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1. Introduction.

This paper has a dual purpose: To account for the binding of reflexives and pronouns in Danish, and to argue that the choice of binder and the choice of binding category should be seen as two independent parameters of binding theory.

The binding category parameter corresponds to principles A and B of the binding theory in Chomsky (1981) (henceforth: LGB), whereas the binder parameter, which is more controversial, is related to what elsewhere (e.g. Manzini and Wexler (1984)) has been called the proper antecedent parameter. The interaction of the two parameters gives the possibility of four distinct types of anaphors/pronominals, a situation which I will try to show obtains in Danish.

Section 2 will give a brief summary of the premises of the analysis: the binding theory according to LGB, control theory, and word order in Danish. In section 3 the initial assumption that Danish is no different from English w.r.t. binding will be rejected, and section 4 will discuss Danish sig and sig selv, including both reflexive and optionally reflexive verbs and constructions. Section 5 treats ham/hende and ham selv/hende selv, and the overlap between sig and ham/hende; and an overview of the analysis is given in section 6.

In the second half of the paper, attention will be paid to areas which either provide support for or present problems for the analysis. Section 7 will deal with two areas where each of the two parameters can be seen at work without interference from the other: possessives and first and second person pronouns. In section 8 an analysis for the so-called 'accessibility' facts in English (more or less consistent with the LGB analysis) will be shown to cover similar phenomena in Danish. Section 9 is on NPs as binding categories, with the emphasis on 'subjectless' NPs, as NPs with overt (genitive) subjects are relatively uncontroversial. The conclusion comes in section 10, where more general parameters are set up, and implications of the whole analysis for learnability are considered, both with reference to the suggestions of Manzini and Wexler (1984). The appendix contains translations more idiomatic than the word-for-word ones supplied with each Danish example.

Let me conclude this introduction with a remark of a more
practical kind. As stated above, I will not be concerned with traces or reciprocals, but only with reflexives and pronouns, representing four types of potentially bound elements: anaphors or pronominale with respect to the binder parameter (b for binder), and anaphors or pronominale with respect to the binding category parameter (d for domain in which an element should (not) be bound). These are set out in (1), with English glosses and type labels:

(1) Danish | English gloss | Type
--- | --- | ---
a. ham/ hende | him/ her | b-pronominal d-pronominal
b. ham selv/ hende selv | himself/ herself | b-pronominal d-anaphor
c. sig | REFL | b-anaphor d-pronominal
d. sig selv | REFL self | b-anaphor d-anaphor

'REFL' has been chosen to stress that English has no reflexive which is neutral with respect to gender and number.

2. Premises.

2.1 Binding Theory.

I will be referring to the binding theory as put forth in LGB:188, with the revisions suggested on pp. 211 and 220:

(100) Y is a binding category for X iff Y is the minimal category containing X and a subject of X.¹

(101) (A) An anaphor is bound in its binding category.
(B) A pronominal is free in its binding category.

The term SUBJECT refers to the AGR element (which is taken to be a complex set of features such as gender, person and number, contained by the INFL of a finite clause) if present, and to the structural subject if AGR is not present (i.e. in constituents with a subject but no AGR, viz. non-finite clauses and certain NPs).

A consequence of referring to the twice revised binding theory is that I will not be concerned with whether the binding category of a given element contains the governor of this element (hence no references to 'governing category'). This issue is only relevant when discussing the distribution of PRO, and I am not convinced that the facts about PRO should fall out from binding theory. Besides, the main topic of this paper is the distribution of phonetically realised anaphors/pronominals.

2.2 Control Theory.

First, however, a few more words about PRO, to explain why superficially similar examples below differ with respect to the presence of PRO. PRO is the empty (i.e. inaudible) pronominal (and/or anaphoric) NP, which only occurs as the subject of certain infinitivals, and it makes possible various generalisations, such as 'all clauses have subjects' (LGB:25).

This is also the case in the area we are concerned with here, as rules necessary to account for e.g. binding of anaphors in tensed clauses (anaphors are bound by a subject in a certain domain (to be revised later)) will now also cover untensed clauses:
(2) Det er svært [si, PRO i at klippe sig selv]
"It is difficult [PRO to cut ___]"

Also PRO is necessary for the theory of thematic roles (theta-theory). The theta-criterion requires that each argument should be assigned one and only one theta-role, and that each theta-role should be assigned to one and only one argument. Thus in the bracketed S' in (2) there are two theta-roles, AGENT (cutter) and THEME (the one who is cut, or 'cuttee'). The 'cuttee' is sig selv, and the 'cutter' then has to be an inaudible argument (i.e. PRO), as there are no more phonetically realised arguments in (2).

Theta-theory is essential when determining whether or not a given sentence contains PRO. Consider

(3) a. Peter bad Søren om [si, PRO i at gå]
   "Peter asked Søren to leave"

(4) a. *Peter hørte Søren i [si, PRO i går]
   "Peter heard Søren leave"

b. Peter hørte [si, Søren i går]
   "Peter heard Søren leave"

The reason why Søren and PRO both are there in (3), but not in (4), is that in (3) two theta-roles are connected with the person Søren, namely that of 'asker' (THEME of ask) and that of 'leaver' (AGENT of leave), whereas in (4) only one theta-role is connected with Søren, 'leaver', as there is no 'hearer', no THEME of hear (or if there is, it is the entire embedded S', and not Søren).

The link between PRO and its antecedent is called control. According to the function of its antecedent, PRO may be object-controlled, as in (3), or subject-controlled, as in

(5) Peter i lovde Søren [si, PRO i at gå]
   "Peter promised Søren [PRO to leave]"

or it may not be controlled at all, i.e. have some sort of general reference, as in (2). (For one formulation of the rules of control, see Manzini (1983)).
1. Basic Differences from English.

In traditional grammatical descriptions of Danish, it is implicitly assumed that the difference between sig and sig selv is syntactically irrelevant, as examples randomly use one or the other, without mentioning any difference between the two (e.g. Mikkelsen (1911: 258ff.), Diderichsen (1946: 56)). With this in mind one might expect that both sig and sig selv behave as anaphors in accordance with the LGB rules, and that the difference between the two would be determined somewhere else, e.g. pragmatically. This would seem to be borne out by the all too frequently cited example:

(7) a. at [s Peteri AGR vaskede sigi]
   b.   sig selvi
   c.   *hami
   d.   *ham selvi
   "that [Peter AGR washed ___]"

It is my contention that (7) is atypical, and that the following examples are the core cases, illustrating that the situation is rather more complicated syntactically than suggested by (7):

(8) a. at Peteri AGR hørte [s Anne om tale sigi]
   b.   *sig
   c.   *sig selvi
   d.   sig selvi
   "that Peter AGR heard [Anne mention ___]"

Also in simple sentences the variation is far from free:

(9) a. at [g Peteri altid AGR har beundret sigi]
   b.   sig selvi
   "that [Peter always AGR has admired ___]"

Examples like (8) and (9) led to the analysis to be put forth on the following pages.

Another difference between Danish and English is whether the binder can be any c-commanding NP or it must be the subject of a category containing the potentially bound element. English allows the former, Danish requires the latter. Thus Danish potentially bound elements must not only be bound/free in a certain domain, but they must also be bound by/free from binding by a certain kind of binder, viz. a subject. E.g. sig selvin (9) must not only be bound in the bracketed s, but it must also be bound by a subject.

A result of the analysis will be (as stated in section 1) that Danish contains two parameters with respect to which elements may be classified as either anaphoric or pronominal. Being an anaphor with respect to a certain parameter may be defined as being an element which must be bound in accordance with the specifications of the parameter. Similarly, being a pronominal may be defined as being an element which must not be bound, also with respect to a given parameter.

The analysis will be founded on a subgrouping of verbs and prepositional constructions into one of three classes on the basis of their complementation: non-reflexive, reflexive, and optionally reflexive constructions (as reflected in the subsections of section 4).
4. sig and sig selv.

4.1 In General.

Leaving aside (7) and the so-called reflexive constructions for a while, I will here suggest rules accounting for both the similarities and the differences between sig and sig selv.

Both of them must be bound by a subject which is inside the c-command domain of the lowest AGR c-commanding sig/sig selv. This domain will be called the AGR domain, and being bound by a subject in the AGR domain is the same as being bound by a subject in the lowest tensed clause, as AGR only is found in (and c-commands all of) a finite clause.

The difference between sig and sig selv is that sig must not be bound from inside its SUBJECT domain (i.e. from inside the c-command domain of the lowest SUBJECT c-commanding sig, which corresponds to either the lowest clause irrespective of finiteness or to certain NPs, cf. section 9), whereas sig selv must be bound from inside its SUBJECT domain.

As regards their status as anaphors, both sig and sig selv are anaphors with respect to the binder-parameter (both must be bound by a specific type of binder), whereas only sig selv is an anaphor with respect to the binding category parameter (sig selv must, but sig must not be bound in a specific domain or binding category). sig is thus a b-anaphor (b for binder) but a d-pronominal (d for domain), whereas sig selv is both a b-anaphor and a d-anaphor.

