Competition and Disjoint Reference

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A number of approaches to binding theory have made crucial reference to the notion of competition in explanations of disjoint reference phenomena (see Burzio 1989, 1991, to appear; Richards 1995). The typical inability of pronouns to be locally bound, on this approach, is taken to be a result of the fact that anaphors are in some sense preferable to pronouns; as a result, whenever an anaphor can be used to express a given proposition, a pronoun cannot be. Approaches of this kind, then, make crucial reference to a hierarchy of the kind in (1), making anaphors more desirable than pronouns.

(1) anaphors > pronouns

In this paper I will give some evidence from binding-theoretic contrasts between Japanese and Norwegian for an approach to disjoint reference phenomena along these lines. I will try to show that at least some constraints on the possible binders for anaphoric elements should be interpreted in terms of competition among anaphors. This point will hopefully hold independently of the particular competition-based theory we select. In the interests of concreteness, however, I will develop the argument using the Economy-based framework proposed in Richards (1995). In the next section I will outline the basic properties of this framework.

1. Economy and Disjoint Reference

According to Richards (1995), an anaphor's N-features (in the sense of Chomsky (1996)) are impoverished in ways which prevent it from entering straightforwardly into well-formed feature-checking relations. In order to check features, anaphors must first enter into a relation of a certain kind with a nominal with fully specified N-features. This relation

has certain semantic effects (which differ from anaphor to anaphor) involving such phenomena as coreference and variable binding.

Different anaphors may be underspecified for different kinds of N-features in ways which have consequences for their binding-theoretic behavior. Richards (1995) postulates two types of N-features: ϕ-features of the familiar type involving person, number, and gender, and U-features, defined as features which are unique to the noun bearing them. Anaphors with underspecified U-features are local rather than long-distance[1] anaphors. Such anaphors include English *himself*, Norwegian *ham selv*, and Japanese *kare-zisin*:

(2) John$_i$ thinks Bill$_j$ told Fred$_k$ about himself*$_{i/j/k}$

(3) a. Vi fortalte Jon$_i$ om **hamselv**$_i$
We told Jon about himself
'We told Jon about himself'

b. * Jon$_i$ hørte meg snakke om **hamselv**$_i$
Jon heard me talk about himself
'Jon heard me talk about himself'

(4) John$_i$ -ga [Bill$_j$ -ga Mike$_k$ -ni **kare-zisin***$_{i/j/k}$ -no koto -o
John NOM Bill NOM Mike DAT him-self GEN matter ACC
hanasita to] itta
told that said
'John$_i$ said that Bill$_j$ told Mike$_k$ about himself*$_{i/j/k}$'

Anaphors which are underspecified for ϕ-features are subject-oriented; this is claimed to follow from the unique association of the subject with certain functional heads. Since locality is a result of a deficit in U-features, anaphors which lack only ϕ-features are subject-oriented but not local, in this system. Anaphors which are underspecified for both

[1]The exact mechanics of long-distance anaphora are beside the point here; see Richards (1995) for further discussion.

kinds of features, on the other hand, are both local and subject-oriented. ϕ-feature anaphors include Norwegian *seg* and Japanese *zibun*:

(5) Jon$_i$ hørte meg snakke om **seg**$_i$
Jon heard me talk about self
'Jon$_i$ heard me talk about himself$_i$'

(6) John$_i$ -ga [Bill$_j$ -ga Mike$_k$ -ni **zibun**$_{i/j/*k}$ -no koto -o
John NOM Bill NOM Mike DAT self GEN matter ACC
hanasita to] itta
told that said
'John$_i$ said that Bill$_j$ told Mike$_k$ about himself$_{i/j/*k}$'

Anaphors lacking both ϕ-features and U-features (that is, local subject-oriented anaphors) include Norwegian *seg selv* and Japanese *zibun-zisin*:

(7) a. Jon$_i$ foraktet **seg selv**$_i$

Jon despised self self

'Jon despised himself'

b. * Vi fortalte Jon$_i$ om **seg selv**$_i$

we told Jon about self self

'We told Jon about himself'

c. * Jon$_i$ hørte meg snakke om **seg selv**$_i$

Jon heard me talk about self self

'Jon heard me talk about himself'

(8) John$_i$ -ga [Bill$_j$ -ga Mike$_k$ -ni **zibun-zisin**$^{*i/j/*k}$ -no koto -o

John NOM Bill NOM Mike DAT self-self GEN matter ACC

hanasita to] itta

told that said

'John$_i$ said that Bill$_j$ told Mike$_k$ about himself$^{*i/j/*k}$'

Condition B effects, in this system, are claimed to follow from a principle of structural economy which prefers, given a choice between two elements, the one with fewer specified features. This gives the effects of the hierarchy in (1), repeated as (9).

