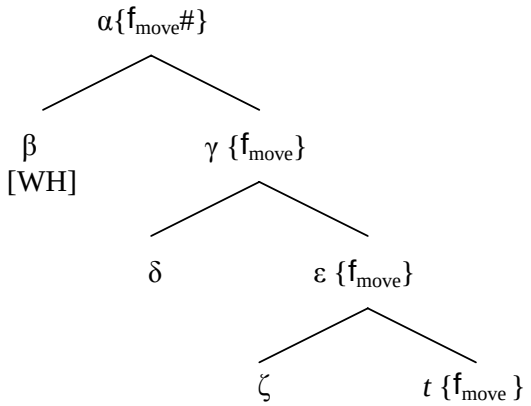
(22) John_1 told Bill_2 about $\text{himself}_{1/2}$.

In the above sentence, either *John* or *Bill* can be the antecedent of the reflexive *himself*. However, if the movement approach was on the right track, it should be

impossible for *John* to be the antecedent of *himself* because intervening *Bill* should induce a Relativised Minimality/MLC violation.

'The Configurational Matrix' (Neeleman and van de Koot 2002) is a paper which addresses the question why the clustering of properties in (16) should exist. The central concern of the paper is to demonstrate that this question is directly related to the problem of how to establish dependencies without violating inclusiveness. More in particular, they argue that there is only one syntactic encoding of dependencies that is compatible with the Inclusiveness Condition and that the properties of this encoding fall out from minimalist assumptions. Inclusiveness determines that dependent lexical items must express their dependency as a lexical property, formalised by the authors as a function. A function is copied upward and then satisfied by an appropriate syntactic object at the earliest opportunity. Let us take A'-movement as an example. An A' trace introduces the function f_{move}, as in (23).

(23)



In (23), f_{move} is copied upwards, then, at the node α, which directly dominates the moved WH operator, f_{move} is satisfied (# indicates that the function is satisfied).

The way functions are copied and satisfied is determined by two principles, namely Inclusiveness and Accessibility:

(24) Inclusiveness
The syntactic properties of a nonterminal node are fully recoverable from the structure it dominates; the syntactic properties of a terminal node are fully recoverable through mapping procedures.
(Neeleman and van de Koot 2002, 529)

(25) Accessibility
Relations between nodes require immediate domination.
(Neeleman and van de Koot 2002, 532)

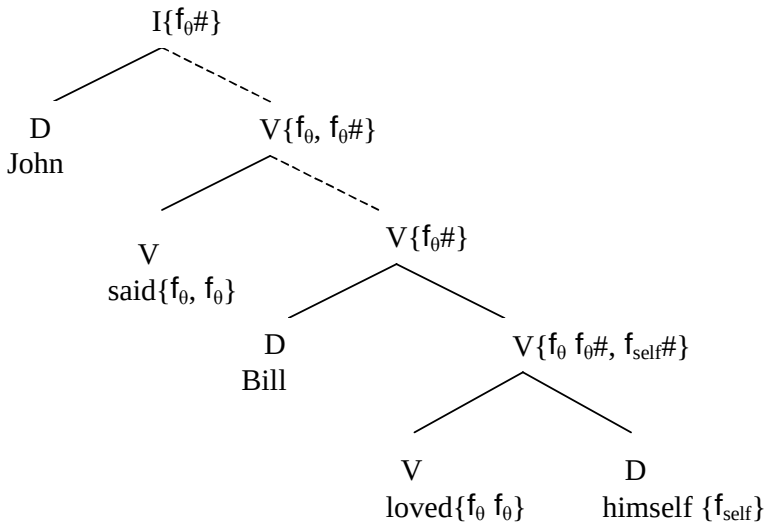
The Inclusiveness Condition in (24) is essentially that of Chomsky (1995), but formulated explicitly so as to hold of every subtree in a tree. Accessibility says that one node cannot be related to another, unless they are in a direct domination relation.

The properties of anaphoric binding fall into line with those of movement and other dependencies, once it is assumed, following Williams (1994), that the antecedent of an anaphor is a θ-role. Compare (26a) with (22), repeated here as (26b).

(26) a) $John_1$ said that $Bill_2$ loved $himself_{*1/2}$.
b) $John_1$ told $Bill_2$ about $himself_{1/2}$.

In (26a), the reflexive *himself* establishes a dependency with the embedded subject *Bill*. The tree representation in (27) shows how this is done.

(27)



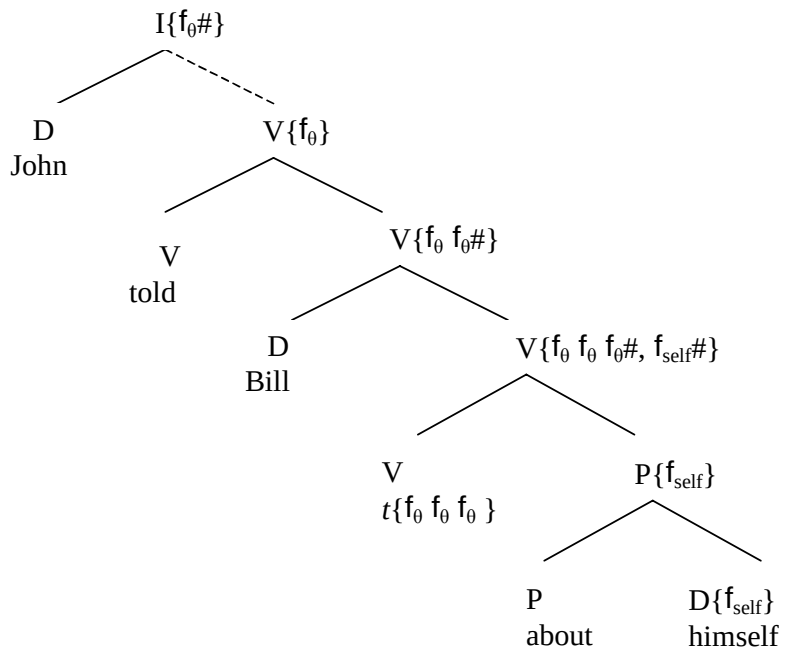
The view of binding taken here is that, in syntactic binding, a bindee is not directly related to its DP binder but that this surface relation is mediated by two underlying relations, namely one mediated by the anaphoric function f_{self} and one mediated by the argument-licensing function f_θ.[7] In the above sentence, f_{self} is introduced by the anaphor *himself* and copied upward to V in search on an antecedent. In this position, f_{self} is satisfied by the external f_θ that is introduced by the embedded predicate *loved*. f_{self} cannot be satisfied by the internal f_θ that is satisfied by *himself* because this would give rise to endless self-referring, i.e., a violation of *i*-within-*i*

[7]Recall that the view of binding taken here is similar one to Williams (1994).

filter (cf. Brody 1981, Chomsky 1981, etc). The reflexive in the above sentence cannot establish a long-distance dependency with the matrix subject *John*. The reason for this is that f_{self} cannot be copied past the embedded verbal projection, because economy considerations determine that a function is satisfied at the earliest opportunity. As a consequence, f_{self} cannot be related to any f_{θ} in the predicate *said*, and the matrix subject *John* cannot be the antecedent of *himself*.