By way of illustration of how the above rules work, consider first (10), which is similar to (9):

(10) a. at [g Peteri AGR fortalte Michaeli om sig selvi]
   b. "sig selvi
   c. "sigi
   d. "sigj
   "that [Peter AGR told Michael about ___]"

This is a case where the SUBJECT is the AGR. sig is therefore ruled out altogether in (10), as it must be bound by a subject in its AGR domain (= the S), being a b-anaphor, but it must be free in its SUBJECT domain (= the S as well), being a d-pronominal, and these two requirements can clearly not be met at the same time.

As for sig selv, being a b-anaphor it must be bound by a subject in the AGR domain, and being a d-anaphor it must be bound in its SUBJECT domain, both of which are met in (10a), but not in (10b), where it is bound by a non-subject.

Consider now the case where the AGR and the SUBJECT are not identical, i.e. where the element in question is embedded in a constituent with a SUBJECT but without an AGR, e.g. an infinitival clause. I shall here give an example with PRO, but one without PRO is equally possible, cf. (8) and section 2.2.

(11) at [g Peteri AGR bad Annei om
   a. [g PROi at ringe til sigj ]]
   b. "sigj
   c. "sigj
   d. sig selvi
   "that [Peter AGR asked Anne for (PRO to ring to ___)]"

Both of the potential binders, Peter and PRO, are subjects, and both are inside the AGR domain (= the higher S), so none of the possibilities in (11) are ruled out by the binder-parameter.

The domain-parameter, however, rules out both (11b) and (11c). (11b) is out because sig is bound inside its SUBJECT domain (= the lower S) which it should not be, being a d-pronominal; and (11c) is out for exactly the opposite reason, being a d-anaphor sig selv should be, but is not, bound in its SUBJECT domain.

The last example in this section will be a case where sig is impossible even though AGR and SUBJECT are not identical. The relevant difference between (11) and (12) is that in (11) PRO was controlled by the object of the higher S, whereas in (12) PRO is controlled by the subject of the higher S:

(12) at [g Peteri AGR lovede Annei
   a. [g PROi at ringe til *sigj ]]
   b. "sigj
   c. sig selvi
   d. sig selvi
   "that [Peter AGR promised Anne [PRO to ring to ___]]"
The binder-parameter here rules out the index 'j', as this would entail binding by a non-subject, *Anne*, thus (12b) and (12d) are out.

The domain-parameter allows (12c), *sig selv* is bound inside its SUBJECT domain (= the lower S) as it should be, but it rules out (12a). Even though *sig* is coindexed with *Peter*, which fulfills both requirements (it is a subject in the AGR domain, and it is outside the SUBJECT domain), binding by *Peter* would entail binding by PRO, as PRO would be the lowest NP coindexed with and c-commanding *sig*, and this would mean binding from inside the SUBJECT domain.

4.2 Reflexive Constructions.

That *sig* should only be possible when bound from outside an infinitival S (or certain NPs, cf. section 9) is a conclusion derivable from the preceding section. It is however also a statement most Danes would not accept, cf. the following example:

(13) a. at [s Peter AGR sov over sigi]
   b. sig selv
   "that [Peter AGR slept over ___]"

This type of example is traditionally called a reflexive construction. What is important here is that as opposed to *sig* in (11a), *sig* in (13a) does not "mean" anything, as it can not be replaced by another NP. With reference to (13) it is impossible to "sleep over" anything or anybody but oneself. Other examples of local *sig*, i.e. *sig* bound by binders closer than on the other side of an infinitival S, are the following expressions:

(14) a. være doven af sig, "be lazy of ___" = be naturally lazy
    b. slå fra sig, "hit from ___" = defend oneself
    c. skynde sig, "hurry ___" = hurry
    d. komme sig, "come ___" = recover

(Further examples may be found in Thrane (1983:8) and Vikner (1984:38)).

This local *sig* may be possible with both transitive and intransitive verbs. With an otherwise intransitive verb we get an example like *gave over" "oversleep" in (13), with a transitive verb the result is an example like the following, parallel to (7):

(15) a. at [s Peter AGR barberede sigi ]
    b. sig selv
    c. Michael
   "that [Peter AGR shaved ___]"

Both cases can be handled with reference to the fact that local *sig* does not mean anything, i.e. it does not get a theta-role? (this claim is not uncontroversial in the transitive cases, cf. the discussion in 4.3). The descriptive generalisation is then a) a position that would have *sig selv* if a theta-role was assigned to it, requires *sig* if no theta-role is assigned, and b) a position that would have a *sig* if theta-assigned can not have any NP at all if not theta-assigned. The former can be seen by comparing (16b,d) to (13), the latter by comparing (16a,c) to (8) and (11):

(16) at [s Peter AGR overtalte Annej til
   a. [s PROj at slå fra *sigi]
   b. sig j
   c. *sig selv
   d. *sig selv j
   "that [Peter AGR persuaded Anne to [PRO hit from ___]]"

Here *sig* can only be bound by PRO, the subject inside the SUBJECT domain, and *sig selv* is ruled out in any event.

As for transitive verbs with a possible local *sig*, they may obey either set of rules above, as can be seen in

(17) at [s Peter AGR bad Michaelj om
   a. [s PROj at barbere sigi]]
   b. sig j
   c. *sig selv
   d. *sig selvi j
   "that [Peter AGR asked Michael for [PRO to shave ___]]"
Taking the position of the bound element to be theta-assigned allows only for (17a,d), cf. (11), and taking it not to be theta-assigned accounts for (17b), cf. (16). (17c) is not allowed under any account, and is therefore ruled out.

Summing up so far we have two basic types of constructions, transitive and intransitive. Transitive will allow for any NP complement, including sig selv and non-local sig. Intransitive will not allow any NP complement, not even sig selv or non-local sig. When locally bound (and non-theta-assigned) sig is included, both of these main groups split into two, giving the following four combinations:

(18) Intransitive Transitive

| + ___NP  | -      | +      |
| + ___sig selv | -      | +      |
| + ___sig (non-local) | -      | +      |
| + ___sig (local) | -      | -      |

Categories: de, skynde, sike, vaske
Examples: "die", "hurry", "love", "wash"

(16) 4.1 (17)

(The four combinations do not necessarily correspond to four distinct classes of verbs/prepositional expressions, as this perhaps suggests, somewhat misleadingly. Cf. the discussion below).

The two important facts in this section are that local sig is never theta-assigned, and that non-local sig, sig selv and any other NP are either possible all three, or impossible all three. Thus saying that all of these three types need a theta-role and that local sig does not, at least partly accounts for why out of the 16 combinatorial possibilities, only the four in (18) are possible.

4.3 Problems with non-theta-assigned sig.

Local sig does not get a theta-role, as discussed above, and as exemplified in (13), where it can not be replaced by any other NP. However, this lack of theta-role is postulated also in cases where local sig may be replaced by other NPs, as in (17). It may be argued that in a case like (17) it does not make much difference anyway for the interpretation whether there is a theta-assigned object or not, cf. English where he shaved and he shaved himself mean (at least roughly) the same (the "semi-reflexive verbs" of Quirk et al. (1985:358)).

Therefore let us take a case where the two interpretations are different, e.g.

(19) a. at [s Peteri brændte sig i l
b. sig selv
   Michael
   "that [Peter AGR burned ___]"

where (19b) implies that Peter burned himself intentionally, an implication absent in (19a). This difference may be accounted for along the lines suggested in Holmberg (1984:8-10), (19b) has two theta-roles: Peter is AGENT, sig selv is THEME, whereas (19a) only has one: Peter is THEME, and the absence of agent accounts for the absence of intention.8,9
5. ham/hende and ham selv/hende selv.

When we turn to the elements ham/hende and ham selv/hende selv with the findings of section 4 in mind, we find not only that they are all b-pronominals, but also that they vary with respect to the domain-parameter in a way parallel to sig and sig selv, as ham/hende are d-pronominals, but ham selv/hende selv are d-anaphors. The rules will be given below, but first the relevant examples will be considered.

One difference is that only ham selv/hende selv may be bound inside the SUBJECT domain:

\[(20)\]
\[
\begin{align*}
&\text{a. at } [g\text{ Susan}_1 \text{ AGR fortalte } \text{Anne}_j \text{ om } \text{hende}_1] \\
&\text{b. } \text{hende}_j \\
&\text{c. } \text{hende selv}_1 \\
&\text{d. } \text{hende selv}_j \\
\end{align*}
\]

"that [Susan AGR told Anne about _____]"

where the SUBJECT domain is the bracketed S.

