Conditions on Anaphora:
An analysis of SELF across syntactic, semantic, and pragmatic boundaries

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SELF anaphora are employed for several distinct functions; as reflexivizers, as bound variables, and as intensifiers. As such, they require an analysis which can predict their distribution across these functions utilizing independently motivated conditions. Here, I endeavor to detail a theory which will predict the grammaticality of anaphora for all these functions, effectively tying in conditions of syntax, semantics, and pragmatics.

0. Introduction

The focus of theories of SELF anaphora[2] is predicting the grammaticality of anaphors and pronominals (such as English *him*, Norwegian *ham*, etc.) in different environments. In many of these environments, anaphors and pronominals are in complementary distribution; Where an anaphor is grammatical, a pronominal is not, and vice versa:

(1) a) Jon$_i$ foraktet (*ham$_i$/seg selv$_i$) [Norwegian]

b) Jan$_i$ veracht (*hem$_i$/zichzelf$_i$)[3] [Dutch]

c) John$_i$ despises (*him$_i$/himself$_i$)

d) John$_i$ thinks Mary despises (him$_i$/*himself$_i$)

e) John$_i$ expected (*him$_i$/himself$_i$) to win the election

f) Henk hoorde (*hem$_i$/zichzelf$_i$) singen [Dutch]

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[1] "Pragmatics" meaning discourse; They're equivalent for the purposes of this paper.

[2] When I refer to "anaphora", I mean SELF anaphora only.

[3] Examples a,b taken from R&R '91.

In addition, there are numerous examples of environments which exhibit non-complementarity:

(2) a) The grotesque photo of (her$_i$/herself$_i$) in the paper bothered Mary$_i$.

b) John$_i$ said there was a picture of (him$_i$/himself$_i$) hanging in the post office.

c) John$_i$ didn't hear the snake behind (him$_i$/himself$_i$).

d) Max$_i$ enjoyed the jokes about (him$_i$/himself$_i$).

e) John$_i$ said that he$_i$ would never allow his daughter to even consider marrying a man similar to (him$_i$/himself$_i$).

f) Milton$_i$ warned Marsha that she shouldn't trust anyone other than (*him$_i$/himself$_i$)[4].

g) Jon$_i$ brukade avsky hate folk som var annorlunda än (honom$_i$/honom själf$_i$/*sig själf$_i$) [Swedish]

h) Carl$_i$ sa at Marie hadde snakket med alle andre enn (ham$_i$/ham selv$_i$/*seg selv$_i$)[5] [Norwegian]

In order to explain both the complementarity and non-complementarity, a theory should motivate conditions which do the following:

i) Predict the complementary distribution

ii) Explain how some anaphors are exempt from the conditions in (i)

iii) Explain what governs the distribution of those exempt anaphors

[4] Examples e,f taken from Safir '92.

[5] Examples g,h taken from Safir '97.

I will show here that a theory motivating the conditions detailed in (i)-(iii) involves a crucial balance of syntax, semantics, and discourse in explaining and predicting the full range of SELF anaphora.

1. The Semantics of SELF and Binding

Before delving into the theory of SELF anaphora I will support, a definition of 'anaphor' and a characterization of the function of binding are in order. The definition of 'anaphor' that will be adopted here derives from Safir '96 (which is similar to the analysis presented in R&R '91): An anaphor is a referentially defective NP (such as English *himself*, Dutch *zichzelf*, etc.). That is, anaphors do not explicitly refer to anyone or anything.[6]

Anaphors are referentially defective due to attributes of the "semantic atoms" of which they are composed. The SELF atom has an argument structure and as such is relational; a relation between some x and some y, x being the anaphor SELF, and y being some external argument held in the identity relation to x. For example, in the sentence from (1c) "*John$_i$ despises himself$_i$*"; 'self' is the SELF atom which inherently saturates the x argument, and 'John' is the (external) y argument. So, for an anaphor to successfully refer and, hence, to be used grammatically, both of its arguments must be saturated. In English, 'self' is never used on its own; there is always another morpheme adjuncted to it. As such, one argument is

[6] For a more in-depth analysis, see Safir '96.

inherently saturated. The method by which the other (external) argument is saturated is called binding.

Different theories have different things to say about binding, e.g. whether it is strictly a syntactic process, or one that manifests at more than one level. As previously stated, the theory I support here has binding working at three different levels: syntax, semantics, and discourse.