While (26a) is compatible with the conclusion that binding obeys Relativized Minimality, example (26b) appears to suggest that this condition can be violated by binding after all. This contradiction dissolves under the analysis proposed here. As shown in the tree below, f_{self} introduced by *himself* may either be satisfied by the f_{θ} that is satisfied by *John* or by the one that is satisfied by *Bill* (f_{θ} satisfied by *himself* cannot satisfy f_{self} because of the *i*-within-*i* filter):

(28)

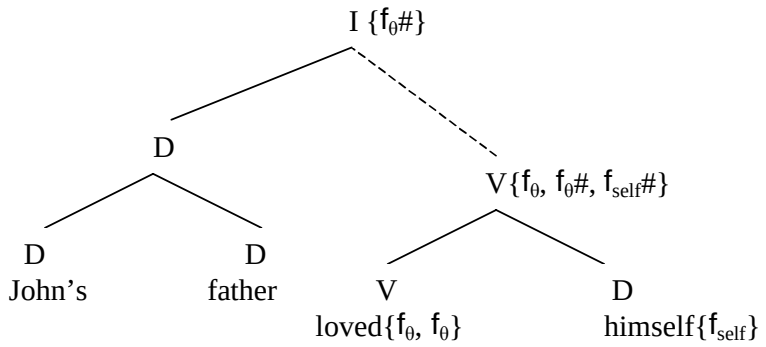


This approach to binding also explains the ungrammaticality of the sentence in (29).

(29) *John's$_1$ father loved himself$_1$.

The intended interpretation of the above sentence is that *John's father loved John*. The tree is shown below:

(30)



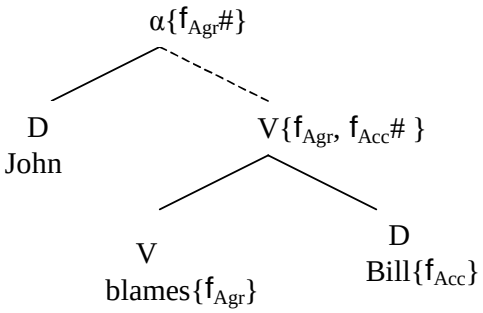
In this structure, f_{self} is copied up to the upper V node and satisfied by the external f_θ that is ultimately satisfied by the whole D *John's father*. The external f_θ cannot be satisfied by the D *John's* because of Accessibility. Therefore, no dependency can be established between *John* and *himself*.

Now, let us consider how the Configurational Matrix could deal with argument marking. Let us assume that a predicate that agrees with an argument introduces an agreement function, f_{Agr}, that is satisfied by the external argument.[8] Let us also assume that an argument bearing case introduces a case function (for example, f_{Acc} for accusative, f_{Nom} for nominative) and that a case function is satisfied by an appropriate case licenser. For example, nominative in Japanese is satisfied by T, and accusative in both English and Japanese by V.

Let us consider how licensing of arguments can be done through function application.[9] Consider the example in (31), whose tree is shown in (32).

(31) John blames Bill.

(32)



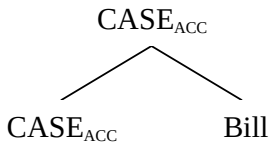
[8] Note that this requires that an agreement function cannot be satisfied by an internal argument. We will return to this point shortly.

[9] See also Neeleman and van de Koot (in prep).

A function can be copied upward recursively and must be satisfied by an appropriate daughter node. In (32), the external argument *John* is argument marked by f_{Agr}. This function is introduced by the verb *blames* and copied upward and then satisfied by the subject, a daughter of the node α. The object argument *Bill* is licensed by the application of f_{Acc}. This function is introduced by the object *Bill* and copied up and satisfied by the verb *blames*.

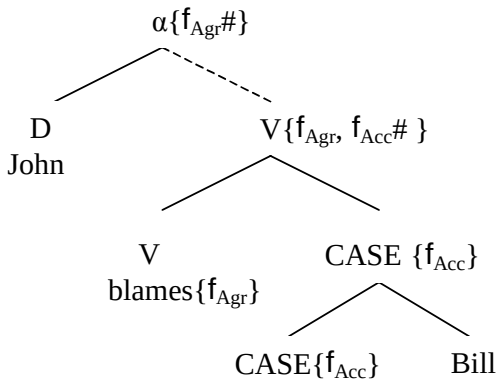
A question that arises is why f_{Agr} cannot be satisfied by *Bill*. If it could, the verb could not enter into an agreement relation with *John*. I suggest the following answer to this question. Let us adopt Neeleman and Weerman's (1999) assumption that case-marked DPs have a case shell. According to them, abstract case is represented in the syntax by a head that lacks morphological content. Thus, a nominal expression such as *Bill* has the following structure:

(33)



The tree structure in (34), which is the modification of (32), shows how the structure (33) blocks the satisfaction of f_{Agr} by an accusative argument.

(34)

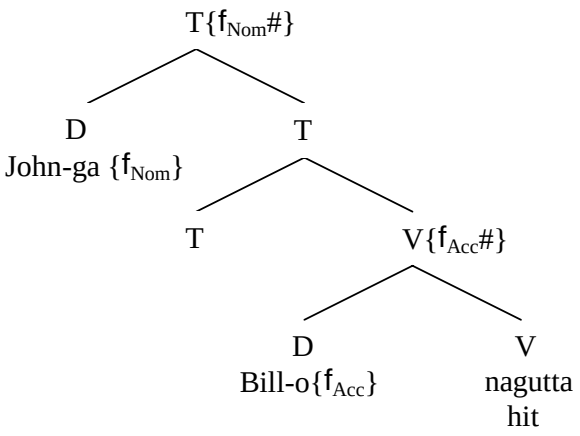


In the above structure, f_{Agr} cannot be satisfied by the phi-features of *Bill* because Accessibility restricts relations between nodes to direct domination. The agreement function, f_{Agr}, in the upper V node is not in a relation of immediate domination with *Bill*. In other words, the upper CASE node blocks the satisfaction of the agreement function.[10,]

[10] A potential problem for this proposal is that, if CASE is an extended projection of N in Grimshow's sense (1991), the φ-features of N could percolate to the CASE node, so that f_{Agr}

As discussed above, there is no agreement in Japanese, so verbs in Japanese do not introduce f_{Agr}. Nominative case in Japanese is 'assigned' just like accusative case, except that the licensing head is T rather than V. Thus, (35) is the structure for a simple transitive sentence.[11] Here, the external argument *John* introduces f_{Nom}, and the internal argument, *Bill*, introduces f_{Acc}. The nominative case function is satisfied by tense, while the accusative case function is satisfied by the verb.

(35)



The approach to argument marking developed here offers an interesting explanation for the fact that Japanese can have multiple nominatives, as observed by a number of researchers (see Tateishi (1991) Takahashi (1994) Vermeulen (2002), etc.). It also explains why languages like English cannot. Consider the following multiple nominative sentence in Japanese, whose tree representation is shown in (37).