Another difference is that ham/hende may be bound by any NP outside the SUBJECT domain, whereas ham selv/hende selv may not be bound from outside the SUBJECT domain at all (in fact the latter must be bound inside the SUBJECT domain (by a non-subject), whereas the former do not have to be bound at all). This is shown below, where (21a) has subject binding and (22b) non-subject binding of hende:

\[(21)\]
\[
\begin{align*}
&\text{a. at } [g\text{ Susan}_1 \text{ bad } \text{Anne}_j \text{ om } \text{hende}] \\
&\text{b. } \text{hende}_1 \\
&\text{c. } \text{hende selv}_1 \\
&\text{d. } \text{hende selv}_j \\
\end{align*}
\]

"that [Susan AGR asked Anne for [PRO to ring to _____]]"

Both d-anaphors are ruled out (23b,d) as this is binding from outside the SUBJECT domain (= the lower S). Both sig and hende are allowed here as they are d-pronominals, and sig is furthermore allowed as it is bound by a subject inside its AGR domain, and hende is allowed as it is not bound by a subject in

\[(23)\]
\[
\begin{align*}
&\text{a. at } [g\text{ Susan}_1 \text{ AGR overtalte } \text{Anne}_j \text{ til } \text{hende}] \\
&\text{b. } \text{sig selv}_1 \\
&\text{c. } \text{hende} \\
&\text{d. } \text{hende selv}_1 \\
\end{align*}
\]

"that [Susan AGR persuaded Anne to [PRO to ring to _____]]"

Neither of hende and hende selv may be bound by the subject in the SUBJECT domain (21b,d,22a,c), but where hende selv can not be bound outside its SUBJECT domain (21c,22d), hende may be bound outside its SUBJECT domain by both a subject (21a) or a non-subject (22b).

With an eye to the rules proposed in section 4.1, the following is suggested for ham/hende and ham selv/hende selv. They differ from each other in a way parallel to sig and sig selv, i.e. ham/hende must not be bound inside their SUBJECT domain, whereas ham selv/hende selv must be bound in this domain. In other words, ham/hende are d-pronominals, and ham selv/hende selv are d-anaphors.

Taking them as one group they differ from sig and sig selv in that they must not be bound by a subject in the SUBJECT domain, that is to say they are b-pronominals.

If the rules given above are compared to the ones of 4.1, it will appear that where the rules for d-anaphors and d-pronominals are complementary, the rules for b-anaphors and b-pronominals overlap in the following fashion: B-anaphors must be bound by a subject somewhere in the AGR domain (= the lowest tensed clause), whereas b-pronominals only have to be free from binding by the subject in the SUBJECT domain. This means that there is an overlap in one particular configuration, i.e. when the binder is a subject in the AGR domain but is outside the SUBJECT domain (cf. (11) and (21)):
its SUBJECT domain.

Hellan (1983:17) note what seems to be exactly the same situation in Norwegian. Rather than allowing b-anaphors and b-pronominals to have different requirements as to the elements by which they may be bound (which in Hellan's terms would be to allow the coreference domain of the predication anaphor to differ from the non-coreference domain of the predication pronominal), Hellan concludes that the complementary distribution between ham/hende and sig is a "strong tendency more than an absolute principle"(1983:27), and thus considers and example like (23) to be exceptional, where this paper finds it unexceptional.10

I shall end this section by a slight digression. Sometimes ham selv/hende selv may appear to be bound from outside the SUBJECT domain, as in

(24) Komponisten1 sagde at [s orkestret2 kun måtte spille symfonien med ham selv1 som dirigent]
"Composer-the said that [orchestra-the only could play symphony-the with ___ as conductor]"

This may be dealt with in two ways. One is to assume that ham selv in (24) is an example of the b-pronominal d-anaphor. Then this would be a counter-example to the rules suggested above, as it is bound from outside its SUBJECT domain (= the bracketed S).

The alternative is to assume that ham selv is not a b-pronominal d-anaphor, but the b-pronominal d-pronominal ham followed by a different kind of constituent, selv. This analysis I think is supported by three facts: a) selv may occur on its own in Danish (cf. Risager (1973)), b) selv has a different and more emphatic kind of stress in (24) than in the other kind of examples considered so far (cf. Hellan (1983:15)),11 and c) selv may be deleted in (24) with the result that ham receives the more emphatic stress.

6. Overview of the Analysis.

The binding rules for Danish may now be summarised as below, using rules suggested above, or taking over rules unchanged from LGB (25E,F,G):

(25) A. Binder-pronominals (- sig)
A b-pronominal is not bound by a subject inside its SUBJECT domain (i.e. inside the c-command domain of its lowest c-commanding SUBJECT).

B. Binder-anaphors (+ sig)
A b-anaphor is bound by a subject inside its AGR domain (i.e. inside the c-command domain of its lowest c-commanding AGR).

C. Domain-pronominals (- selv)
A d-pronominal is not bound in its SUBJECT domain (i.e. in the c-command domain of its lowest c-commanding SUBJECT).

D. Domain-anaphors (+ selv)
A d-anaphor is bound in its SUBJECT domain (i.e. in the c-command domain of its lowest c-commanding SUBJECT). (In section 8 this rule will be revised to 'accessible SUBJECT' domain).

E. Names.
A name is not bound by anything anywhere.

F. Binding Definition.
X binds Y iff X is the lowest NP c-commanding Y and coindexed with Y.

G. SUBJECT Definition.
The SUBJECT is AGR in tensed clauses, and the subject elsewhere ("the most prominent nominal element", LGB:209).
The interaction of rules (25A-D) may be illustrated as in the following diagram:

(26)  

<table>
<thead>
<tr>
<th>A b-pronominals</th>
<th>B c-anaphors</th>
</tr>
</thead>
<tbody>
<tr>
<td>Not bound by a subject in the SUBJECT domain</td>
<td>Bound by a subject in the AGR domain</td>
</tr>
</tbody>
</table>

C d-pronominals  
Not bound in SUBJECT domain  
ham  
"him"  
"her"

D d-anaphors  
Bound in SUBJECT domain  
ham selv  
"him self"  
"her self"
  
sig selv  
"REFL self"

When considering the effects of the above, it will appear that five different types of configurations may be distinguished, according to whether the anaphor/pronominal is:

(27)  
I  not bound at all  
II bound outside its SUBJECT domain by a subject  
III bound outside its SUBJECT domain by a non-subject  
IV bound inside its SUBJECT domain by a subject  
V bound inside its SUBJECT domain by a non-subject

The effects of the rules given above may now be illustrated in a schema, where each of the vertical columns refer to a position of binder from (27), and each of the horizontal lines to an anaphor/pronominal from (26). (28) thus shows which rules from (26) rule out which anaphors/pronominals in which configurations from (27):

(28)  

<table>
<thead>
<tr>
<th>Elements</th>
<th>Rules (26)</th>
<th>Configurations (27)</th>
</tr>
</thead>
<tbody>
<tr>
<td>ham</td>
<td>A,C</td>
<td>I II III IV V</td>
</tr>
<tr>
<td>ham selv</td>
<td>A,D</td>
<td>+ + + + A,C C</td>
</tr>
<tr>
<td>sig</td>
<td>B,C</td>
<td>B + B C A +</td>
</tr>
<tr>
<td>sig selv</td>
<td>B,D</td>
<td>B,D D B,D + B</td>
</tr>
</tbody>
</table>

Let me briefly explain (28): If we take e.g. column IV, it says that binding by a subject from inside the SUBJECT domain is:

ruled out for the element under A and C, ham, as both A and C rule it out.
ruled out for the element under A and D, ham selv, as A rules it out.
ruled out for the element under B and D, sig selv, as C rules it out.
not ruled out for the element under B and C, sig, as C rules it out.

I shall conclude this section by giving three examples with the full range of possibilities (all and only grammatical indices are given):

(In (29)-(31), the index "o" corresponds to configuration (27I), "i" to (27II), "j" to (27III), "k" to (27IV), and "m" to (27V).)

(29)  

at [g Annei AGR hørte  
a. [g Susan anakke med Tina om sig1]  
b. sig selv1  
c. hende1/o  
d. hende selv1  

"that [Anne AGR heard [Susan talk to Tina about ____]]"

According to (25G) Susan is the lowest SUBJECT, therefore the SUBJECT domain is the lower S. The AGR domain is the higher S. sig must be bound by a subject inside the higher S (25B), but outside the lower S (25C), therefore "i". sig selv must be bound by a subject (25B) inside the lower S (25D), therefore "k". hende can not be bound inside the lower S at all (25A,D), but anything else goes, therefore "i" and "o" ("o" is the obviative use of the pronominal, where it refers to something outside the
entire example). Finally, **hende selv** must be bound in the lower S (25D), but not by the subject of the lower S (25A), therefore "m".

Consider now the variation of (29) where we have a subject controlled PRO:

(30) at [s Annek AGR lovedesusanto sig]
   a. [s PRO at snakke med Tina om *sig]]
   b. sig selvy
   c. hende j/o
   d. hende selv

"that [Anne AGR promised Susan [PRO to talk to Tina about ____]]"

Here PRO is the lowest SUBJECT, and again the lower S is the SUBJECT domain. **sig** can not be bound at all, as the only possible binder outside the lower S is coindexed with PRO, and thus would bring about binding from within the SUBJECT domain (cf. (13)). As for the other three anaphors/pronominals, see the comments on (29).

