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The Agreement Hierarchy and Grammatical Theory

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It is a decade since Corbett proposed the agreement hierarchy (Corbett 1979, 1983) to capture empirical generalizations about syntactic and semantic agreement with respect to number and gender marking.¹ Building on the cross-linguistic investigations of polite plural marking in Comrie (1975), Corbett formulated a hierarchy of types of agreement consisting of two parts: first, the identification of different agreement domains, corresponding to different targets, e.g., attributive adjective, predicate, pronoun, etc., and secondly, the statement of regularities concerning the relative influence of syntactic versus semantic agreement among these domains.

It is particularly worthwhile examining the nature of Corbett's agreement hierarchy because if the interpretation of the hierarchy is correct, then it poses problems for the treatment of agreement within all major grammatical theories including Government-Binding Theory (GB), Generalized Phrase Structure Grammar (GPSG), Head-Driven Phrase Structure Grammar (HPSG), and Lexical-Functional Grammar (LFG). In addition it poses difficulties for particular accounts of agreement, including Barlow (1988), Lapointe (1980, 1988) Dowty and Jacobson (1989), and Zwicky (1987).

In this paper I will present four ideas related to the agreement hierarchy:

1. The agreement hierarchy presents problems for all the major grammatical theories.
2. It is not possible to divide agreement phenomena into two domains.
3. The agreement hierarchy is not what it seems to be.
4. A reasonable reformulation of the agreement hierarchy can be given in terms of a discourse-based theory of agreement.

Let us start with a simple example from English. In (1) the verb *are* agrees with the subject *the expatriates*. I will call the subject the primary source and the verb the secondary source. (For justification, see Barlow 1990.) In (1) the agreement is regular in that the agreement features associated with the secondary source are identical to the agreement features of the primary source.

(1) The expatriates are talking.

In this paper I will examine patterns of agreement illustrated by the Modern Standard Arabic and Polish sentences in (2). In particular, I will focus on sentences such as (2)a in which the morphosyntactic form of the secondary source may differ from the morphosyntactic form of the primary source and those such as (2)b where one of the secondary sources is identical in form to the primary source, while the other secondary source differs in form from the primary source.

- (2)a. al-jimaalu naam-at (Mod. Stan. Arabic)
 the-camel.MASC.PL slept-FEM.SG
 'The camels slept.'

- b. Wy bedziecie chora (Polish)
 you.PLUR will-be.PLUR ill.SG
 'You will be ill.' (Corbett 1979)

The Agreement Hierarchy

Corbett has shown that there are cross-linguistic and language-internal regularities in the patterning of agreement forms. The examples in (3) (from British English) can be used to illustrate his claims. Corbett (1983:9) notes that *committee* is "singular in form, but refers to more than one individual; plural agreement with it ... is therefore semantic agreement." The attributive position (the demonstrative pronoun here) must exhibit syntactic agreement, while the predicate may show semantic agreement.

- (3) a. The committee has decided.
 b. The committee have decided
 c. This committee sat late.
 d. *These committee sat late.

The content of the agreement hierarchy is usually summed up in something like the following terms: Semantic agreement is more likely to occur (and syntactic agreement is less likely to occur) with increasing syntactic distance between the primary source and secondary source of agreement. In other words, once semantic agreement is allowed at a certain position in the hierarchy (in a given language), then it is allowed in all the positions to the right.

The domains of the agreement hierarchy originally formulated by Corbett (1979) are shown in (4). The domains are defined in terms of different secondary sources of agreement.

- (4) attributive – predicate – relative pronoun – personal pronoun

Although Corbett has extended the basic hierarchy in later publications, for the present discussion it is sufficient to consider the original form of the hierarchy in which there are four domains (positions) of agreement ranging from attributive position to cross-sentential anaphora without a major break.