(9) anaphors > pronouns

Thus, anaphors must be used whenever possible. However, given the system of N-features just sketched, we expect, in fact, to see a more articulated hierarchy, given in (10).

(10) local, subject-oriented anaphors > other anaphors > pronouns

In this system, local, subject-oriented anaphors are the "most anaphoric" of the anaphors; they are underspecified for both kinds of N-features, while the other anaphors are underspecified only for a single type of N-features. We expect, then, to find that local, subject-oriented anaphors are preferred over other anaphors; in other words, neither of the

other types of anaphors in a language possessing local, subject-oriented anaphors should be able to be bound locally by subjects[2].

2. Anti-subject-orientation

Hellan (1988) notes that of Norwegian's three anaphors, only *seg selv*, the local, subject-oriented anaphor, can in fact be bound by the most local subject:[3, 4]

(11) a. * Jon$_i$ foraktet **seg$_i$**

Jon despised self

'Jon despised himself'

b. * Jon$_i$ respekterer **ham selv$_i$**

Jon respects him self

'Jon respects himself'

c. Jon$_i$ foraktet **seg selv$_i$**

Jon despised self self

'Jon despised himself'

Thus far, the prediction presented above would seem to be confirmed. Let us move on to consider the Japanese facts.

Japanese, like Norwegian, has a three-anaphor system. Japanese crucially differs from Norwegian, however, in that all three of its anaphors can be locally bound by subjects (from Aikawa 1993: 41-42, and Takako Aikawa, personal communication):

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[2]It is perhaps worth noting explicitly that this system does not lead us to expect competition between the other two types of anaphors (local, non-subject oriented anaphors (Japanese *kare-zisin*, Norwegian *ham selv*, English *himself*) and long-distance subject-oriented anaphors (Japanese *zibun*, Norwegian *seg*)). Each of these is underspecified for a single type of feature, and the two types are therefore equally economical.

[3]All Norwegian data are from Hellan 1988 unless otherwise noted.

[4]In fact, *seg* can be locally bound in so-called "inherently reflexive" contexts (Hellan 1988: 108):

i. Jon$_i$ vasket **seg$_i$**

Jon washed self

'Jon washed himself'

I will not attempt to develop a theory of inherent reflexivity here.

(12) a. ? John$_i$ -ga **zibun$_i$** -o tunetta
John NOM self ACC pinched
'John pinched himself'

b. John$_i$ -ga **kare-zisin$_i$** -o tunetta
John NOM him-self ACC pinched
'John pinched himself'

c. John$_i$ -ga **zibun-zisin$_i$** -o tunetta
John NOM self-self ACC pinched
'John pinched himself'

Some speakers report degraded grammaticality for local binding of *zibun*, but the strength of this effect seems to vary greatly from speaker to speaker, and it is completely absent for some speakers. No such variability is reported in the Norwegian case. Local binding of *zibun* by a quantifier, on the other hand, is strongly ill-formed for all speakers (Aikawa 1993: 41-42):

(13) * Dareka$_i$ -ga **zibun$_i$** -o tunetta
someone NOM self ACC pinched
'Someone pinched himself'

This is not simply a ban on binding of *zibun* by quantifiers, as *zibun* can be long-distance bound by a quantifier (Aikawa 1993: 45):

(14) Daremo$_i$ -ga [John -ga **zibun$_i$** -o semeta to] itta
Everyone NOM John NOM self ACC blamed that said
'Everyone$_i$ said that John blamed him$_i$'

The Japanese facts would seem to raise problems for the account of Norwegian sketched above. The claim was that local, subject-oriented anaphors are preferable to other anaphors, so that in languages like Norwegian and Japanese, which possess such

anaphors, any other anaphors will be unable to be bound by local subjects. This prediction was borne out in Norwegian, but seems to be true only in a certain restricted domain in Japanese (namely, in the case of local binding of *zibun* by a quantifier).

In fact, I will claim that the contrasts between Japanese and Norwegian argue strongly for the approach developed here. To sketch the argument further, we will need to look more closely at the semantic properties of Japanese and Norwegian anaphors.

3. Anaphora, variable binding, and coreference

Aikawa (1995) notes that the Japanese anaphors *kare-zisin* and *zibun-zisin* yield quite different interpretations in a sentence like (15) (Aikawa 1995: 7-8).

(15) a. John -dake -ga **kare-zisin** -o hihansita
John only NOM him-self ACC criticized
'Only John criticized himself (that is, no one else criticized John)'

b. John -dake -ga **zibun-zisin** -o hihansita
John only NOM self-self ACC criticized
'Only John criticized himself (that is, no one else performed self-criticism)'

(15a) and (15b) have different truth values, and the sentences are not ambiguous. (15a) asserts that John is the only one with the property of having criticized John, while (15b) says that John is the only one who engaged in self-criticism. In a situation in which John, Bill, and Mary all criticized John, for example, (15a) is false and (15b) is true (since no one but John performed self-criticism, but several people other than John criticized John: namely, Bill and Mary). In other words, the predicates asserted to hold only of John in (15a) and (15b) are those in (16a) and (16b), respectively.