Consider finally an example without the anaphor pronominal being embedded in an infinitival S:

(31) a. at [s Annek AGR snakkede med Tina om *sig]
   b. sig selvy
   c. hende j/o
   d. hende selv

"that [Anne AGR talked to Tina about ____]]"

Here the AGR is the SUBJECT, making the (tensed) S both the AGR domain and the SUBJECT domain. **sig**, as in (30), can not be bound both by a subject in the AGR domain (25B) and from outside the SUBJECT domain (25C), this time because the two domains are identical, therefore it is ruled out. **sig selv** must be bound by a subject inside the SUBJECT domain, hence "k". **hende** must not be bound in its SUBJECT domain, this leaves only "o". **hende selv** must be bound in its SUBJECT domain but by a non-subject, hence "m".

7. Evidence Supporting the Analysis.

In this section examples will be considered from two areas, possessives and first/second person, which both shed additional light on binding in Danish, as they each lack one of the two oppositions b-anaphor/b-pronominal and d-anaphor/d-pronominal, offering a view of how each of these two parameters work when there is not interference from the other one.

7.1 Possessives.

The situation with respect to the third person singular possessives may be straightforwardly accounted for by assuming that only the binder-parameter is operative here. In accordance with this there are only two types of elements:

b-pronominal, **hans** ("his") and **hende** ("her"), which must not be bound by a subject in their SUBJECT domain (26A), and which therefore are allowed only in those configurations below where there is no binding at all (33), where the binder is outside the SUBJECT domain (34-35), or where the binder, though inside the SUBJECT domain, is not a subject (37).

b-anaphor, **sin** ("REFL's"), which must be bound by a subject in the AGR domain (26B), and which therefore is allowed in the two cases where the binder is a subject, either inside the SUBJECT domain (36) or outside this but inside the AGR domain (34).

As in (28), a schema may illustrate in which configurations from (27) which possessives are ruled out by which rules of (26):

(32) \[
\begin{array}{c|cccc|c}
\text{Elements} & \text{Rules (26)} & \text{I} & \text{II} & \text{III} & \text{IV} & \text{V} \\
\hline
\text{hans} & A & + & + & + & A & + \\
\text{sin} & B & B & + & B & + & B \\
\end{array}
\]

The relevant examples follow below, (33) examplifying configuration (27I), (34) (27II), etc.

(33) a. at [s Peter AGR læste *sin artikel]
   b. hans

"that [Peter AGR read ____ article]"
All examples bear out the prediction following from the rules of (25) with the stipulation added that possessives are neutral with respect to d-anaphors versus d-pronominals.

7.2 First and Second Persons.

Here we find the exact opposite of the situation in 7.1, as the judgments concerning first and second persons may be accounted for by assuming that only the binding category-parameter is operative here. In other words, the distinction between subject and non-subject as binder is neutralised. Again only two types are found:

- **d-pronominal**, mig ("me"), which must not be bound inside its SUBJECT domain (26C).
- **d-anaphor**, mig selv ("me self"), which must be bound inside its SUBJECT domain (26D).

This gives a clear complementary distribution, with **mig** only allowed when not locally bound, (39) - (41), and **mig selv** only allowed when locally bound, (42) and (43). Again a schema may illustrate which rules rule out which elements in which configurations:

<table>
<thead>
<tr>
<th>Elements</th>
<th>Rules (26)</th>
<th>Configurations (27)</th>
</tr>
</thead>
<tbody>
<tr>
<td>mig</td>
<td>C</td>
<td>I + + + C</td>
</tr>
<tr>
<td>mig selv</td>
<td>D</td>
<td>D D D +</td>
</tr>
</tbody>
</table>

The relevant examples are given below, (39) showing (27I), (40) (27II), etc.

(39) a. at [s Annei AGR fortalte mig om valgresultatet]
    b. *mig selv
    "That [Anne AGR told ____ about election-result-the]"

(40) at [s jegi AGR overtalte Susanj til
    a. [s PROj at skrive til migj]
    b. *mig selvj
    "That [I AGR persuaded Susan to [PRO to write to ____]]"

(41) at [s Tinai AGR lovede migj
    a. [s PROj at nævne migj]
    b. *mig selvj
    "That [Tina AGR promised me [PRO to mention ____]]"

(42) a. at [s jegi AGR overvurderede *migj]
    b. *mig selvj
    "That [I AGR overestimated ____]"

(43) a. at [s Susanj AGR fortalte migj om *migj]
    b. *mig selvj
    "That [Susan AGR told me about ____]"

The examples bear out the predictions of the rules of (25) with the added stipulation that first and second persons are neutral with respect to b-anaphor versus b-pronominal.
8. Accessibility of SUBJECT.

8.1 English Anaphors.

In LGB ((100), p. 220) binding category, the category within which an anaphor is bound and a pronominal free, is defined as

\[(44) \text{Y is a binding category for } X \iff \text{Y is the minimal category containing } X \text{ and a SUBJECT accessible to } X.\]

Accessibility is defined as in (45) (LGB:212, (74)):

\[(45) \text{X is accessible to } Y \iff \text{Y is in the c-command domain of } X \text{ and assignment to } Y \text{ of the index of } X \text{ would not violate}\]

(46)

(46) is called the i-within-i condition, and will here be given in the revised version (LGB:229, (iv) of note 63):

\[(46) \text{[...Z}_1\ldots[X_1\ldotsX_1\ldots]...Z_1...}\]

Finally an independently motivated assumption has to be taken into account, that AGR is coindexed with the NP it governs (i.e. with the subject of its clause, with which it shares features, thus accounting for concord of number and person in e.g. English).

In other words, all this means that binding category is defined with reference to c-commanding SUBJECT, but not all c-commanding SUBJECTs will suffice for defining a binding category. If a potential coindexation between a c-commanding SUBJECT and Y would result in Y being coindexed with a category containing Y, then that c-commanding SUBJECT is inaccessible (according to (45)) and may not be used for determining the binding category of Y. X of (46) could never itself be a SUBJECT c-commanding Y anyway, as X clearly does not c-command Y in (46). The accessibility requirement is therefore only relevant when the X of (46) is already coindexed with a SUBJECT c-commanding Y, and this is where the assumption that AGR is coindexed with the NP it governs comes in, as its consequence is that if Y is contained within the subject of a clause, then the AGR of that clause is not an accessible SUBJECT.

As an illustration consider

(47) Peter\textsubscript{1} AGR\textsubscript{1} thought that \textsubscript{[S \{NP\textsubscript{x} the pictures of himself\textsubscript{1}\} AGR\textsubscript{x} would never come out]}

Here both AGRs are coindexed with their subject NPs. A potential coindexation between the anaphor and the lower AGR, i.e. "i"="x", would mean that the anaphor was coindexed with the NP containing it, thus violating (46). Following (45), this means that the lower AGR is not accessible to the anaphor, and this in turn according to (44) means that the embedded clause can not be the binding category for himself. The entire sentence is now the binding category as the higher AGR is accessible to the anaphor, accounting for how Peter may bind himself.

Another relevant and uncontroversial assumption which I will make along with LGB (p. 215) is that "pleonastic it and there are coindexed with the postverbal phrases associated with them", or in the terminology of Quirk et al. (1972:963) that the anticipatory subjects it and there are coindexed with their postponed subjects. As with the assumption of coindexation of AGR and its subject NP, supporting evidence for a close connection between anticipatory and postponed subjects can be found in the area of concord of number, as there as anticipatory subject agrees in number with the postponed subject:

(48) a. There was a man outside the door
b. *There were a man outside the door
c. *There was three men outside the door
d. There were three men outside the door

With the assumption of coindexation between it and there and their postponed subjects, there are further examples of why c-commanding SUBJECT should be restricted to accessible SUBJECT. Consider

(49) Anne\textsubscript{1} AGR\textsubscript{1} thought that \textsubscript{[S there\textsubscript{x} AGR\textsubscript{x} were [NP\textsubscript{x} some pictures of herself\textsubscript{1}] in the newspaper]}

...
where the lower AGR again is inaccessible to the anaphor, because such a coindexation, i.e. "i"="x", would mean that the anaphor was coindexed with its containing NP (violation of (46)), because the lower AGR is coindexed with its subject there, which as assumed above is coindexed with the bracketed NP. Consequently not the lower S but the whole sentence is the binding category, accounting for how Anne may bind herself.