The reason why binding applies to SELF anaphora at distinct levels is that SELF anaphora are used for several distinct functions[7]. Consider the following sentences:

(3) a) John$_i$ despises himself$_i$

b) John$_i$ expected himself$_i$ to win the election

c) The grotesque photo of herself$_i$ in the paper bothered Mary$_i$.

d) John$_i$ himself$_i$ went to the party

e) Sir William Lucas$_i$, and his daughter Maria, a good humoured girl, but as empty-headed as himself$_i$ had nothing to say...[8]

In (3a) 'himself' is in a reflexive relation; The subject and the object of the 'despise' predicate corefer. Although (3b) and (3a) are similar, they are not identical. While the verb 'despise' subcategorizes for a subject and an object, the verb 'expect' subcategorizes for a subject and a clause (inflectional phrase); 'Expect' is an ECM verb. In (3b) then, 'himself' is simply

[7] At this point, one could pose an objection to the analysis that one morpheme (the SELF anaphor) has multiple distinct functions. However, there are interesting reasons to believe that this is so. For more information on how the multiple functions arose, see ZH '95 and Keenan '94.

[8] Example taken from Baker '95.

functioning as a bound variable. The anaphor in (3c) is neither reflexive nor a bound variable. What seems to be going on here is that the SELF form is being used to bring attention or emphasis to the object of 'photo'. The use in (3c) and the uses in (3d) & (3e) are commonly called intensive. (3d) & (3e) are very similar to (3c), except in this case the positions of the anaphors are different. In fact, anaphors in positions like (3d) are often analyzed as a subset of their own[9].

2. Semantic Binding

The semantic condition of the theory of binding I propose here follows from R&R '91, R&R '93, and most notably Safir '97. First I will give some background on this theory by showing what motivates it and then describe how and why it has changed since its original incarnation[10].

R&R claimed that the GB Principles A & B were no longer sufficient for binding, and supported the traditional approach of viewing anaphoric distributions as following from principles governing predicate argument structure. According to their theory, the binding domain should be restricted to arguments of predicates. This move makes significant improvements on GB: incorporating predication into binding and essentially changing the focus of binding from the non-intuitive c-command relation to the relations of

[9] For more information on the intensive NP-anaphors, see Bickerton '87, McKay '91, and Verheijen '86.

[10] By 'original', I mean the version that appeared in R&R '93.

predicates, e.g. reflexivity. Notice that if an anaphor does participate in a reflexive relation, it is automatically bound to the subject of the predicate it reflexivizes. Hence, an anaphor used grammatically in a reflexive environment always has a saturated external argument.

To illustrate this theoretical distinction, let us return to the *John$_i$ despises himself$_i$* example. In the example sentence, the anaphor 'himself' is felicitous. The GB Principles, A specifically, would explain this because 'John' binds it and anaphors must be bound. The R&R approach rules 'himself' grammatical, however, because the subject and object of the predicate are coreferent and the predicate is marked for reflexivity. R&R's approach seems much more intuitive[11].

The approach I support and the R&R account differ however; where their account of semantics had only pronouns ruled out by a semantic Principle B, the account supported in this paper (and motivated by both R&R '93 and Safir '97) has the essences of both semantic Principles A & B formulated into one condition:

> Reflexive Condition - A predicate is reflexive if and only if it is reflexive-marked[12]

Let us see how the Reflexive Condition (hereafter 'RC') works with some of the data presented so far.

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[11] Although R&R's Principles A & B weren't both semantic principles, the version I eventually defend does hold that one set of Principles A & B are semantic. Hence, the oversight is inconsequential.

[12] A consequence of defining the RC this way is that instances of SELF occurring in structures like 'John himself' which do not occur on a predicate's argument grid are exempt from the RC.

(1) a) Jon$_i$ foraktet (*ham$_i$/seg selv$_i$) [Norwegian]

b) Jan$_i$ veracht (*hem$_i$/zichzelf$_i$) [Dutch]

c) John$_i$ despises (*him$_i$/himself$_i$)

d) John$_i$ thinks Mary despises (him$_i$/*himself$_i$)

e) John$_i$ expected (*him$_i$/himself$_i$) to win the election

f) Henk hoorde (*hem$_i$/zichzelf$_i$) singen [Dutch]

In (1a) - (1c), we see the coindexed arguments on the verb's argument grid, which means the predicate is reflexive. Hence only those predicates which are reflexive marked, via SELF, turn out grammatical; the anaphor is bound via the RC. In (1d) we see the RC work the other way, so to speak. The embedded predicate is not a reflexive one, so when it is reflexive marked by SELF, the sentence is ungrammatical; In other words the RC is violated, so the anaphor isn't bound. In (1e) & (1f), the pronominals are starred and the anaphors are felicitous, so presumably we should see the RC violated by the pronominals. However, the pronominals in this environment are not on the grid of a reflexive predicate; they're the subject of an embedded ECM object clause. Hence, the RC is not applying here, yet by virtue of the semantics of SELF, it must be bound. This is the first suggestion that semantic binding is not the whole story.