Most grammatical theories cannot handle any kind of variation in agreement forms, much less, capture the patterns of regularities in the agreement hierarchy. For example, a feature matching or coindexing account of agreement is inadequate (because of examples such as (2)b). An obvious way for feature-copying accounts to deal with variation is to postulate two kinds of agreement processes, which we might label as a syntactic relation and a semantic relation. Taking this approach leads to a further problem: controlling the operation of these two agreement relations so that they work together (or avoid working together). What is in control of these processes? In a particular instance, which of the two kinds of agreement will operate? ²

As far as I know, no one has pursued this control issue. No one has struggled with the problem of competing agreement processes and attempted to resolve the question of whether a verb, for example, will show syntactic or semantic agreement. (See Morgan 1984, for some English examples and discussion.) Many theories have avoided this control problem by having the two agreement relations operate in complementary domains.³ In other words, for a given language and for a

given agreement position, it is assumed that the agreement will always be syntactic (or always be semantic). The advantage of this kind of proposal is that there is no need to worry about controlling the potential interference of syntactic and semantic agreement operations since it is clear—according to the theory—which process is operating. However, these theories face the problem that the two-domain solution conflicts with the findings of Corbett’s agreement hierarchy.

Several two-domain accounts of agreement have been proposed:⁴

- (i) NP-internal vs. NP-external (Moravcsik 1978)
- (ii) Sentence-internal vs. Cross-sentential
- (iii) Local vs. Anaphoric (Zwicky 1987, Bresnan and Mchombo 1987a, 1987b, Fassi Fehri 1981, 1984, 1988)

NP-internal vs. NP-external agreement

Moravcsik (1978) draws a distinction between NP-internal and NP-external agreement based on gender agreement. She states: “the occurrence of semantic or natural gender agreement within the NP implies such agreement outside it in the same language.”

Moravcsik’s proposal differs from Corbett’s with regard to the status of relative pronouns. According to Moravcsik’s definition, relative pronouns, as NP constituents, should be more open to syntactic agreement than predicates (although she does not in fact discuss relative pronouns); whereas, according to Corbett, they should be more open to semantic agreement. The evidence presented by Corbett to support his position on this matter seems quite convincing. Furthermore, the *who/which* distinction in English is consistent with a view of relative pronouns as leaning towards the semantic domain. (See Barlow 1988:38–40.)

While the evidence may indicate that it is not correct to posit NP-internal versus NP-external as a major dividing line, the simple fact that Moravcsik proposes this distinction and gives evidence in support of it casts some doubt on the viability of alternative candidates for a major boundary distinguishing the two types of agreement.

Sentence-internal vs. Cross-sentential agreement

If agreement is assumed to be syntactic, then the sentence is a natural boundary for agreement, since the sentence is the most natural unit of syntax. In general, however, the sentence boundary is not taken as the appropriate limit of syntactic agreement, because that would entail treating intra-sentential anaphora (such as (5)), as an agreement phenomenon, and thus essentially different from cross-sentential anaphora, as in (6). The more usual claim, which is discussed in the next section, is that the major distinction is between syntactic and anaphoric agreement.

(5) John said he would leave.

(6) I saw John. He was leaving.

Local vs. Anaphoric agreement

Local (or grammatical) versus anaphoric agreement is a standard distinction made in function-argument or subcategorization accounts of agreement. This distinction is widely held—though rarely discussed. There are two theoretical accounts of the distinction. One is given in a series of papers by Bresnan and Mchombo (1987a, 1987b); the second is outlined in Zwicky (1987).

The local/anaphoric distinction in Bresnan and Mchombo's LFG account is not based on different syntactic domains, but rather on differences in functional structures; nevertheless, the distinctions made are similar in spirit to syntactic proposals such as Zwicky's.⁵

One important characteristic of Bresnan and Mchombo's analysis is that it does not entail the postulation of a universal syntactic boundary controlling or associated with the distinction between local and anaphoric agreement. Thus, for example, subject-verb agreement may be local in one language and anaphoric in another.

Bresnan and Mchombo's position on the distinction between grammatical and anaphoric agreement is summed up in the following quote.

In grammatical agreement, an NP bears an argument relation to the verb, and the verbal affix expresses redundantly the person, number, and gender class of the NP. In anaphoric agreement, the verbal affix is an incorporated pronominal argument of the verb, and the coreferential NP has a non-argument function. (Bresnan & Mchombo 1987a:1-2)

The distinction between agreement and anaphora in LFG accounts is associated with a cluster of properties such as whether the entity acts as an argument or not. And as the quote indicates, grammatical agreement entails identity of features, while anaphoric agreement allows feature conflicts. The LFG account appears to be promising as a framework that can handle variability of agreement forms. Where there is conflict of agreement features, such as (2a), then we would know that anaphoric agreement is at work. Where there is no conflict, we would have to take a closer look to find out whether the agreement was local or anaphoric.