(16) a. λx [x criticized John]

b. λx [x criticized x]

Kare-zisin, then, cannot be interpreted as a bound variable, but must induce a reading of coreference, while *zibun-zisin* must be interpreted as a bound variable, and cannot allow a coreference reading.[5]

Zibun interacts with *dake* 'only' to yield ambiguities that suggest that *zibun* can be interpreted as related to its antecedent either by coreference or by variable binding (Takako Aikawa, personal communication):

(17) John -dake -ga [Mary -ga **zibun** -o hihansita to] itta
John only NOM Mary NOM self ACC criticized that said
'Only John$_i$ said that Mary criticized self$_i$...

a....no one else said that Mary criticized John'
OR b....no one else$_i$ said that Mary criticized self$_i$'

Thus, in Japanese, *zibun-zisin* apparently cannot corefer with its antecedent and must be a bound variable, while *kare-zisin* cannot be a bound variable and must corefer, and *zibun* can either be a bound variable or corefer with its antecedent. Let us move on to consider the situation in Norwegian.

In Norwegian, the equivalents of *kare-zisin* and *zibun-zisin* are not so distinct. The anaphor *ham selv*, unlike *kare-zisin*, may trigger either a bound-variable or a coreference reading (Asbjørn Bonvik, personal communication):

(18) Vi fortalte bare Jon$_i$ om **hamselv$_i$**
we told only Jon about himself
'We only told Jon about himself...

a....we didn't tell anyone else about Jon'
OR b...we didn't tell anyone else about himself'

[5]For discussion of this distinction, see Reinhart 1983, Grodzinsky & Reinhart 1993 and references cited there.

Similarly, depending on context, *seg selv* may be interpreted either as a bound variable or as coreferring with its antecedent (Arild Hestvik, personal communication):[6]

(19) Bare Jon respekterer **seg selv**
only Jon respects self self
'Only Jon respects himself...
a....no one else respects Jon'
OR b....no one else respects himself'

Here, again, Norwegian differs from Japanese; the closest Japanese equivalent to *seg selv*, *zibun-zisin*, can only be a bound variable, as we have seen.

Finally, Hellan (1988, 1991) notes that Norwegian *seg*, like Japanese *zibun*, can give either a bound-variable or a coreference reading (Hellan 1991: 44):

(20) John hadde hørt meg snakke nedsettende om **seg**,
John had heard me talk depreciatorily about self
og det hadde de som stod rundt også
and it had those who stood around also
'John$_i$ had heard me talk depreciatorily about self$_i$, and so had those who were standing around'

According to Hellan, sentences like (20) can have either a strict or a sloppy reading (that is, the people who were standing around could have heard me talking either about John or about themselves). Following much work on strict and sloppy identity (Sag 1976, Reinhart 1983), we can understand this as indicating that *seg* can be interpreted either as a

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[6]There is apparently some debate about this, and various tests for bound variable status give different results; for example, many Norwegian speakers accept only the sloppy reading for sentences like (i) (Arild Hestvik, personal communication, Hellan 1988, 1991).

i. Jon respekterer seg selv, og det gjøre Bjørn også
Jon respects self self and it does Bjorn also
'Jon respects himself, and so does Bjorn'

On the other hand, there are speakers who can get a strict reading (in which Bjorn respects Jon) for sentences like (i), and there are speakers who only get the sloppy reading in (i) but agree with the judgment in (19) (Arild Hestvik, personal communication).

variable bound by its antecedent or as coreferring with its antecedent. The elided VP in the second conjunct of (20) is assumed to be a copy of the first, and the strict/sloppy ambiguity shows that the semantic value of these VPs can be either that in (21a) or that in (21b).

(21) a. λx [x had heard me talk depreciatorily about x]

b. λx [x had heard me talk depreciatorily about John]

(21a) gives us the sloppy reading, on which it is asserted of both John and the bystanders that they overheard remarks about themselves. (21b) gives us the strict reading, on which both John and the bystanders overheard me talking about John.

Thus, we have a robust semantic distinction between the behavior of the anaphors of the two languages, which can be put to use in our theory. Japanese grammar offers the following options for expressing a sentence involving local referential dependence on a subject (say, referential dependence of the clausemate object on the subject), depending on whether a bound-variable or a coreference reading is intended:

(22)

bound-variable	coreference
zibun-zisin	kare-zisin
zibun	zibun

Norwegian grammar offers the following options:

(23)

bound-variable	coreference
seg selv	seg selv
ham selv	ham selv
seg	seg

Let us take the Norwegian case first, as it is the simpler of the two. Here the contrast between the bound-variable and the coreference reading is irrelevant; all Norwegian anaphors can have either reading, so the set of possibilities is the same in each case. *Seg selv*, the local, subject-oriented anaphor, must be used whenever possible (that is, whenever binding is by a clausemate subject), and both of Norwegian's other anaphors

thus always exhibit "anti-subject-orientation", in the sense of being unable to be bound by a clausemate subject.