(2) a) The grotesque photo of (her$_i$/herself$_i$) in the paper bothered Mary$_i$.

b) John$_i$ said there was a picture of (him$_i$/himself$_i$) hanging in the post office.

c) John$_i$ didn't hear the snake behind (him$_i$/himself$_i$).

d) Max$_i$ enjoyed the jokes about (him$_i$/himself$_i$).

e) John$_i$ said that he$_i$ would never allow his daughter to even consider marrying a man similar to (him$_i$/himself$_i$).

f) Milton$_i$ warned Marsha that she shouldn't trust anyone other than (him$_i$/himself$_i$).

g) Jon$_i$ brukade avsky hate folk som var annorlunda än (honom$_i$/honom själf$_i$/*sig själf$_i$) [Swedish]

h) Carl$_i$ sa at Marie hadde snakket med alle andre enn (ham$_i$/ham selv$_i$/*seg selv$_i$) [Norwegian]

In all of the examples in (2), there is no reflexive predication involved, so the RC has nothing to say about it. However, sentences similar to (2h) (what are called exclusion predicates) do show the effects of the RC:

(4) a) ...Marie$_i$ hadde snakket med alle andre enn (*henne$_i$/seg selv$_i$) [Norwegian]

a') Marie(λx (x hadde snakket med alle andre AND NOT(x hadde snakket x)))

b) Hal$_i$ hates everyone except (*him$_i$/himself$_i$)

b') Hal(λx (x hates everyone AND NOT(x hates x)))

As proposed in Safir '97, I agree that the pronominals here are ruled out by the RC and the anaphors are bound via satisfying the RC, hence their external arguments are saturated by semantics. That the sentences in (4) participate in a semantically reflexive relation is clarified by the loose logical representations in (4').

In sum, semantic binding (hence the RC) is a necessary part of the theory of binding as it crucially determines the distribution of reflexive relations. The reflexive relations handled by the RC

include both simple 'subj-V-obj' predicates and exclusion predicates. However, as noted above, there are data which heavily suggest that binding can not be a strictly semantic process.

2. Syntactic Binding

The R&R '93 approach makes two errors correctly pointed out in Safir '97. Firstly, the approach relies upon the Principles A & B in a form which entails A applies to syntax and B to semantics. The reason the GB Principles A & B were so attractive was because they were complementary and both applied in syntax. In modifying the thrust of Principles A & B, R&R successfully lost the special balance the old principles had and conflated semantic effects with syntactic ones. Secondly, since R&R turn Principle B into a semantic one, they need to rely upon a condition on chains to account for what used to be handled by syntactic Principle B. Safir '97 goes even further to show that R&R's so called condition on chains isn't independently motivated and boils down to being syntactic Principle B under another name. With these problems brought to light and keeping in mind the data that wasn't accounted for by semantic binding, it seems obvious that syntax should be involved in a credible theory of binding.

The account of syntactic binding I adopt is the following[13]:

Principle A - An anaphor α must be bound in its binding domain.

Principle B - A pronominal α must be free in its binding domain.

[13] Here I substitute "s-bound" for "bound" to indicate that syntactic binding is not the only form of binding, or reference fixing.

Binding domain - The minimal maximal category containing α, its governor, (and an accessible subject.)[14]

Binding - For α to be bound, it must be c-commanded by a coindexed β. α is said to be free if it is not bound.