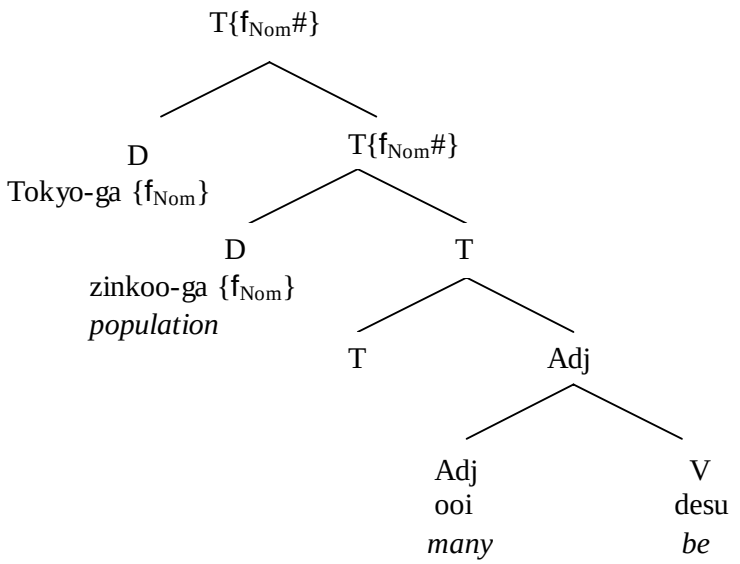
(36) Tokyo-ga zinkoo-ga ooi desu.
Tokyo-NOM population-NOM many be
"Tokyo's population is large."

---

would be satisfied by that node. However, It is not always the case that all features of a lexical head percolated to the uppermost extended projection. For example, theta-related information in V does not seem to percolate to C (p.c. Ad Neeleman). Therefore, it is not an implausible assumption that the φ-features of N do not percolate to CASE.

[11] CASE phrases are omitted in this representation.

(37)



In the above sentence, both nominatives, i.e., *Tokyo-ga* and *zinkoo-ga*, introduce f_{Nom}, and these functions are satisfied by the node T without violating the Inclusiveness Condition or Accessibility.[12,13]

The theory presented here also explains why a verb can agree with only one phrase outside the VP. The intended interpretation of the sentence in (38) is that *London's population is large* and the verb agrees with both *London* and *the population*.

(38) *London the population is large.

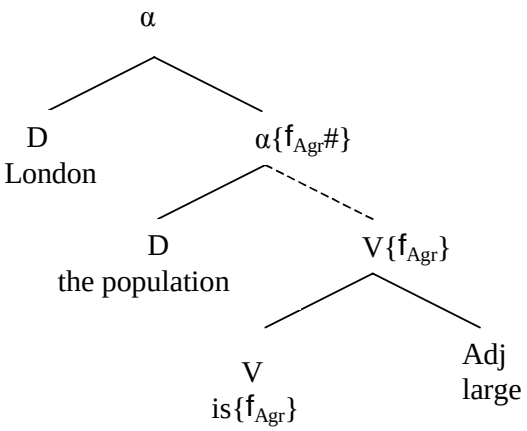
The tree structure of the above sentence is shown below:[14]

[12] Multiple accusatives, as in the English double object construction, can be analysed likewise. The only difference is that, in this construction, the objects introduce f_{Acc}, which is satisfied by V.

[13] I am not committed to the detailed analysis of the upper nominative, that is, if it is derived by movement or base generated. See , for example, Vermeulen (2002) for discussion of multiple nominative constructions.

[14] The CASE phrase of *London* is omitted here.

(39)



As can be seen in the above representation, f_{Agr} resides in the verb and is copied up to the dominating V. This function is copied further up and satisfied by *the population* in the lower segment of the node α. Once a function is satisfied, it cannot be satisfied again. Therefore, in the above structure, *London* cannot establish a relation with the predicate and cannot be argument marked.

4 Explaining the anaphor-agreement effect

4.1 Anaphors in languages with nominative agreement

Some researchers (see Rizzi 1990 and Woolford 1999) have proposed that the reason for the ungrammaticality of the sentences in (40) is not because anaphors are banned from subject position but because they are banned in a position that is construed with agreement. The incompatibility of anaphors and agreement is called the Anaphor-Agreement effect (Rizzi 1990).

(40) *John$_1$ thought that himself$_1$ was a genius.

(41) Anaphor-Agreement Effect
Anaphors do not occur in syntactic positions construed with agreement.
(Rizzi 1990, 27)

In this section, I will present an explanation for the Anaphor-Agreement Effect in languages with nominative agreement. The first point I would like to make is that the anaphor-agreement effect is not an issue of binding theory per se. The theory presented in section 3.2 does not prevent an anaphor in the embedded clause from being bound by the antecedent in the matrix clause. The possibility of binding across a clause boundary can be observed in (42). In this sentence, the anaphor

themselves placed within the subject of the embedded clause is bound by the antecedent *they* in the matrix clause, and the sentence is grammatical.

(42) They$_1$ said [that the photos of themselves$_1$ were in the shop].

Reinhart and Reuland (1991 and 1993) argue that reflexivity is a property of a predicate, and that co-argumenthood of the antecedent and an anaphor is essential for anaphoric binding. On this view, the relation in (42) cannot be an instance of binding.[15] To explain the grammaticality of the sentence in (42), Reinhart and Reuland would argue that *themselves* in (42) is a logophor because it is not in a co-argument with the antecedent, Therefore, the sentence in (42) would not pose a problem to binding theory. However, if we consider ECM constructions, we notice a potential problem of Reinhart and Reuland's approach:

(43) John$_1$ believes himself$_1$ to be clever.

In the above sentence, the matrix subject *John* binds the embedded subject *himself* although *John* and *himself* are not co-arguments in the strict sense: *John* is an argument of the matrix verb *believe,* and *himself* is an argument of the embedded predicate *clever*. If reflexivity is a property of predicates, it is natural to assume that an anaphor and its antecedent must be co-arguments. The grammaticality of (43) is unexpected under such a theory. To account for this type of sentence, Reinhart and Reuland (1993) proposed the following two binding conditions:

(44) Condition A
A reflexive-marked syntactic predicate is reflexive**.**
Condition B
A reflexive semantic predicate is reflexive marked.[16]

The verb *believe* in (43) is the syntactic predicate of *himself* in the sense that *himself* receives case from *believe*. On the other hand the adjective *clever* in the embedded clause is the semantic predicate of *himself* because *himself* receives a theta role from *clever*. The sentence in (43) satisfies the condition A in (44)

---

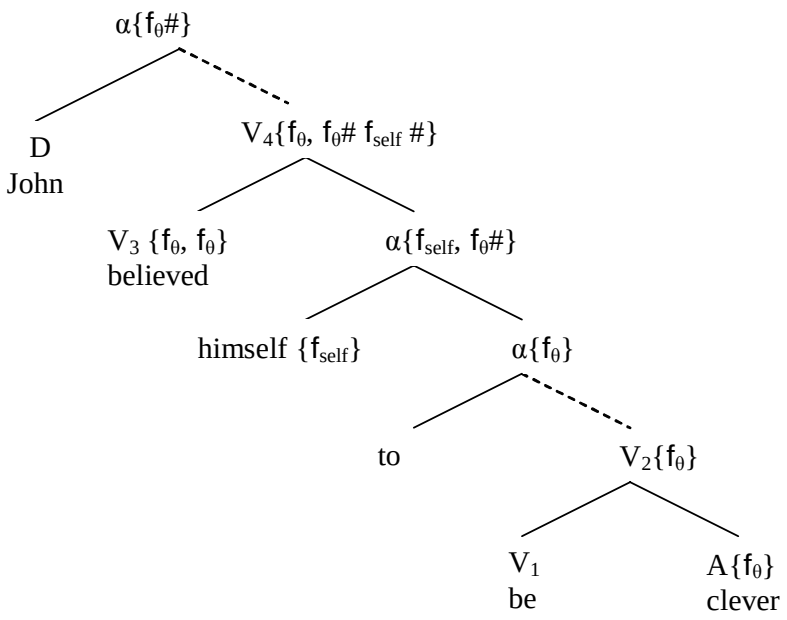
[15] Saying 'there must not be binding beyond a clause boundary' is actually too strong. Reinhart and Reuland's approach has some mechanism to allow the antecedent to bind an anaphor beyond a clause boundary in some constructions, as will be discussed shortly with some of its problems.