One problem with the LFG account is that the domains for each kind of agreement are fixed for each language. So in Chichewa, for example, Bresnan and Mchombo state that the relation between subject and subject affix on the verb is grammatical agreement (which suggests strict feature identity). On the other hand, the relation between the object and the object affix of the verb is anaphoric.

Bresnan and Mchombo clearly show that there is a difference in the behaviour of the subject and object affixes; however, it is not clear that this difference should be bundled with the distinction between strict and non-strict agreement. The tight connection between type of agreement and syntactic or functional position indicates that Bresnan and Mchombo favour a two-domain account of agreement. As noted above, such theories cannot account for the data captured by the agreement hierarchy.

Furthermore, it turns out that a conflict of features can be found for *all* the agreement secondary sources in Chichewa (suggesting that anaphoric agreement occurs across the board). It is possible to get a singular primary source associated with a plural secondary source because politeness in Chichewa is marked by use of a plural on the agreeing category. Thus if the primary source refers to a human, a

plural secondary source may be used to indicate respect as in (7) from Corbett and Mtenje (1987:10).

- (7) bambo anga
 father. SG POSS.PLUR
 'my father' (respectful)

The singular form of the secondary source “would be inappropriate” according to Corbett and Mtenje (1987:10). This shows that even though an LFG account allows different kinds of agreement relations, it is unable to account for the patterns of the agreement that are found. In one sense, the LFG account is too strong—it imposes a distinction between grammatical and anaphoric agreement once and for all (for a particular language).

Zwicky (1987) also attempts to establish a distinction between local and anaphoric agreement. According to Zwicky, anaphoric agreement “is a matter of semantics and pragmatics”; local agreement “properly belongs to syntax” (1987:6). Zwicky puts forward six criteria in support of the distinction between local and anaphoric agreement. It is argued in Barlow (1988:145–151) that these criteria do not support a clear distinction between two types of agreement, but whatever the status of Zwicky's criteria, it is not clear how the local/anaphoric distinction would fit with the patterns of variation captured by the agreement hierarchy.

Syntactic vs. semantic agreement according to Corbett

It is important to be clear about what is meant by syntactic and semantic agreement. The term syntactic agreement is generally used to refer to cases in which the form of the secondary source is dependent on the morphosyntactic form of the primary source. Semantic agreement, on the other hand, occurs when the form of the secondary source depends on the nature (or properties) of the referent associated with the primary source.

To understand the content of the agreement hierarchy, it is necessary to analyse Corbett's use of the terms syntactic and semantic agreement, which differ from the characterization given above. It is helpful in this regard to realize that Corbett's use of these terms are based exclusively on the *form* of primary and secondary sources, rather than on a determination of whether agreement dependencies are syntactically or semantically motivated. It turns out that syntactic and semantic agreement are convenient labels, which indicate the strength of syntactic links (Corbett 1983:244). If the form of the secondary source is identical to the form of the primary source, then agreement is said to be syntactic. If the form of the secondary source differs from the form of the primary source, agreement is said to be semantic.

The tensions inherent in Corbett's notion of semantical agreement are particularly apparent in the treatment of polite plural agreement. In examining the polite plural pronoun *vy* ‘you’ found in several Slavic languages, Corbett (1983:43) states:

The controller in question, honorific *vy*, is plural but has a singular referent. This means that plural agreement is syntactic, and singular agreement is semantic.

This seems straightforward; the singular marking on the secondary source is consistent with the singular individual referred to. In this situation the form of the

secondary source is different from the primary source and the form of the secondary source is semantically justified.

However, the use of plural forms to indicate politeness is just the kind of information that can be indicated either by the primary source or by the secondary source (cf. Barlow 1988), and so it is quite possible to have a singular primary source with a plural secondary source indicating polite reference—as we saw in the Chichewa example in (7).

In this example the form of the secondary source differs from the form of the primary source, as above, but it is not justified semantically because the secondary source is plural, but the referent is a single individual. Hence there is a conflict in the two components of Corbett's notion of semantic agreement, i.e., the nonidentity of features versus a general notion of semantic (referential) justification.

Is the plural marking on the secondary source in (7) indicative of syntactic agreement (because it is not semantically justified, the referent being a single individual) or is it indicative of semantic agreement (because it is not syntactically justified, there being a feature conflict with the singular morphology on the primary source)? In short, is the plural form of the secondary source due to syntactic or semantic agreement in this case? According to Corbett (1983:24–25), it is semantic, even though the referent is singular, because there is a mismatch of features between the primary source and secondary source. Thus the use of the term semantic by Corbett is really indicating a feature conflict, a lack of strict syntactic agreement, which may or may not be due to a semantic influence.