Let us see how and when these principles apply:

(4) a) John$_i$ expected (*him$_i$/himself$_i$) to win the election

b) Henk$_i$ hoorde (*hem$_i$/zichzelf$_i$) singen [Dutch]

c) Jon$_i$ hoerte (*ham$_i$/sig selv$_i$) blive kritiseret [Danish]

d) Jon$_i$ hoerte (*ham$_i$/seg selv$_i$) bli omtalt [Norwegian]

e) Jon$_i$ forekom (*ham$_i$/sig self$_i$) at være den bedste kandidat [Danish]

f) Carol$_i$ appears to (*her$_i$/herself$_i$) to be intelligent

(4a) - (4d) are all ECM contexts which, as stated previously, are not reflexivized even though it appears as though the "Principle B" portion of the RC is being violated here. (4e) & (4f) are both raising constructs where once again no reflexivization appears. While R&R ruled these examples out with the condition on chains, it seems as though the pronominals are violating Syntactic Principle B and the anaphors are being licensed by Syntactic Principle A[15]. In each case, the relevant binding domain extends to the matrix IP, which entails that the pronominal/anaphor is c-commanded by the subject NP (SPEC to the matrix IP); This explains the complementarity of the examples in (4).

[14] Along the lines of Huang '83, it is possible that the notion of accessible subject is not part of the binding domain for pronominals, as opposed to anaphors. Such an alternative isn't a central concern of this paper, however.

[15] It is interesting to note that Safir's (1997) analysis contends that the Principles A are licensors while the Principles B are for marking violations.

The RC plus the Principles A & B thus account for a sizable amount of the anaphoric distribution. They also interact in an intuitive way. For an anaphor to be licensed, it must abide either by the RC or Principle A, much like a pronominal is violated if it violates either the RC or Principle B. This intuitive interaction is not only beneficial in and of itself, but it also helps to further explain logophoric phenomena.

Logophors, per the R&R '93 account, are said to be anaphors not affected by the Principles A & B. Hence, anaphors not on an argument grid (where non-complementarity holds) are said to be logophors. The Safir '97 account, on which I base most of the theory I support, is slightly different and winds up being more explanatory than R&R's account. The condition which licenses logophors is as follows:

> Logophoricity Condition - An anaphor α is interpreted as logophoric if either it lacks an external argument at both the syntactic and semantic levels (if it is unbound) or if its semantic external argument is distinct from its syntactic argument[16].

Hence, if an anaphor has no potential antecedent at syntax or semantics, or if its antecedents at different levels differ, it may be logophoric (thus leaving the anaphors grammaticality in the hands of discourse). Taking a look at problematic data so far, let's see how the Logophoricity Condition (hereafter the 'LC') interacts with the RC and Principles A & B:

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[16] A consequence of the LC is freeing similarity predicates from the RC: In '$John_i$ is friendly towards all men similar to $himself_i$', even though 'similar to' is a predicate with 'all men' as its subject and 'himself' as its object, 'himself's semantic subject and syntactic subject are distinct. This distinction in subjects frees similarity predicates from the RC.

(2) a) The grotesque photo of (her$_i$/herself$_i$) in the paper bothered Mary$_i$.

b) John$_i$ said there was a picture of (him$_i$/himself$_i$) hanging in the post office.

e) John$_i$ said that he$_i$ would never allow his daughter to even consider marrying a man similar to (him$_i$/himself$_i$).

f) Milton$_i$ warned Marsha that she shouldn't trust anyone other than (him$_i$/himself$_i$).

g) Jon$_i$ brukade avsky hate folk som var annorlunda än (honom$_i$/honom själf$_i$/*sig själf$_i$) [Swedish]

h) Carl$_i$ sa at Marie hadde snakket med alle andre enn (ham$_i$/ham selv$_i$/*seg selv$_i$) [Norwegian]

(3) d) John$_i$ himself$_i$ went to the party

e) Sir William Lucas$_i$, and his daughter Maria, a good humoured girl, but as empty-headed as himself$_i$ had nothing to say...

In (2a) & (2b), there is no potential antecedent at either the semantic or syntactic level, hence they are logophoric (as judged by the LC) and left to discourse to bind. In (2e) - (2h), the syntactic antecedent and the semantic antecedent differ, so once again the LC is met. (3e) receives the same treatment as (2a) & (2b). (3d) is unlike any of the anaphoric environments we've seen up to this point. Notice that a pronominal in that environment winds up horribly marked: *John$_i$ him$_i$ went to the party*. Regardless, it also passes the LC.

However, just because an anaphor is said to be logophoric and its binding is left to discourse, that doesn't explain how discourse binds the anaphor. More importantly, what independently motivated discourse conditions hold for felicitous discourse-bound anaphors?

3. Discourse Binding

The analysis of discourse bound anaphors (i.e. logophors, or intensives) follows the work of ZH '89, Baker '95, and ZH '95.