[16] Reflexive marking and reflexive predicate are defined in the following way. A predicate (formed of P) is reflexive marked iff either P is lexically reflexive or one of P's argument is a SELF anaphor. A predicate is reflexive iff two of its arguments are coindexed. See Reinhart and Reuland (1993).

because *believes* is a syntactic predicate of *himself*, which reflexive-marks *believes*. But it is not clear why the notion "syntactic predicate" should play a role in binding. Or, to put the same question differently, why should case-marking be relevant to binding?

In fact, in the absence of any special stipulations, the version of binding we have adopted in section 3.2 does not prevent the binding of the reflexive in (40). Before considering these sentences in more detail, let us first see how the theory adopted here accounts for the grammaticality of (43). The tree of (43) is shown below:

(45)



Here, the anaphoric function f_{self} is introduced by *himself* and copied upward, and it is satisfied by the theta function that is ultimately satisfied by *John*. Therefore, *himself* and *John* enter into a dependency in (43).

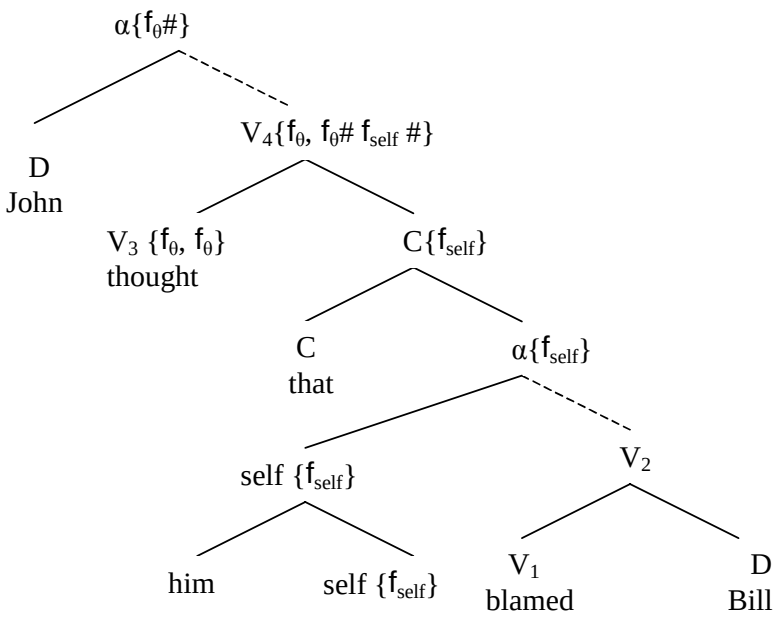
Then, why is (40) (repeated below as (46)) ungrammatical, given that binding across a clause boundary is possible?

(46) *John$_1$ thought that himself$_1$ blamed Bill.

Let us consider (46) first. As can be seen in (47), the structural representation of (46), the anaphor function f_{self}, which is introduced by the reflexive *himself*, can be copied up to the node V_4, where it is satisfied by the f_θ that is ultimately satisfied by the matrix subject *John*:[17]

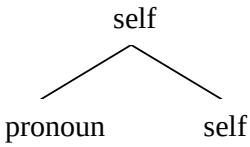
[17] Irrelevant functions are omitted from the tree representation.

(47)



Then, what makes sentences like (46) ungrammatical? As suggested earlier, I would like to argue that this is due to a failure of argument marking. Following Helke (1979), let us assume that a reflexive has the following structure:

(48)



This proposal is supported by Williams' (1981) Righthand Head Rule. The English reflexive *himself* is headed by *self*, the Japanese reflexives *kare-zisin* (him-self) and *zibun-zisin* (self-self) are headed by *zisin* and the Dutch reflexive *zich zelf* is headed by *zelf* and so on.[18] I also assume that the reflexive morpheme *-self* does not have a full set of φ-features. The pronominal part of an English reflexive appears to have a full set of φ-features. But since a reflexive is headed by *self*, the implication is that a reflexive, being a projection of *–self*, does not have a full set of φ-features. For instance, the head of an English reflexive has two variants: *self* and *selves*. These contrast with each other with regard to a number feature, but not with regard to a person feature. The point is that in English both person and number features are

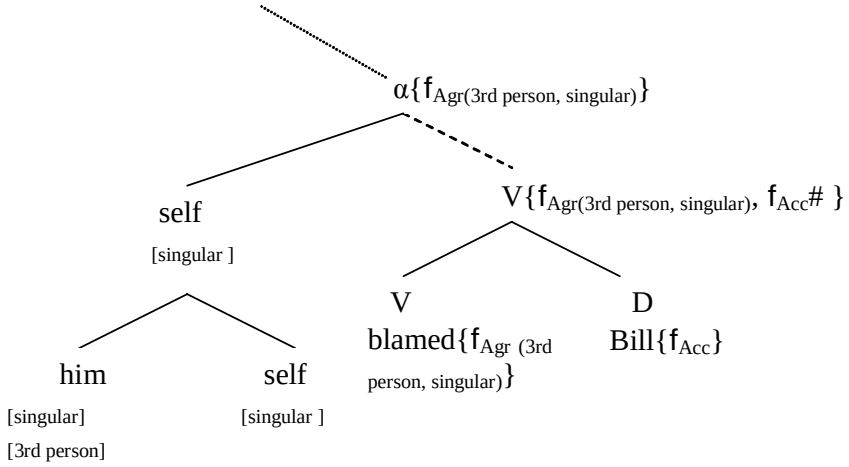
[18] I put aside the issues of simplex anaphors in this paper.

relevant for agreement between a subject and the verbal predicate but that the reflexive head *self*/*selves* does not reflect the differences of person:[19]

(49)	*I*	eat	myself
	you	eat	yourself
	we	eat	ourselves
	he/she	eats	him/herself
	they	eat	themselves

Now, let us consider how the reflexive structure in (48) prevents the occurrence of a nominative anaphor. (46) has the structure in (50) below.

(50)



The accusative case function f_{Acc} is introduced by the object *Bill* and copied up to the dominating V-node, where it is satisfied under direct domination by the appropriate case licenser, that is, V. The agreement function f_{Agr} resides in the head node V, and is copied up to the α node, which directly dominates the potential satisfier of f_{Agr}, namely, *self*. However, f_{Agr} cannot be satisfied by *self* because *self* only carries the feature [singular], while f_{Agr} requires an argument containing both number and person features. Hence, the function fails to be satisfied. Furthermore, f_{Agr} introduced by the verb *blamed* cannot be satisfied by *him* in *himself*, which is feature-compatible with the verb, because Accessibility restricts the domain for function application to direct domination. Therefore, the pronoun cannot be accessed by the function on α.