Thus it is clear that Corbett is not proposing a major division between syntactic and semantic agreement based on totally different kinds of agreement dependencies. Corbett (1983:83) states: "we can conclude that syntactic and semantic agreement is a matter of degree." Furthermore, a careful reading of Corbett (1979:203–204) confirms the fact that the terms syntactic agreement and semantic agreement are used in a restricted sense.

We can conclude that the dimension underlying the agreement hierarchy is feature identity versus feature discord. Feature identity is associated with the left of the hierarchy; feature discord, with the right of the hierarchy.

Discourse-Linking Theory

The descriptive inadequacies of two-domain accounts with respect to the two kinds of agreement and the inability of these accounts to capture the generalizations associated with the agreement hierarchy suggests that the fundamental conception of agreement relations is misguided and needs to be revised.

I would like to give an account of the agreement hierarchy within Discourse-Linking Theory as formulated in Barlow (1988). The central idea in an account of agreement within this theory is that at least as far as person, number, and gender agreement are concerned, there is no syntactic agreement relation, nor any semantic agreement relation. Agreement is viewed as a relation between discourse entities.

Discourse-Linking Theory has three main components: (i) the instigation of primary discourse referents by nouns, and secondary discourse referents by agreement morphemes, (ii) a series of mappings from agreement features to

properties, and (ii) the linking of certain discourse referents that contain compatible properties.

In this part of the paper I will present a brief, informal outline of the theory, then provide an illustration of the way the theory works, and finally reformulate the agreement hierarchy in terms appropriate to a discourse account of agreement.

I assume that the utterance of an NP instigates a discourse referent and that the discourse referent is associated with certain properties. Of interest here are the properties that are indicated by the morphological form of the NP. A singular NP may indicate one property—such as being an individual.

In addition, some sort of secondary discourse referent is instigated by the use of nominal morphology associated with what we have been calling secondary sources or agreement targets. Once again the nominal morphology associated with the secondary source indicates the properties of the secondary discourse referent. Some examples of mappings between nominal morphology (indicated by square brackets) and properties or interpretations (indicated by angle brackets) are given in (8).

- (8)a. [NUM: SG] —> <INDIVIDUAL(x)>
- b. [NUM: PLUR] —> <COMPOSED-OF-INDIVIDUALS(x)>
- c. [PER: 3] —> <NON-SPEAKER/HEARER(x)>

Part of the grammatical specification of a language consists of a set of mappings such as those in (8). The information in these mappings, which can be extracted from the description of a language in a good grammar, simply indicates the interpretation of morphological forms. These mappings can be thought of as the interpretations associated with grammatical features.

There are two points to note about these mappings. First, since grammatical morphemes are often polysemous, the mappings may be one-to-many. Second, the mappings may be sensitive to particular syntactic categories. For example, within a particular language a plural morpheme associated with a verb may indicate a different property from a plural morpheme associated with a predicate adjective.

The third part of the theory is the linking of discourse referents. We can think of the secondary discourse referent as being linked to or being a part of the primary discourse referent. (The persistence of some discourse referents through a discourse is due, in part, to this linking.) There are different conditions governing the linking of discourse referents, but the main idea is that the properties associated with the linked discourse referents must be compatible.

Let me remind you once more that the linking of properties in primary and secondary discourse referents is the “agreement relation” in this theory; there is no syntactic agreement.

Most of the feature conflicts that occur in traditional accounts where the features of the primary source and secondary source are linked by a morphosyntactic relation do not lead to an equivalent conflict of properties within a discourse account. To illustrate this, let us look at the Arabic example (2)a, repeated here as (9).

- (9) al-jimaalu naam-at
 the-camel.MASC.PL slept-FEM.SG
 ‘The camels slept.’

The features MASC.PLUR on the source NP instigate a primary discourse referent with the properties shown in (10).

- (10) <IN-NOUN-CLASS (x)>
<COMPOSED-OF-INDIVIDUALS (x)>

The features FEM.SG on the verb are associated with the properties of a secondary discourse referent. Feminine singular morphology has several interpretations in Arabic, but one common interpretation is non-human plural, as shown in (11).⁶

- (11) <NON-HUMAN (x)>
<COMPOSED-OF-INDIVIDUALS (x)>

It is not possible here to go into the details of discourse-linking, but it is clear that the properties in (10) and (11) are compatible and the two discourse referents can merge.