In her 1989 paper, ZH develops an account in which all occurrences of locally free 'HIMSELF' are logophoric: dealing with point of view and 'subject of consciousness'. Baker, using a vast corpus of literary data[17], provides ample data to show that point of view is not the only relevant discourse condition on logophoric anaphora.

(3) d) John$_i$ himself$_i$ went to the party

e) Sir William Lucas$_i$, and his daughter Maria, a good humoured girl, but as empty-headed as himself$_i$ had nothing to say...

Neither (3d) nor (3e) seem to have any relation to point of view. If anything, (3d) seems to mark John as a prominent or central character and (3e) seems to contrast Maria, a less central character, with the more central Sir William Lucas.

[17] While the data Baker presents is vast, it is for the most part all taken from 19th century British novels. As written language, its grammaticality judgments may be marginally different than those in spoken language. This argument appears in Pollard & Sag '92, specifically pp. 278-279.

Baker goes on to analyze 'HIMSELF' not strictly as a reflexive, but also as an intensive, such as 'HIM HIMSELF'. These intensives serve to pick out a figure in a discourse and both mark him as more prominent than another and to contrast him with a less prominent figure. Intensives, then, abide by two discourse conditions:

> Contrastiveness Condition - Intensives are appropriate only in contexts in which emphasis or contrast is desired
>
> Prominence Condition - Intensives can only be used to mark a character in a sentence or discourse who is relatively more prominent or central than other characters.

Upon further examination of the Prominence Condition, it is obvious that the property of logophoricity is subsumed. That is, for anything to be logophoric, it is also prominent. This removes the condition that all locally free anaphors must have the property of logophoricity, while adding more thrust to the theory. For instance, the anaphor in the sentence "*Give it to the King$_i$ himself$_i$!*" can now be accounted for by appealing to discourse prominence, as it seems to have nothing to do with point of view.

One result borne out from the prominence condition now sheds light on some data that was previously unaccounted for:

(5) a) Fred is not usually as alert as Karen

b) Fred himself is not usually as alert as Karen

c) Fred is not usually as alert as Karen herself

d) *Fred himself is not usually as alert as Karen herself

e) John$_i$ hated himself$_i$ for the rest of his life simply because Mary$_j$ killed herself$_j$

(5a) - (5c) all show felicitous uses of a SELF anaphor, abiding by the Prominence and Contrastiveness conditions. However, (5d) shows a violation of the discourse prominence condition; One cannot mark two persons as discourse prominent. Sentence (5e) is to demonstrate that two SELF anaphors abiding by the RC, however, are allowed to be used in one sentence. This illustrates the distinct functions SELF forms are partake of.

Discourse conditions also have another role. Take the sentences in (6):

(6) a) $John_i$ hit HIM_i
b) $John_i$ told Mary to hit $HIMSELF_i$
c) $John_i$ expected HIM_i to win the race
d) $John_i$ appeared to HIM_i to be attractive

These data show that discourse can effectively **unmark** anaphors and pronominals which the RC and Principles A & B mark as ungrammatical. However, in order to successfully unmark these, sufficient background discourse is needed so as to provide an environment where the contrastive stress is appropriate. (Hence, these abide by the discourse conditions.)

An anaphor has two effects which follow from SELF adjunction. First, it can serve as a marking device (or intensive), when the LC is abided by, where the speaker has a choice of whether to use an anaphor or pronominal. Second, it is linked to the de-stressing of the pronoun which inherently saturates SELF's local argument, which leads to the bound anaphoric interpretation. As an intensive, it must be licensed by one or both discourse conditions brought to light in Baker's theory.

4. Conclusion

As I explained earlier in the introduction, a theory with any hope of being a complete theory of SELF anaphora should motivate conditions which do the following:

i) Predict the complementary distribution

ii) Explain how some anaphors are exempt from the conditions in (i)

iii) Explain what governs the distribution of those exempt anaphors

The theory presented here motivates conditions which do just that. The RC and the Principles A & B predict the complementary distribution, and bring more to light the notion of logophoricity. By having semantics and syntax interact in the intricate way they do[18], the LC definitively explains the possible environments where anaphors may be exempt. Once exempt, the Prominence and Contrastiveness conditions apply at the discourse level in order to assign that necessary external argument to the SELF anaphor.

Thus syntax, semantics, and discourse are shown to be balanced in an intuitive and explanatory way in licensing anaphora.

[18] This is not the only theory that proposes that semantics and syntax need to be balanced. For another, very interesting, approach, see Lidz '97

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