[19] In addition, there is no inflection for gender in English, and I assume that gender feature does not play any role in argument marking. I tentatively assume that a φ-feature bundle in English does not contain gender feature.

4.2 Anaphors in languages with object agreement – A case study of Swahili

Swahili has object agreement. Then, if Rizzi's generalisation is correct, we expect that reflexives do not appear in object positions in Swahili. However, contrary to this expectation, Swahili can have reflexives in object positions.

Woolford (1999) analyses Swahili reflexive data and concludes that Swahili does in fact display the anaphor-agreement effect, because normal object agreement never occurs with anaphoric objects. Instead, a reflexive in object position triggers the presence of the reflexive object morpheme *-ji* on the verb. Consider the following sentences:

(51) Juma a-li-m-busu yeye.
Juma 3SUBJ-PAST-3OBJ-kiss her.
"Juma kissed her." (Hoekstra and Dimmendaal 1983, p55)

(52) Ahmed a-na-m-penda Halima.
Ahmed 3SUBJ.SG-PRES-3OBJ -love Halima
"Ahmed loves Halima." (Vitale 1981, P137)

(53) Ahmed a-na-ji-penda mwenyewe
Ahmed 3SUBJ-PRES-REFL-love himself
"Ahmed loves himself." (Vitale 1981, p137)

(51) and (52) show that objects agree with their predicates in Swahili. In these examples the 3rd person singular object agreement morpheme *–m–* is attached to the verb. On the other hand, (53) shows that when the object is a reflexive, the reflexive object agreement morpheme *–ji–* is attached to the predicate.

From the fact that the normal object agreement cannot occur with anaphoric objects Woolford concludes that Swahili exhibits the Anaphor-Agreement effect. She modifies Rizzi's characterization of this effect to reflect this:

(54) Woolford's Anaphor-Agreement Effect
Anaphors do not occur in syntactic positions construed with agreement, unless the agreement is anaphoric (Woolford 1999, 264).

In this section, I would like to analyse Swahili data from the perspective developed above.

Before proceeding to my analysis, it is worth considering some more properties of Swahili. Firstly, the morpheme, *-enyewe* is what Vitale (1981) calls an "emphatic reflexive". The following example shows this property:

(55) kasha lenyewe li-li-fika
box itself 3SUBJ-PAST-arrive
"The box itself arrived." (Vitale 1981, p135)

(56) wanafunzi wenyewe wa-li-kataa ku-hudhuria shule
students themselves 3.SUBJ.PL-PAST-refuse to-attend school
"The student themselves refuse to go to school." (Vitale 1981, p135)

In (55) and (56), *lenyewe* and *wenyewe* emphasise the subjects.[20]

Secondly, objects in transitive sentences may be deleted in Swahili as long as the predicate carries an object agreement morpheme:

(57) Juma a-li-u-fungua
Juma 3.SUBJ-PST-3OBJ-open
"Juma opened it" (Vitale 1981, p24)

(58) Fatuma a-na-ya-panda
Fatuma 3SUBJ-PRES-3OBJ-plant
"Fatuma plants them." (Vitale 1981, p24)

(59) *Juma a-li-fungua
Juma 3SUBJ-PST-close
"Juma closed (something)." (Vitale 1981, p24)

In (57) and (58), although there is no object argument, the sentences are grammatical because there are object agreement morphemes on the verbs. On the other hand, (59) contains neither an internal argument nor an object agreement morpheme. Since *fungua* 'close' is a transitive verb, the resulting sentence is ungrammatical.

Thirdly, when the reflexive morpheme *–ji* is put in a verb, *-enyewe* can be omitted. Therefore, both (60) and (61) are grammatical:

(60) Ahmed a-na-ji-penda mwenyew
Ahmed 3SUB-PRES-REFL-love himself
"Ahmed loves himself." (Vitale 1981, p137)

[20] Vitale (1981) assumes that *lenyewe* and *wenyewe* adjoin to the subject NPs under the node Adj.

(61) Ahmed -na-ji-penda
Ahmed SUBJ-PRES-REFL-love
"Ahmed loves himself." (Vitale 1981, p137)

From the above observations, I conclude that *–enyewe* is pseudo-reflexives and the morpheme *–ji* is the real reflexive. By "real reflexive", I mean a lexical/morphological item which establishes an anaphoric dependency in the domain of syntax or morphology (such as. English *himself*) or one that reflexivizes a predicate.[21] To be more concrete, we may assume that affixation with *–ji* affects the semantic structure of a predicate in the way indicated below:

(62) $\lambda y\, \lambda x\, [x\ y] \xrightarrow{\text{affixation with } -ji} \lambda x\, [x\ x]$

The resulting predicate is monadic and is therefore associated with a single θ-function in the syntax. The view defended here implies that the realization of reflexivity in natural language may vary. It may be expressed syntactically through application of the function f_{self} or via a semantico-morphological route such as affixation with *–ji*. Reflexivisation by a verbal morpheme is certainly not a unique property of Swahili. It can also be observed in Kannada (cf. Lidz 1995 and his subsequent works) and Finnish (cf. Sells, Zaenen and Zecs 1987), among other languages.

Considering that a predicate with *–ji* introduces only one theta function, *enyewe* is probably used adverbially, in a way similar to the following English reflexives (compare (55) and (56)):

(63) He himself refused to accept the money.

The following argument supports this. Consider once again the examples in (51), (57) and (59). The lexical items that are seemingly objects in Swahili (for example, *yeye* in (51)) are optional. Indeed, their presence gives rise to emphatic readings. On the other hand, the sentence in (59) shows that what is called object agreement morphemes cannot be omitted. Then, so-called objects in Swahili should be treated as adjuncts.

Even if we were forced to assume that an object like *yeye* in (51) was an argument, we could still account for the observed reflexivization pattern. Let us consider the sentence in (60), repeated below.

---

[21] In terms of Reinhart and Reuland's reflexivity theory, *–enyewe* does not have the ability to reflexive-mark the predicate (cf. Reinhart and Reuland 1991 and 1993).

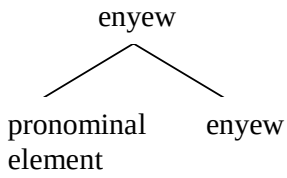
(60) Ahmed a-na-ji-penda mwenyew
Ahmed 3SUB-PRES-REFL-love himself
"Ahmed loves himself." (Vitale 1981, p137)

There are two potential analyses that present themselves.

First, suppose that the Theme theta role of the predicate *a-na-ji-penda* is satisfied by *mwenyew*, and that, following Woolford (1999), the morpheme *–ji* is not a real object agreement morpheme. Then, the object argument *mwenyew* has to be licensed by case and not by agreement. In this case, nothing prevents *mwenyew* from occurring in the object position.

Second, consider the alternative possibility that *–ji* is real object agreement and that it is a manifestation of agreement between the reflexive and the predicate. In this case, the object argument has to be licensed by agreement. Let us see if there is agreement mismatch between the predicate and *myenyew*. *Mwenyew* is morphologically complex and has a structure parallel to complex reflexives found in Germanic languages, Japanese, etc. (cf. (48) in the previous section).