Another example with it instead of there is

\[(50)\] Susan\_i AGRI thought that [\[s it\_x AGRx was a shame that [\[NP\_y a picture of herself\_i] AGRx was lost]\]

The lowest embedded clause is not a binding category here as its AGR is inaccessible to the anaphor, a potential coindexation, i.e. "y"="i", would mean that herself was coindexed with a containing NP. The higher of the embedded clauses is not a binding category either, as its AGR is also inaccessible to the anaphor, a potential coindexation, i.e. "y"="i", would mean that herself was coindexed with its containing clause. Again the whole sentence must be the binding category, accounting for the grammaticality of (50).

8.2 English Pronominals.

The LGB rules (44)-(46) as exemplified in the previous section predict that the pronominal versions of (47), (49), and (50) should be ungrammatical, as binding categories for pronominals are also defined with reference to accessible SUBJECT. The entire sentences (51)-(53) should therefore be the binding categories, as only the highest AGRs are accessible (for details of the argumentation, please refer to (47), (49), and (50) respectively):

\[(51)\] Peter\_i AGRI thought that [\[s \[NP\_x the pictures of him\_i] AGRx would never come out]\]

\[(52)\] Anne\_i AGRI thought that [\[s there\_x AGRx were \[NP\_x some pictures of her\_i] in the newspaper]\]

This type of configuration will be discussed in section 9, where arguments will be introduced in favour of the c-commanding SUBJECT option.

8.3 Danish.

In the previous sections binding category was found to be determined by reference to a c-commanding SUBJECT in English, with the crucial distinction that for anaphors the c-commanding SUBJECT must also be accessible, a requirement which is not made when determining the binding category for English pronominals.

In this section similar facts will be shown to exist in Danish, viz. that the SUBJECT of (25D)(domain-anaphors), which is the one that corresponds to the anaphor binding category in English, must be accessible, whereas accessibility is not required in (25C), nor in (25A) or (25B).

The relevant examples in Danish will be given below, with all four pronominal/anaphor options for each example.
(55) at [S Peteri AGRi troede at [S [NPx billede af *sigi] aldrig AGRx ville blive til noget]]
   a. *sig selv_i
   b. ham_i
   c. *ham selv_i

"That [Peter AGR thought that [[pictures-the of ___] never AGR would become to anything]]"

The interesting case is (55d). This is allowed as it is not bound by a subject in the SUBJECT domain (the lower S), as required by (25A), but it is bound in the domain of its accessible SUBJECT (the higher S), as required by the revised version of (25D). Without this revision AGRx would have been the SUBJECT within the domain of which (25D) would have required binding, but as AGRx is not accessible (a potential coindexation would entail coindexation between ham selv and a containing category, NPx, cf. (47)) it is within the domain of AGRi that ham selv is required to be bound, and this is fulfilled in (55d).

As for the other three cases in (55), they are not touched upon by this revision, sig and ham obviously, as they do not come under (25D), and sig selv because (25B) prevents it from exploiting the accessibility revision:

sig in (55a) and sig selv in (55b) are both ruled out because they are not bound by a subject in the AGR domain (the lower S, as there is no accessibility requirement to the AGR in (25B)), in fact there is no subject in the lower S that would be able to bind them, as the only subject there is NPx, which cannot be a binder as it does not c-command sig or sig selv.

ham in (55c) is grammatical, it is not bound by a subject in the SUBJECT domain, as required by (25A), and it is not bound in the SUBJECT domain, as required by (25C), the SUBJECT domain being the lower S and ham being bound from outside this domain.

When the other two examples parallel to the ones of section 8.1 are considered, the same findings apply: The only grammatically judgment differing from what would have been predicted by the unrevised version of (25) are those concerning has selv/hende selv, and those are exactly the ones that are accounted for by revising (25D) to referring to accessible SUBJECT.
9. NP as Binding Category: Absent vs. "Invisible" SUBJECT.

9.1 English.

In the previous section it was argued that the definition of binding category (44) should be revised to

\[(58)\] Y is a binding category for X iff Y is the minimal category containing X and a SUBJECT which,

a. if X is a pronominal, c-commandes X.

b. if X is an anaphor, is accessible to X.

So far only S, which always contains a SUBJECT, has been considered as a binding category. There is, however, another possibility, viz. NP, which sometimes contains a SUBJECT.

Below I shall consider first NPs which contain a SUBJECT, and then NPs which do not, the latter presenting a problem for the binding of pronominals.

First, however, an NP with a SUBJECT:

\[(59)\] a. Peter AGR saw [NP John's five pictures of him]

b. *himself

c. *him

d. himself

John is the SUBJECT of the bracketed NP, making the latter a binding category, thus accounting straightforwardly for (59): The pronominal must not, and the anaphor must, be bound inside the bracketed NP.

NPs without overt lexical subjects are not necessarily subjectless, as discussed by Chomsky (1982:99). I shall base my analysis of the facts on factors to do with the assignment of theta-roles.

Subject position in NP may or may not be assigned a theta-role (presumably by N', though the question of where the theta-role is assigned from is not relevant here):
Had there been theta-assignment, the NP would have contained a subject, PRO, which would also have been the lowest c-commanding SUBJECT, ruling out (68), as the anaphor is not bound in its binding category, which is the NP:

(68) *Peter₁ AGR saw [NP PRO five pictures of himself₁]

With respect to the pronominal, the opposite obtains. With no theta-assignment, it is bound in its binding category, as the lowest SUBJECT is the AGR ((69) is ruled out); but with theta-assignment the NP will have a subject, PRO, which is then the lowest SUBJECT, making the pronoun free in its binding category (allowing for (70)):

(69) *Peter₁ AGR saw [NP five pictures of him₁]

Thus both possibilities of (66) have a reading which may be accounted for in the grammar, viz. (67) and (70).

With the analysis proposed we can furthermore account for why only the anaphor and not the pronominal is possible in

(71) a. Peter₁ took [NP five pictures of *him₁]
   himself₁

with the stipulation that if the NP bracketed in (71) has a PRO subject, this PRO will be controlled by the subject of S.¹⁵

Therefore both options of (71) will be ruled out for the pronominal:

(72) *Peter₁ AGR took [NP five pictures of him₁]

parallel to (69), and

(73) *Peter₁ AGR took [NP PRO five pictures of him₁]

where the pronominal will be bound inside the NP, again making it bound in its binding category.

For the anaphor the situation is also changed, now himself is allowed under both readings:¹⁶

(74) Peter₁ AGR took [NP PRO five pictures of himself₁]

(75) Peter₁ AGR took [NP five pictures of himself₁]

as in both cases it is bound in its binding category, which is the NP in (74) and the S in (75).

Please note that the above analysis is an argument in favour of binding category for pronouns being defined with reference to SUBJECT rather than to governor. The latter would have made the bracketed NP in (72) the binding category (the lowest S/NP containing the pronominal and a governor), with the result that (72) would be predicted to be grammatical, the pronoun not being bound inside the NP. The SUBJECT approach on the other hand makes the S the binding category, as the NP does not contain a SUBJECT, making the pronominal bound in its binding category, thus accounting for the ungrammaticality of (72).

There are, however, a few problems with this approach. One is that the distinction (70) vs. (73) also obtains when there is lexical material in the specifier position, as long as there is no overt argument here. Another problem is that the PRO subject of NP is not able to bind an anaphor when it is not subject-controlled itself.

To start with the second problem. If we consider a version of (68) with the indexing changed
(76) a. Peter₁ AGF saw [NP PRO₁ five pictures of *herself₁]
    b. *yourself₁
    c. *oneself₁

The analysis given so far will not tell us why all three versions of (76) are ungrammatical. It ought to be possible to have a theta-role assigned to the specifier of NP position (cf. (65)), which would lead us to assume the presence of PRO. This PRO, as it does not appear in a subject control configuration (cf. (73) and note 14), might be expected to have an interpretation with arbitrary reference, along the lines of

(77) a. It is illegal [NP PRO₁ to kill yourself₁]
    b. *oneself₁

So why is (76) impossible in the reading that for some X, Peter saw X’s picture of X? I will argue that the subject of NP position of PRO in e.g. (76) is special in the sense that it prevents PRO from being a potential binder.

The special properties of PRO in subject of NP position is linked to the other problem mentioned above, that PRO may be there as subject of NP even when there is lexical material in the specifier position. Consider

(78) Peter₁ saw the five pictures of him₁

(79) *Peter₁ took the five pictures of him₁

Which are completely parallel to (70) and (73) respectively, except that they force us to assume that PRO and the determiner are both there, simultaneously. That they must share one position can be seen from the fact that they are both in complementary distribution with an overt lexical argument as subject of NP, as e.g. John’s in (59).

What is needed here is something that will rule out binding by PRO as NP-subject in (76) but not in (73), as this binding in the latter is precisely how the ungrammaticality is accounted for. One possibility would seem to be an appeal to accessibility and the i-within-i condition. If there was some way of analysing this

PRO as an inaccessible SUBJECT, then then the facts would fall out from parts of the theory that are independently motivated, cf. sections 8.1 and 8.2, as anaphor binding requires an accessible SUBJECT, whereas a c-commanding one will suffice for ruling out binding of pronouns.