I would like to suggest that feature conflicts indicate a situation in which new or extra information about referents is being encoded. Assuming this to be the case, then we have a new question concerning the agreement hierarchy: Why is the extra or new information associated with the right of the hierarchy more than with the left of the hierarchy?

Towards the left of the hierarchy, the agreement morphemes are likely to encode the same set of properties as the noun primary source. In other words, if a particular morpheme-property mapping is appropriate for the noun, then towards the left of the hierarchy an identical mapping is likely to hold for the agreement marker. In this case, the agreement morpheme supplies redundant information concerning the intended referent. This might be considered as a simple reidentification of the intended referent.

On the right of the hierarchy there is a greater possibility that the agreement morphemes will be associated with properties that differ from the noun morphemes. The morphemes on the right of the hierarchy are more likely to introduce new information about the intended referent.

There are several explanations or speculations about this pattern that can be given in terms of the processing of information in a discourse. The role of agreement morphemes can be viewed in two ways: as an identification (or reidentification) of the intended referent or as an elaboration of the characteristics of the intended referent. It is plausible to assume that in the initial stages of introduction of a referent in the discourse it is necessary to provide a clear identification of the discourse referent. If this is the case, it will lead to the specification of the same properties by the agreement morphemes as are indicated by the noun. Once established, however, there is the possibility of either adding new features to indicate new information about the discourse referent or identifying the primary discourse referent by use of fewer properties than were used initially.

Furthermore, as the discourse continues it is reasonable to expect that there will be some decay in the salience of the noun used to instigate the primary discourse referent and a concomitant increase in the salience of actual referents and other contextual information in the discourse situation. For example, there is an increasing tendency to indicate natural gender rather than grammatical gender.

Whether or not these speculations are along the right lines, we can at least provide a descriptive restatement of the agreement hierarchy as follows:

(12)

Moving to the left in the hierarchy, the more likely it is that agreement morphemes will contribute exactly the same properties as are contributed by the noun. The left of the hierarchy will thus be associated with a noun-based classification of the discourse referent. Moving to the right, the more likely it is that agreement morphemes will contribute a different set of properties—either fewer properties or new properties. The right of the hierarchy will tend to be associated with a context-based classification of the discourse referent.

Conclusion

In conclusion, let me return to the four ideas presented at the beginning of the paper:

1. *The agreement hierarchy presents problems for all the major grammatical theories.*

Although no detailed analyses have been presented, it is clear that Corbett's work poses serious difficulties for contemporary accounts of agreement.

2. *It is not possible to divide agreement phenomena into two domains .*

Several two-domain accounts have been proposed, but none of them provide a satisfactory account of the patterns of agreement found cross-linguistically.

3. *The agreement hierarchy is not what it seems to be.*

Corbett's use of the term syntactic agreement refers to agreement involving feature identity. Semantic agreement is used by Corbett to refer to situations in which there is a feature mismatch between the primary and secondary sources.

4. *A reasonable reformulation of the agreement hierarchy can be given in terms of a discourse-based theory of agreement.*

I have introduced some basic ideas associated with Discourse-Linking Theory and provided a version of the agreement hierarchy stated in terms compatible with the theory.

Notes

¹ I would like to thank Suzanne Kemmer for her comments on this paper.

² The second problem is reconciling the agreement hierarchy, which is an implicational description at the corpus level (and perhaps within particular utterances), with the content of a grammar that is sentence-based.

³ The notion of two domains may be characterized differently in different theories. However, the claim made here is that all two-domain accounts will prove to be inadequate in light of the data captured by the agreement hierarchy.

⁴ Intimately connected with these issues is the distinction between agreement and anaphora. Thus linguists such as Zwicky, who perceive a major boundary between local and anaphoric domains, also tend to see a major distinction between pronouns and agreement markers. On the other hand, linguists such as Givón, C. Lehmann, and myself tend to see agreement markers and pronouns as essentially similar objects.

⁵ See Barlow (1988) for a fuller discussion.

⁶ The use of a feminine singular form in Arabic to indicate a non-human plural interpretation extends to the use of deictic pronouns. For example, the appropriate pronoun to indicate a group of chairs would be *haa* 'she.'

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