(64)



Consider the sentence in (60) again. Here, the *mwenyew* is headed by *–enyew*. There is no reason to assume that these elements do not agree and as a result the sentence is grammatical. Therefore, we do not observe any anaphor-agreement effects in object anaphors in Swahili.

In this section, I have suggested several approaches to the absence of anaphor-agreement effect of object anaphors in Swahili. We may conclude that these data can be fully accounted for under the argument licensing system presented in section 2.

4.3 Languages that lack agreement

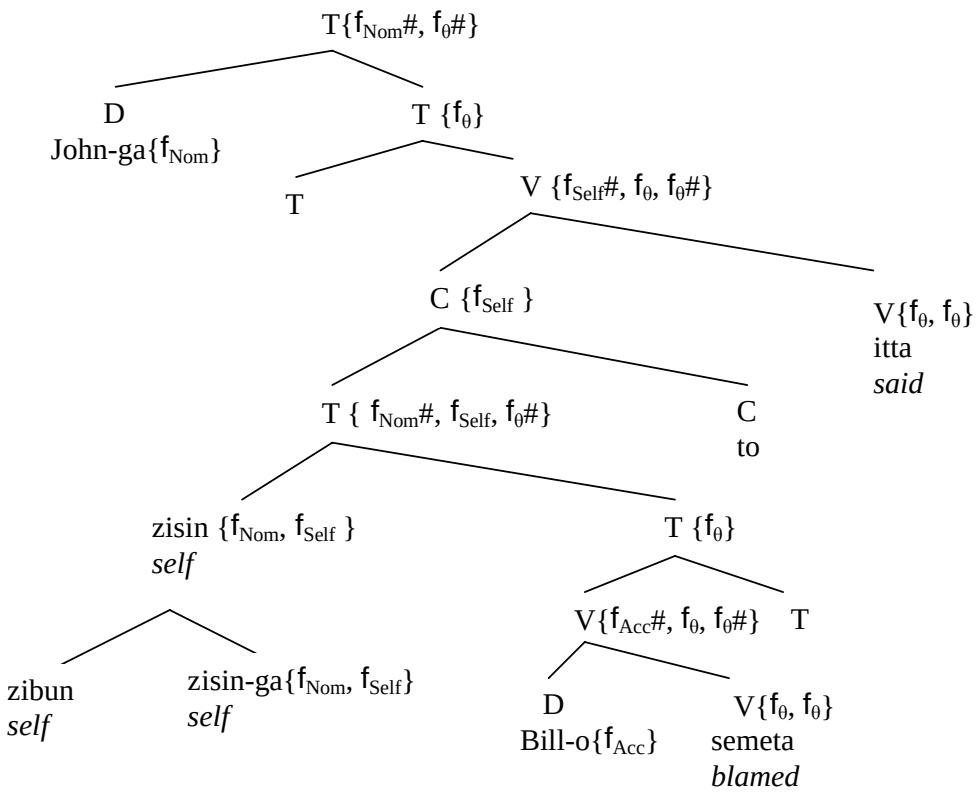
Let us finally consider languages that lack agreement. As mentioned in section 2.1, Japanese is one of the languages that have no agreement at all. This implies that in Japanese all arguments must be licensed by case and that anaphors can appear in nominative positions in Japanese. The following sentence confirms this prediction:

(65) John$_1$-ga [zibun-zisin$_1$-ga Bill-o semeta to] itta
John-NOM self-self-NOM Bill-ACC blamed OMP said
"John$_1$ said that he$_1$ blamed Bill."

Let us see why this example satisfies visibility. The tree in (66) is the structure of (65). It shows how the arguments are case-licensed. The embedded object *Bill* has an accusative case function, f_{Acc}. This function is copied up to the maximal projection of the verb and satisfied by the verb (recall that f_{Acc} is licensed by a verb). Both maximal and embedded subjects, *John* and *zibun-zisin*, have nominative case functions, f_{Nom}. It has been assumed that, at least in Japanese, nominative case is licensed by Tense (cf. Takezawa 1987, Vermeulen 2002, etc). In line with this, I assume that f_{Nom} is licensed by T in Japanese, so that the nominative functions in *John* and *zibun-zisin* are satisfied by matrix T and embedded T, respectively.

Now let us consider how the nominative reflexive, *zibun-zisin-ga*, can establish a dependency with the subject *John*. As can be seen below, f_{self} residing in *zibun-zisin* is copied upward to the matrix V node and satisfied by the theta function that is ultimately satisfied by the argument *John*. As a result, the matrix subject *John* and the reflexive *zibun-zisin* enter into a dependency:

(66)



Since nothing prevents either argument licensing or the application of the anaphoric function, (65) is grammatical.

To conclude, let us consider Chinese, which also allows reflexives in nominative positions. The following sentences are examples from Mandarin Chinese:

(67) John venwei $Bill_1$ piping $taziji_1$
John think Bill criticise himself
"John thinks $Bill_1$ criticised $himself_1$".

(68) $John_1$ venwei $taziji_1$ shi tiancai[22]
John think himself be genius
"$John_1$believes $he_1$is genius".

Chinese has neither morphologically visible case makers nor predicate-argument agreement, so it is not clear how arguments are marked in this language. However, the fact that reflexives are allowed in both subject and object positions, as shown in (67) and (68), strongly suggests that in Chinese all arguments are marked by invisible case.

5 Comparison with alternative approaches

In this section, I will compare the present proposal with some influential approaches to the issue we are concerned with here. I will discuss the ECP approach (Chomsky 1986), the Governing Category approach (Chomsky 1981) and the Chain approach (Rizzi 1990).

Neither the ECP approach nor the Governing Category approach can fully account for the data. Furthermore, although Rizzi's proposal correctly describes data from various languages, the chain condition, which plays a central role in his proposal, does not appear well motivated.

5.1 Subject anaphors and ECP

Chomsky (1986) proposes a theory of binding in which the ECP excludes a subject anaphor in a finite clause. He assumes, based on Lebeaux's (1983) suggestion, that an anaphor undergoes LF-movement. If such movement takes place from the subject position of a tensed clause it violates the ECP, whereas if it occurs from an object position, it does not:

[22] I thank Ann Law for providing these example sentences.

(69) He thought that they blamed themselves.
He thought that they [themselves]$_1$-INFL blamed t_1. (LF)

(70) *They thought that themselves are geniuses.
He [themselves]$_1$-INFL thought that t_1 is a genius. (LF)

In the LF representation of (69), the trace of the reflexive is properly governed through head government. On the other hand, the trace in the LF representation in (70) is not properly governed through either head government or antecedent government. Therefore, according to Chomsky (1986), (70) results in a violation of ECP.

This approach is attractive in that anaphoric binding can be reduced to the theory of movement. Furthermore, the ECP approach correctly predicts that in languages like Chinese and Japanese an anaphor in the subject position of an embedded finite clause is allowed. In these languages, there is no subject-object asymmetry with respect to the ECP. For example, consider the following Japanese sentence:

(71) kimi-wa [$_{CP}$dare-ga dono hon-o tosyokan-kara karidasita ka] shiritai no
you-TOP who-NOM which book-ACC library-from checked-out Q want-to-know
?? "who is the *x* such that you want to know which book *x* checked out from the library." (Lasnik and Saito 1992, 122)

Although the interpretation of the sentence shown in (71) shows some degradation in grammaticality, this level of unacceptability is not an indication of an ECP violation. This shows that movement of a subject out of the tensed clause is possible in this language.[23] This predicts that in Japanese an anaphor can appear in the subject position of a finite embedded clause. The sentence in (65), repeated below, shows that this prediction is correct:

(65) John$_1$-ga [zibun-zisin$_1$-ga Bill-o semeta to] itta
John-NOM self-self-NOM Bill-ACC blamed COMP said
"John$_1$ said that he$_1$ blamed Bill."