Assuming that articles share some sort of index with the entire NP (the intuition is that an NP gets at least part of its referential features from the article, cf. the difference "love" vs. "a love"), and furthermore assuming that the place-sharing between PRO and the article described above entails that they also share an index, then PRO as NP subject will be coindexed with the entire NP. This means that binding of anaphors (but not of pronouns) by this PRO will violate accessibility and the i-within-i, (45) and (46) of section 8.1. Notice that an overt lexical argument subject will not be coindexed with its containing NP, as it is not sharing its position with an article, thus this will not bring about circular readings like [NP₁ John's cars].

Please note that we will now have to rule out all types of binding by PRO as NP-subject, even when the PRO is subject controlled as in (74). This should not be a problem however, as the surface utterance that (74) would have given still has an analysis that predicts its grammaticality, viz. (75).

9.2 Danish.

Rather than revise again the rules of binding, the previous subsection argued that with a new analysis of the data concerning the specifier of NP position when not filled by an overt argument, the rules we have already laid down will be able to account for these data.

In this subsection the same analysis of similar data in Danish will be shown to provide us with the desired judgments of grammaticality.

Before considering 'subjectless' NPs, I shall briefly consider NPs with overt argumental subjects, but first of all it will be convenient to restate the binding conditions in Danish, as revised in section 8.3:
As in English, the situation when the NP has an overt argument as a subject is relatively straightforward:

(81) a. at [S Peter₁ AGR så [NP John₂ fem billede af sig₁ i avisen]]
   b. *at [S Peter₁ AGR så [NP fem billede af sig₁ i avisen]]
   c. *at [S Peter₁ AGR så [NP sig₂ fem billede af sig₁ i avisen]]
   d. *at [S Peter₁ AGR så [NP sig₁ fem billede af sig₁ i avisen]]
   e. *at [S Peter₁ AGR så [NP sig₁ fem billede af sig₁ i avisen]]
   f. *at [S Peter₁ AGR så [NP sig₁ fem billede af sig₁ i avisen]]
   g. *at [S Peter₁ AGR så [NP sig₁ fem billede af sig₁ i avisen]]
   h. *at [S Peter₁ AGR så [NP sig₁ fem billede af sig₁ i avisen]]

John is the SUBJECT of the bracketed NP, making it a binding category. Binding from outside the binding category by a subject inside the AGR domain is allowed for both sig and ham, but not for the other two. Binding inside the binding category is ruled out for sig and ham, and when the binder is a subject, as is John, it is also ruled out for ham selv, leaving only sig selv as a possibility for binding by John.

Now for the "subjectless" NPs. With the assumption that theta-role assignment to the subject of NP position is optional, any subject of NP position that is not filled by an overt argument may or may not contain PRO (cf. (60)-(65)ff.), we will first consider the configuration where if PRO is present it will have arbitrary reference:₁₈

(82) a. at [S Peter₁ AGR så [NP fem billede af sig₁ i avisen]]
   b. *ham selv₁
   c. *ham selv₁
   d. "that [Peter AGR saw [five pictures of ___] newspaper-the]"

Each of these four options have two analyses, one containing a PRO as the subject of the NP, and one where the NP has no subject. For (82a-c) I will show that at least one of the two options will provide an account for the grammaticality, whereas for (82d), neither option will be grammatical, ruling it out.

In (82a) the two analyses are

(83) *at [S Peter₁ AGR så [NP PRO j fem billede af sig₁ i avisen]]
(84) at [S Peter₁ AGR så [NP PRO j fem billede af sig₁ i avisen]]

where the binding categories are the entire S in (83) and the NP in (84). sig cannot be bound in its binding category, ruling out (83), but it may be bound from outside (as long as the binder is a subject in the AGR domain), allowing (84).

With respect to (82c) the situation is exactly parallel, except that ham may be bound by anything outside the binding category:

(85) *at [S Peter₁ AGR så [NP fem billede af ham₁ i avisen]
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For (82b), it is the other of the two analyses that holds

\[
\text{(87) at } [s \text{ Peter$_1$ AGR s"a } \text{NP PRO$_j$ fem billeder af sig selv$_1$}] \\
i \text{avisen}
\]

Only (87), without PRO, is grammatical, as only in this is \textit{sig selv} bound in its binding category.

Concerning (82d), neither of the analyses will be grammatical

\[
\text{(88) *at } [s \text{ Peter$_1$ AGR s"a } \text{NP PRO$_j$ fem billeder af sig selv$_1$}] \\
i \text{avisen}
\]

Fairly straightforwardly, this is a case of binding by a subject in the SUBJECT domain (the lowest SUBJECT being AGR in the absence of any subject of NP), and therefore only \textit{sig selv} is allowed.

If we assume the presence of PRO, it must then be controlled by \textit{Peter}:

\[
\text{(93) a. at } [s \text{ Peter$_1$ AGR tog } \text{NP PRO$_j$ fem billeder af *sig$_1$}] \\
\text{sig selv$_1$}
\]

(93a,c,d) are ruled out again straightforwardly, as binding by a subject in the SUBJECT domain is not allowed. However, as found in the discussion in connection with (76), which also holds for Danish, there are reasons to believe that binding by PRO in this position is impossible anyway, which would then rule out all of (93).

First the analysis of (91) without PRO:

\[
\text{(92) a. at } [s \text{ Peter$_1$ AGR tog } \text{NP fem billeder af *sig$_1$}] \\
\text{sig selv$_1$ *ham$_1$ *ham selv$_1$}
\]
10. Parameters of Binding Theory.

10.1 The Parameters.

The binding facts of Danish (and English) may be accounted for by means of various parameters, as suggested above. Concluding this paper I will try to formulate the parameters in a way more or less compatible with Manzini and Wexler (1984), and thus compatible with at least one account of similar facts of Italian, Icelandic, Russian, and Japanese.

Before giving the parameters, the following definition should be laid down:

(94) a. Anaphors are bound in their binding category or bound by a proper binder.

b. Pronominals are not bound in their binding category or not bound by a proper binder.

One parameter is the one concerned with binding category:

(95) X is a binding category for Y iff

X is the minimal category that contains Y, and

a. anything else

b. a SUBJECT

c. an INF

d. an AGR

etc.

Here the same value, (b), is chosen by the various types of elements discussed: English pronominals and anaphors and Danish domain-pronominals and domain-anaphors.

Another parameter is directly associated with (95), viz. a parameter of accessibility:

(96) The element subject to parametric variation in the definition of binding category must

a. c-command the anaphor/pronominal.

b. be accessible to the anaphor/pronominal.

"Accessible" is defined in (45). Here the value (a) is selected by English pronominals and Danish domain-pronominals, and (b) by English anaphors and Danish domain-anaphors.

The other main parameter is concerned with which elements may qualify as a binder:

(97) X is a proper binder for Y, iff

X is a subject and X and Y are both contained in a category that also contains

a. anything else

b. an INF

c. an AGR

etc.

Here the value (a) is selected by Danish binder-pronominals, and the value (c) by Danish binder-anaphors.

To account for English with respect to (97), which simply does not seem to apply, one might suggest the existence of a different kind of parameters, meta-parameters. For each parameter, e.g. (95) or (97), there is a meta-parameter, which is binary, and the two settings of which determine whether or not the parameter in question applies at all. Thus the setting of the binder meta-parameter (which is what corresponds to Manzini and Wexler's (1984) proper antecedent parameter) with respect to English (and Danish first and second persons), should be such that the binder parameter does not apply at all. With respect to sig, sig selv, ham, and ham selv and also the Danish possessives, the binder meta-parameter settings should be the opposite, allowing the binder parameter to apply.

Similarly the binding category meta-parameter should be one for Danish possessives, and the opposite for the other of the above mentioned types of anaphors/pronominals, as the binding category parameter only applies to the latter.

An alternative to the device of meta-parameters could be to assume the existence of parametrical settings of the two basic parameters ((95) and (97)) such that a selection of such a setting would cause a 'deactivation' of the parameter in question.

This might work in the following way:
With respect to the binding category parameter (95), suppose that a parametrical setting was such that the minimal category containing it and an anaphor/pronominal would never contain any binder. Then anaphors would never be allowed, and pronominals would never be ruled out, as neither could ever be bound inside such a 'small' category. Thus binding category pronominals would now be free to be bound or not bound according to other requirements of the grammar. Such a setting could be "nothing", i.e. w.r.t. (95), X is the minimal category that contains Y and nothing else.

With respect to the binder parameter (97), things are more complicated, as even a setting like "nothing" would not deactivate the parameter, as w.r.t. (97) X and Y would still be contained in the same category (by the definition) and X would be a possible binder.