Now let us move on to the Japanese case. We have seen that Japanese differs from Norwegian in that *kare-zisin*, unlike its Norwegian equivalent *ham selv*, exhibits no anti-subject-orientation. In (22), we can see why. *Ham selv* is anti-subject-oriented because it must compete with the local, subject-oriented anaphor *seg selv*, as we have seen. *Kare-zisin*, on the other hand, has semantic properties which are quite distinct from those of *zibun-zisin*; *kare-zisin* must corefer and cannot be a bound variable, while *zibun-zisin* must be a bound variable and cannot be linked to its antecedent by coreference. Thus, the two anaphors are never in competition, and the lack of anti-subject-orientation follows.

The behavior of *zibun* follows in a similar way. We can see in (20) that *zibun* competes with *zibun-zisin* only when it acts as a bound variable. Thus, we expect *zibun* to be well-formed when it corefers with a clausemate subject, but to be ill-formed when it acts as a variable bound by a clausemate subject. As we noted before, this is the case; *zibun* exhibits at worst a very weak anti-subject-orientation when its antecedent is not a quantifier, but when its antecedent is a quantifier (that is, when its antecedent can only be related to it by variable binding),[7] it becomes ill-formed:

(24) a. * Dareka$_i$ -ga **zibun$_i$** -o tunetta
someone NOM self ACC pinched
'Someone pinched himself'

b. ? John$_i$ -ga **zibun$_i$** -o tunetta
John NOM self ACC pinched
'John pinched himself'

Recall that *zibun* can be bound long-distance by a quantifier ((14), repeated as (25)):

[7]Here I assume, as is standard, that nothing can be related to a quantifier by coreference, since quantifiers are not referring expressions.

(25) Daremo$_i$ -ga [John -ga **zibun**$_i$ -o semeta to] itta
Everyone NOM John NOM self ACC blamed that said
'Everyone$_i$ said that John blamed him$_i$'

This, of course, is what we expect; in (25), *zibun* is not in competition with *zibun-zisin*, which can only be locally bound.

The generalization that seems to hold, then, for both Japanese and Norwegian, is that a local, subject-oriented anaphor must be used whenever possible to express a given proposition[8]. "Anti-subject-orientation" may be understood as a by-product of this competition among anaphors; an anti-subject-oriented anaphor is one which competes with a local, subject-oriented anaphor, and loses. A competition-based theory can account for the differences between Norwegian and Japanese with regard to the distribution of anti-subject-orientation in terms of the semantic properties of the various anaphors, obviating the need for diacritics on the anaphors which mark them as anti-subject-oriented (or, in the case of *zibun*, "anti-quantificational-subject-oriented"). It is perhaps worth emphasizing that the difference between the two languages is not simply that Norwegian exhibits anti-subject-orientation while Japanese lacks it; there is, in fact, a single case of anti-subject-orientation in Japanese (namely, local binding of *zibun* by a quantificational subject), and this is predicted by the account developed above. The success of a competition-based account in dealing with the distribution of anti-subject-orientation would seem to argue in favor of such an account of disjoint reference phenomena, at least in certain cases.

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[8]Interestingly, the distinction between bound-variable and coreference readings seems to be important for determining the reference set of possible alternatives for Economy to choose from even in cases where the bound-variable/coreference distinction makes no truth-conditional contribution, as in (12). This seems to suggest that the level of representation relevant for determining the reference set cannot simply be the (truth-conditional) meaning of the sentence; it must be a level on which the distinction between bound-variable and coreference readings is drawn even when the distinction makes no semantic contribution. This might be a good description of LF: a syntactic level which feeds the semantics but is non-trivially distinct from it.

Whether a competition-based approach can be expanded to deal with all cases of obligatorily disjoint reference is an open question, of course[9].

[9]One of the most serious problems with a competition-based approach is the existence of cases in which anaphors and pronouns are not in complimentary distribution:

i. John$_i$ likes this picture of him$_i$

ii. John$_i$ likes this picture of himself$_i$

It seems clear that cases of this type, while certainly a problem for a competition-based approach, are not necessarily a fatal one. One way of dealing with the problem would be to limit the reference set. If, for instance, we take a derivational approach to syntax, and allow the competition to make reference only to a single point in the derivation in constructing the set of possible alternatives, then we expect to see noncomplementarity in all cases in which the set of NPs with which a binding relation can be established changes in the course of the derivation (as a result of movement, for instance). See Richards (1995) for some further development of this idea.

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