[23] See, for example, Huang (1982) and Lasnik and Saito (1992) for discussions of the lack of subject-object asymmetry in ECP. In their works, they show that Chinese has the same property as Japanese regarding this issue.

However, Chomsky's ECP analysis is not without problems. Extraction of an object never violates the ECP. This implies that anaphors in object positions should always be possible. The following data from Icelandic shows this is not correct.

(72) *Henni finnst sig/sin/sér veik.
Her-DAT finds REFL-NOM sick
"She considers herself sick." (Everaert 1990, 281)

Icelandic allows nominative NPs in what appear to be object positions, and an anaphor in that position is excluded.[24] My approach, on the other hand, correctly rules out (72). In Icelandic, reflexives carry only a person feature whereas verbs have at least person and number features. We may assume, then, that the reflexive in (72) is insufficiently specified to serve as the argument of the agreement function introduced by the verb. As a result, the object argument fails to be made visible for θ-marking. Hence, the sentence ungrammatical.

5.2 Anaphors and agreement

In the Governing Category approach (Chomsky 1981) and the Chain approach (Rizzi 1990), agreement plays a central role in explaining the absence of nominative anaphors in Germanic and Romance languages. In section 5.2.1, I will discuss the Governing Category approach, and, in section 5.2.2, the Chain approach is examined.

5.2.1 The governing category – Chomsky (1981)

In Chomsky's (1981) approach an anaphor must be bound within its governing category, GC. The definition of governing category is shown in (73).

(73) β is a governing category for α if and only if β is the minimal category containing α, a govenor of α and a SUBJECT accessible to α.

[24] One might be inclined to attribute the ungrammaticality of the sentence in (72) to the absence of a nominative form for anaphors in the lexicon. In other words, there is morphological gap in the anaphor case paradigm (cf. Maling 1984). However, this approach is not attractive. As Johnson (1984) argues, there appear to be no nominative reflexive pronouns across a number of languages. Hence, one would have to assume that the morphological gap coincidentally re-occurs. See Everaert (1990) for further discussion.

By SUBJECT Chomsky means the specifier of IP/NP and agreement. GC is itself defined so as to exclude the occurrence of an anaphor from the subject position of an agreeing clause. Let us consider the ungrammaticality of the sentence in (1), repeated below.

(1) *John said that himself is clever.

In this sentence, the GC for the reflexive is the embedded clause, which contains the reflexive, its governor and a subject/SUBJECT accessible to it. The antecedent of the reflexive *John* is located outside of the GC. Therefore, the sentence is ungrammatical.

This proposal can also deal with languages that allow anaphors in subject position, such as Chinese. Based on George and Kornfilt (1981), Huang (1982) suggests that the reason why Chinese can have subject anaphors is due to the absence of AGR in this language. Consider the following sentence:

(74) Zhangsan$_1$ shuo [ziji$_1$ hui lai]
Zhangsan say self will come
"Zhangsan$_1$ said that he$_1$ will come." Huang (1982, p331)

If Chinese does not have AGR, then the GC for *ziji* is the whole sentence, which contains *ziji*, the governor for *ziji* I and the accessible subject *Zhangsan*. Clearly, the reflexive is bound within the GC.[25] The same analysis applies to subject anaphors in Japanese, which –like Chinese – lacks agreement. Consider the sentence in (65), repeated below.

(65) John$_1$-ga [zibun-zisin$_1$-ga Bill-o semeta to] itta
John-NOM self-self-NOM Bill-ACC blamed COMP said
"John$_1$ said that he$_1$ blamed Bill."

This GC approach, however, has the same problem as the ECP approach. The GC approach wrongly predicts that the Icelandic sentence in (72) is grammatical.

(72) *Henni finnst sig/sin/sér veik.
Her-DAT finds REFL-NOM sick
"She considers herself sick." (Everaert 1990, 281)

[25] It is controversial if the simplex anaphor *ziji* is a syntactic reflexive. However, even *ziji* is replaced with the complex reflexive *tajizi* (himself), the sentence is still grammatical. Therefore, if ziji is syntactic or not does not affect Huang's argument.

The GC for the reflexive in this sentence is the whole sentence, and the antecedent for the reflexive, *Henni*, is located in a position where it can bind the reflexive. However, the sentence is still ungrammatical. On the other hand, my proposal correctly rules out (72), as explained in section 5.1.

Another problematic aspect of the theory based on the notion Governing Category is that it is not clear what to make of the notion of "accessibility" in the definition of GC (73). As Huang (1983) points out, "to be accessible to α" is just another way of saying "to be capable of serving as the antecedent of α". But it is not clear why we have to know if a subject could potentially be the antecedent of an anaphor or not in order to decide the GC.[26]

It could be argued that a subject that can be a potential antecedent of an anaphor blocks binding by a constituent that is located further away than the subject:

(75) […, α_1, …[subject,….., anaphor$_{*1}$]

In other words, binding of an anaphor abides by Relativised Minimality (Rizzi 1991), and involvement of SUBJECT with the definition of GC is necessary to capture this locality aspect of binding relations. However, as was already shown in section 3.2, this argument is falsified by examples like (76), which establish that the locality condition on binding is weaker than that on movement.

(76) John$_1$ told Bill$_2$ about himself$_{1/2}$.

If binding of an anaphor observes the Relativised Minimality effect, the object *Bill* should block the binding by the subject *John* in (76) (cf. Neeleman and van de Koot 2003). Nevertheless, binding by either by the subject or the object is possible.

5.2.2 The chain condition – Rizzi (1990)

Rizzi (1990) also claims that the ungrammaticality of the sentence in (1) is related to agreement. He proposes that it is agreement positions, rather than subject positions, where anaphors cannot appear. If we take this view, the sentences in (1) and (72) can be analysed in the following way: in each case, an anaphor occurs in an agreeing position and it is the incompatibility between agreement and anaphors that induces the ungrammaticality of these sentences.

Let us consider some additional Icelandic data that confirm Rizzi's claim that it is agreement positions rather than subject positions in which anaphors cannot appear. In Icelandic, a verb agrees with an argument bearing nominative case (cf.

[26] See Bouchard (1985) and Lasnik (1982) for the discussion of problems of accessibility.

Maling 1984). As can be seen from the examples below, some verbs in Icelandic take non-nominative subjects, which do not agree with verbs, as well as nominative subjects, which do. For instance, in sentence (77), the subject bears the accusative case and does not agree with the verb.

(77) Mig langar aδ fara til Island
me-ACC wants to go to Iceland
"I want to go to Iceland."