Deactivation of (97) will require that a possible setting of the parameter is something that will never be contained by a category containing X and Y, so that such a containing category would not exist, so that no proper binder would exist. Then anaphors would never be allowed, and pronominals never be ruled out, as neither could be bound. Thus binder pronominals would now be free to be bound or not bound according to other requirements of the grammar. Such a setting could be "no value", so that the requirements of the parameter would be impossible to fulfill. As opposed to "nothing", which would only work as a setting deactivating the binding category parameter (95), "no value" will work as a deactivating setting for both parameters, (95) and (97).

From this point of view, what was earlier described as 'neutralisation of a distinction' or 'a meta-parametrical setting such that the parameter in question does not apply' is now a setting of the basic parameter such that no anaphors are possible with respect to that parameter. This means that what before was a type of element neutral w.r.t. anaphor vs. pronominal will now be pronominal without any corresponding anaphor. This would fit in well with e.g. the historical derivation of English *him* and *himself*, which were derived from what would correspond to b-pronominals in Danish (i.e. *ham* and *ham selv*).

10.2 Learnability.

As one of the main objectives of the theory of government and binding is (to make it possible) to account for first language acquisition, it is a relevant undertaking to consider proposals within this theory from the point of view of what claims they make concerning learnability.

The theory assumes that human beings are innately endowed with a set of linguistic principles (UG, for Universal Grammar) which enable them to acquire a language. UG is thus seen as containing a number of variables and parameters which are not yet fixed in the initial pre-linguistic stage, but will be fixed by the linguistic experience of the child. This means that the more we are able to account for as part of UG, the better we can explain the rapidity of first language acquisition (compared to e.g. second language acquisition), because so much less will have to be determined by direct linguistic experience.

With the generally accepted assumption that the child only has positive counterevidence at his/her disposal reduction of the part played by direct experience seems even more desirable. (When the child has set up a grammar, there are two possible kinds of counter-evidence: sentences predicted to be ungrammatical which turn out to be grammatical, and sentences predicted to to be grammatical which turn out to be ungrammatical. The assumption is that only the former plays a part in first language acquisition, as the child, even if sometimes corrected by other speakers, does not receive reliable and constant information of the latter kind).

I will assume that the general principles and parameters of 10.1 are all part of UG, and all that will have to be learnt by the child is a) which lexical elements or even part of elements are associated with which parameters, and b) how the parameters are set.

From another look at the overview of the analysis (here repeated with reference to the parameters of 10.1)
it will be clear that elements containing *se* will have to be learnt as domain-anaphors, and elements without *se* as domain-pronominals. Similarly elements containing *sig* are binder-anaphors, whereas elements with a form of *hans/hende* will have to be learnt as binder-pronominals.

With the knowledge of which anaphors/pronominals come under which parameters, the child is able to choose parametrical settings from very little evidence, if we presume along with Manzini and Wexler (1984) that the child starts with the 'minimal' settings.

Determining which setting is smaller than another is only possible where the 'subset condition' applies (as with much of this section, this notion is due to Berwick (1982) and Manzini and Wexler (1984)), i.e. where all grammatical sentences accounted for under one setting either is a proper subset of or contains as a proper subset all grammatical sentences accounted for under a different setting of the same parameter. The parameters (95)-(97) all fulfill this condition, as any element subject to parametric variation of type (a) includes all elements of type (b), etc.

Consequently the child will initially assume settings of the type (a) for anaphors, but of type (d/b/c) (i.e. as far from (a) as possible) for pronominals. This is because the minimal setting for an anaphor is one that makes its coreference domain (binding category or domain of proper antecedent) as small as possible, as any data with a larger coreference domain will be positive evidence for changing the setting. Similarly the minimal setting for a pronominal is one that makes its non-coreference domain as large as possible, as any data with a smaller non-coreference domain will be positive counter-evidence. Please note that positive evidence is only possible for larger coreference domains and smaller non-coreference domains than assumed, as the other the other two types of counter-evidence would be negative (cf. the discussion above).

The result of this is that unmarked anaphoric domains are (a) values, whereas unmarked pronominal domains have values as far from (a) as possible.

It seems to me that it is no coincidence that pronominal values are never further from (a) than the corresponding anaphoric value, even though this means that both values are never unmarked simultaneously. Presumably some kind of principle (which may be nicknamed the "no man's land"-principle) ensures this, as a pronominal setting further from (a) than its corresponding anaphoric one would entail that there would be some configuration in which neither anaphors nor pronominale were allowed. Such a no man's land would seem never to exist, whereas the opposite situation frequently occurs, an overlap between the two types, accounted for by the pronominal setting being closer to (a) than the anaphoric one.

This "no man's land"-principle does not necessarily pose a problem for learnability, even if the independence between different settings is slightly more limited than initially assumed. What may be assumed is that each time positive evidence occurs for the setting of an anaphor (or pronominal), this is also evidence for the corresponding pronominal (or anaphor), as the language learner will know that the anaphoric setting can be no closer to (a) than its associated pronominal setting.
10.3 Conclusion.

In this paper I have tried to show that the theory of binding should contain at least two independent parameters: choice of binder, and choice of binding category. This would allow for the rather complex evidence from Danish, with two distinct reflexives, long distance binding, etc. to be accounted for in a rather straightforward way. Furthermore this could take place without any loss on the part of the accounts for languages with a less complex system, e.g. English, on the contrary, as contrastive facts would also follow from the approach suggested.

The purpose set by this paper is still far from attained, analyses along the lines suggested could be applied to other languages (especially ones which would seem to contain proper binder requirements or long distance binding, such as Icelandic, Dutch, Russian, etc.), and there are also still many aspects of binding in Danish in need of careful attention, such as empty categories, embeddings in coordinate structures, certain small clause phenomena,\(^{20}\) and the facts concerning hinanden ("each other").

Notes.

Sections 3-7 of this paper constitute a radically revised version of chapter 3 of my M.A. dissertation at University College London, April 1984. For extensive help and advice I would like to thank my supervisor Michael Brody, and also Liliane Haegeman, Lars Hellan, Rita Manzini, Ian Roberts, and Rex Sprouse. Thanks are also due to Michael Barnes, Kirsti Koch Christensen, Elisabeth Engdahl, Martin Evertsen, Anders Holmberg, James Ingram, and participants at the events where various aspects of this work were presented: a seminar at SOAS, London, February 1984; the Third Workshop on Scandinavian Syntax, Copenhagen, April 1984; a meeting of the Nordic Languages Group, Cambridge, June 1984; a seminar at Paris-VII, March 1985; and the LAGB conference, Salford, April 1985.

1. As for the question of accessibility of SUBJECT, see section 8 below.

2. I am here following the practice of Marantz (1984), where "V-ee" means "who/what has been V-ed".

3. This also accords with subcategorisation facts. Here ("hear") subcategorises for one argument, whereas bede (om) ("ask (for)") does for two:

   (i) Peter hørte [NP en underlig lyd]
   "Peter heard [a strange sound]

   (ii) Peter bad [NP Søren] [pp om en is]
   "Peter asked [Søren] [for an ice cream]

4. Provided that there was some way of allowing the subject NP to be c-commanded by INFL of its own S the whole analysis of this paper will lend itself to a binary branching approach (cf. Kayne (1984:129-133)). This would be possible if A is taken to dominate B iff the first maximal projection dominating A dominates B (cf. (44) of Aoun and Sportiche (1983:224)) rather than iff the first branching node dominating A dominates B (cf. e.g. (8) of Aoun and Sportiche (1983:213)).
Please note that as this paper does not take a binary branching approach, either of the c-command definitions will do.

5. To relate my terminology to that of other papers: My b-anaphor is like Hellan's (1983:24) "predication anaphor", and my d-anaphor is like Hellan's "connectedness anaphor". The similarity is here mainly in terms of the data they cover, not in the definition of the terms. With respect to Anderson (1982:15) the situation is almost the exact opposite, my b-anaphor is like Anderson's "reflexive", and my d-anaphor like Anderson's "anaphor", but the similarity here is more in terms of definitions than in the data they cover (as Icelandic, unlike Norwegian, is very different from Danish with respect to binding).

6. This difference between object and subject control is usually taken to be related to a lexical feature of the matrix verb, cf. Manzini (1983:423).

7. This is parallel to ideas in Everaert (1980), Holmberg (1984), and Pica (1985).

8. This can be achieved by considering local sig as some sort of detransitivising element that somehow prevents the assignment of the theta-role that would otherwise have been assigned to the subject. In accordance with Burzio's generalisation (cf. e.g. Burzio (1981), Haegeman (1985)) this in turn prevents the deep structure object from getting object case, and it therefore has to move to subject position to be case-marked, taking along its object theta-role, in this case THEME, parallel to the analysis of passive in LGB:124ff.

9. The analysis of 4.3, which as stated above was suggested by Holmberg (1984), seems not to solve all problems, even if it is preferable to the alternative that would simply classify (19) as containing two distinct verbs, the reflexive verb brænde sig in (19a) and the transitive brænde in (19b, c).