Given this property of Icelandic, we can then use examples like (78), (79) and (80) to see what rules out anaphors in a certain syntactic position:

(78) Hann sagδi aδ sig vantaδi hæfileika.
he said that REFL-ACC lacked-SUBJ ability
"He said that he lacked ability." (Maling 1984, 232)

(79) *Jon segir aδ sig/sin/sér elski Maria
Jon says that REFL-NOM love-SUBJ Maria
"John says that he loves Maria." (Everaert 1990, 280)

(80) *Henni finnst sig/sin/sér veik.
Her-DAT finds REFL-NOM sick
"She considers herself sick." (Everaert 1990, 281)

Example (78) is grammatical, although the reflexive occupies the subject position. On the other hand, example (79) is ungrammatical, even though the reflexive occurs in the same position as in (78). Furthermore, as we have already seen in (72) – repeated here as (80) – Icelandic allows nominative NPs in what appears to be an object position, but a reflexive cannot occur in this position. The point is that, in (79) and (80), the reflexives occupy agreeing (and therefore nominative) positions. We may, therefore, conclude that positions that are construed with agreement, not subject positions as such, bar the occurrence of anaphors (see (41)).

The anaphor-agreement effect describes all of the data, (65), (74) and (78) as well as (1) and (72)/(80). In the Japanese and Chinese examples (65) and (74), the anaphors appear in nominative positions. However, since these languages lack agreement entirely, the sentences are grammatical. In the Icelandic sentence in (78), the anaphor is located in a subject position. However, this subject position is not an agreement position for the verb *vantaδi*. Therefore, the sentence is grammatical.

But why does this anaphor-agreement effect exist? Rizzi gives the following explanation. Following Picallo (1985), he assumes that agreement is a kind of pronominal element. If it forms a chain with an anaphor, the sentence ends up being ungrammatical due to the clash of two contradicting features sets: [+pronominal, –anaphor] of agreement and [–pronominal, +anaphor] of the anaphor. However, as Rizzi points out, if we try to implement Picallo's suggestion, we should be careful not to make the condition too strong. Otherwise, it wrongly predicts grammatical sentences to be ungrammatical. Consider the following example.

(81) He_1 was fired t_1

The pronoun *He* in (81) undergoes A-movement to the subject position and forms a chain with its trace. In GB theory, it is a standard assumption that a trace of A-movement is anaphoric (cf. Chomsky 1982). Therefore, the trace in (81) has the features [–pronominal, +anaphor]. On the other hand the antecedent of the trace in the above sentence is [+pronominal, –anaphor] because it is a pronoun. Hence, there is a feature contradiction between the two members of the chain, so this sentence should be ungrammatical, contrary to fact. In order to explain the grammaticality of a sentence like (81), Rizzi formulates a referential hierarchy and assumes that "the argument, the contentive element of a chain, must be the most referentially autonomous" (Rizzi 1990, 37). Let us call this "Rizzi's chain condition".

(82) Referential autonomy hierarchy
R-expression > Pronominal > Anaphor

(83) Rizzi's Chain Condition
The contentive element of a chain (the argument) must be the most referentially autonomous.

In the case of (81), the pronoun, which is pronominal in nature, is a more contentive element of the chain than the trace, which is by definition an anaphor, and the chain obeys the referential hierarchy.

On the other hand, a nominative anaphor violates the referential hierarchy. Let us consider once again the sentence in (1), repeated with modifications as (84) below.

(84) *John_1 said that himself_1 AGR_1 is clever.

Here, the members of the chain are *himself* and AGR, and *John* is coindexed with *himself* and AGR. Because the reflexive *himself* is an argument, it is more contentive than AGR. But AGR is pronominal and *himself* is anaphoric, so the sentence violates the referential hierarchy, resulting in ungrammaticality.

As we have seen, Rizzi's analysis successfully excludes nominative anaphors in languages with nominative-predicate agreement. However, it has some undesirable features. Firstly, according to the referential autonomy hierarchy, anaphors are less autonomous than pronominals. In a language like English, however, a reflexive contains a pronoun, and therefore has the same set of φ-features as a pronoun. Furthermore, it is common in the Germanic languages for the agreement paradigm to be less specified than the pronominal paradigm. Compare for example the relevant paradigms in English:

(85)

I	eat
you (singular)	eat
we	eat
you (plural)	eat
he/she/it	eats
they	eat

The above table shows that verbs in English only distinguish third person singular form the rest while the pronouns have far richer distinction. Given this state of affairs, what is the definition of 'referential autonomy' on which (82) is based? More in particular, what is the justification for treating English agreement as superior in referential autonomy to English anaphors?

Another problem is that it is not clear what the required c-command relation for chain formation is. For instance, in English, AGR is c-commanded by an agreeing subject, but in Icelandic AGR may c-command an agreeing object (see (72)). Must AGR c-command an agreeing constituent or be c-commanded by an agreeing constituent?[27]

6 Conclusion

In this paper I have discussed two main issues: one is how arguments are marked in syntax, and the other is how the theory of argument marking, in conjunction with some natural assumptions about the structure and content of anaphors, explains the Anaphor-Agreement effect. The view of argument marking presented in this article

[27] For additional arguments against Rizzi's approach, see Everaert (2001).

is the traditional one that arguments must be marked for LF visibility (cf. Chomsky 1986), and following Nichols (1989), Neeleman and Weerman (1999), etc., I proposed that arguments are marked either by case or agreement. For instance, nominative case in Germanic languages is a manifestation of lack of case and it should be licensed by agreement with the predicate. The argument marking by case and agreement is asymmetrical. That is, a predicate is licensed by an agreeing argument and an argument with case is licensed by an appropriate syntactic constituent (for example, accusative is licensed by V). Having shown that the formal properties of argument marking coincide with those of syntactic dependencies in general, I decided to extend Neeleman and Van de Koot's (2002, in prep.) formalization of such dependencies to case and agreement relations. A predicate in languages with agreement introduces agreement function, f_{Agr}, which is satisfied by an agreeing argument. An argument with case introduces case function, $f_{Nom/Acc,etc.}$, which is satisfied by an appropriate constituent.

I then turned to the consequences of this proposal for the Anaphor-Agreement effect. The reason why anaphors cannot appear in agreeing position is that the head of the reflexive has impoverished φ-features, and, as a result, the f_{Agr} introduced by the predicate cannot be satisfied by the reflexive. For instance, in English the head of the reflexive is *self*/*selves*, which reflects only variation in number, and the function f_{Agr}, which requires at least number and person features for its satisfaction, can therefore not be satisfied by the head of the reflexive. In contrast to what we find in the Germanic languages, in languages like Japanese, Korean and Chinese, all arguments (including nominative arguments) are licensed by case. As a direct consequence of this, reflexives *can* appear in nominative positions in these languages.

The idea that case and agreement are for argument marking is quite different from the role of case and agreement in minimalism (see, for example, Chomsky 1995, 2000 and 2001). In the minimalist program it is a standard assumption that case is a reflex of agreement. In other words, case makes a DP 'active' for agreement-related processes such as 'Agree'. This minimalist assumption wrongly predicts that there is no distributional asymmetry between nominative anaphors and non-nominative anaphors in Germanic and Romance languages. Indeed, if Rizzi's generalization that anaphors cannot occur in agreeing positions is correct, then the minimalist view entails that anaphors should never appear in argument positions at all. It would therefore seem that the key role played by the more traditional view of argument in explaining the Anaphor-Agreement effect counts as a strong argument in its favour.

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