10. Although the free variation between han/hende and sig in Danish infinitivals is rather like the situation with respect to subjunctive clauses in Icelandic, the account here is very different from that of Anderson (1982). His account of Icelandic refers to whether or not the tense of the subjunctive is 'dependent' on a tense in a matrix clause: if the tense assignment is independent then the subjunctive clause is a binding category, otherwise it is not. This clearly would not work for Danish, as infinitivals could never be claimed to be assigned tense (or agreement) in Danish.

One of the problems is that in some cases local sig would seem to prevent assignment of the object theta-role rather than of the subject one.

In a case like

(1) a. at [g Peter AGR set sig ned]
   b. sig selv
   c. Michael

"that [Peter AGR set ____ down]"

the difference in meaning is that where (1a) means straightforwardly "Peter sat down", (1b) means something like "Peter sat himself down" (pragmatically a bit odd, as if he had set himself down by means of e.g. a crane). This difference would seem to be accounted for by assuming the following theta-roles: in (1b) Peter is AGENT, sig selv is THEME (parallel to (1c)), whereas in (1a) Peter is AGENT, and there is no THEME as such. If (1a) is compared to (19a), they have in common that sig ensures that only one theta-role is assigned, but they differ in which one it is. This difference is supported by my intuition that (1a) which has an AGENT may be followed by a purpose clause (e.g. "in order to impress everyone in the room"), which is not possible for the AGENT-less (19a). Similarly (1a) but not (19a) may contain an adverbial like "deliberately" (med vilje).
to show that these data should not be regarded as related to the presence/absence of tense dependency:

(i) a. Kun Peter₁ bad Susan₂ om [s PRO₁ elske ham₁]
   b. sig₁
   "Only Peter asked Susan for [PRO to love ___]"

where the interpretations are

(ii) a. Only one person asked Susan to love Peter, and that was Peter.
   b. Only one person asked Susan to love him, and that was Peter.

It should be mentioned that other and much stronger arguments against Anderson's analysis are put forth by Rögvaldsson (1983:3-8).

11. Whether this emphatic kind of stress is possible with the other examples of ham selv/hende selv cited so far I am not sure, but the relevant point is that all examples, apart from (24), are definitely possible with a non-emphatic relatively small degree of stress on selv, and it is the binding characteristics of this weakly stressed version of the selv-forms that this paper is trying to account for.

12. sig in this example will probably be rejected by many Danish speakers. My view is that it is grammatical but (potentially) unacceptable, and that the unacceptability is somehow connected with the considerable distance between sig and its binder, and also the fact that the pronoun hende is available for the same interpretation.

   If the distance between sig and its binder is reduced (see e.g. (11) or (23)), or if the pronoun for independent reasons is not available, the acceptability of the construction increases considerably:

13. This distinction is not valid for third person plural possessives, where dere sel ("their") is the only possibility in any configuration, much like the rest of the possessive paradigm, min ("my"), vores ("our"), din, jerel ("your", sing. and plural) where neither of the distinctions A/B or C/D of (26) apply.

   That there is no plural reflexive possessive is one of the few clearcut differences between Danish and both Norwegian and Swedish, with respect to binding.

14. As for the definition of SUBJECT and the consequences of referring to the twice revised theory of binding, please refer to section 2.1.

15. The analysis of "take [NP ___ picture]" as a subject control PRO configuration may also account for the difference in grammaticality between

   (i) Peter took John's picture on Wednesday

   (ii) *Peter took John's picture of Michael on Wednesday

   (both with the "photograph" interpretation of take)

   Assuming control (at least in the cases in question here) to be some kind of coindexation with a particular theta-position, subject control entails that if an argument in the controller position is assigned its theta-role on the spot, then it must be coindexed with the controller. Thus (iii) is noticeably better than (ii):

   (iii) *Only Peter asked Susan to love [PRO to love ___]"
The difference between (i) and (ii) could be that in (i) John's is not assigned a theta-role directly, but rather inherits it from a coindexed trace following the N Picture (similar to the idea in Fiva (1984:8) or the passivisation account of Anderson (1977) and Rizzi (1985:56)).

In conclusion: As above the position subject of NP may or may not be a theta-position: If it is, both (i) and (ii) are out, the coindexation with the matrix subject being impossible because names cannot be bound. If it is not a theta-position, (i) is OK, as John's gets its theta-role from a coindexed trace, but (ii) is out, the post-nominal theta-role being assigned to Michael, leaving John's without a theta-role.

16. It will however be suggested below that (74) is ungrammatical.

17. This was suggested to me by Liliane Haegeman.

18. The judgments of (82a,c,d) and (91d), as well as (81a,d,h) are very subtle, influenced as they are by the following: that a straightforward and unambiguous option is also available (viz. sig selv), and that other factors come into play w.r.t. sig (cf. footnote 12), and w.r.t. ham selv (cf. the discussion of (24) in section 5). What is important here, rather than the absolute status of (82a,c) is their relative status, in other words, (82a,c) may not be too good, but they are definitely better than (91a,c).

19. According to Rita Manzini (p.c.), the 'no man's land'-principle might be an evolutionary functional principle not part of UG rather than part of the definition of what is a possible natural language.

20. With respect to small clauses, I suspect that they may count optionally as binding categories, i.e. that a small clause subject is optionally a SUBJECT.

I base this suspicion on sentences like the following which
Appendix: Translations of Danish Examples.

(2) It is difficult to cut one's own hair
(3) Peter asked Søren to leave
(4) Peter heard Søren leave
(5) Peter promised Søren to leave
(7) a. that Peter washed
   b. that Peter washed himself
(8) a. that Peter heard Anne talk about him
   b. that Peter heard Anne talk about herself
(9) b. that Peter always has admired himself
(10) a. that Peter told Michael about himself (Peter)
(11) a. that Peter asked Anne to call him
   d. that Peter asked Anne to call herself
(12) c. that Peter promised Anne to call himself
(13) a. that Peter overslept
(15) a. that Peter shaved.
   b. that Peter shaved himself.
   c. that Peter shaved Michael.
(16) b. that Peter persuaded Anne to defend herself
(17) a. that Peter asked Michael to shave him
   b. that Peter asked Michael to shave himself
   d. that Peter asked Michael to shave himself
(19) a. that Peter burned himself (by accident).
   b. that Peter burned himself (intentionally).
   c. that Peter burned Michael.
(20) d. that Susan told Anne about herself (Anne)
(21) a. that Susan asked Anne to call her
(22) b. that Susan promised Anne to call her
(23) a. that Susan persuaded Anne to listen to her
   c. that Susan persuaded Anne to listen to her
(24) The composer said that the orchestra could only play the
    symphony when he conducted them himself
(29) a. that Anne heard Susan talk to Tina about her
   b. that Anne heard Susan talk to Tina about herself (Susan)
   c. that Anne heard Susan talk to Tina about her
   d. that Anne heard Susan talk to Tina about herself (Tina).

(30) b. that Anne promised Susan to talk to Tina about herself
     (Anne)
   c. that Anne promised Susan to talk to Tina about her
   d. that Anne promised Susan to talk to Tina about herself
     (Tina)
(31) b. that Anne talked to Tina about herself (Anne)
   c. that Anne talked to Tina about her (someone else)
   d. that Anne talked to Tina about herself (Tina)
(33) b. that Peter read his (someone else's) article
(34) a. that Michael heard Peter criticise his (Michael's)
   article
   b. that Michael heard Peter criticise his (Michael's)
   article
(35) b. that Michael promised Peter to read his (Peter's) article
(36) a. that Michael gave Peter his (Peter's) coat
(37) b. that Michael gave Peter his (Michael's) coat
(39) a. that Anne told me about the result of the election
(40) a. that I persuaded Susan to write to me
(41) a. that Tina promised me to mention me
(42) b. that I overestimated myself
(43) b. that Susan told me about myself
(55) c. that Peter thought that the pictures of him would never
     come out
   d. that Peter thought that the pictures of himself would
     never come out
(56) c. that Anne thought that there were some pictures of her in
     the newspaper
   d. that Anne thought that there were some pictures of
     herself in the newspaper
(57) c. that Susan thought that it was a shame that a picture of
     her had been lost
   d. that Susan thought that it was a shame that a picture of
     herself had been lost
(81) a. that Peter saw John's five pictures of him
   c. that Peter saw John's five pictures of him
   f. that Peter saw John's five pictures of himself
(82) a. that Peter saw five pictures of him (Peter) in the
     newspaper
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(82) b. that Peter saw five pictures of himself in the newspaper
c. that Peter saw five pictures of him (Peter) in the newspaper

(91) b. that Peter took five pictures of himself

Note 3
(i) Peter heard a strange noise
(ii) Peter asked Søren for an ice cream

Note 9
a. that Peter sat down
b. that Peter set himself down
c. that Peter set Michael down

Note 10
(i) a. Only Peter asked Susan to love himself
b. Only Peter asked Susan to love himself

Note 12
(i) that Anne heard Susan mention her
(ii) Who heard Susan talk to Tina about him/her?

Note 20
(i) that Anne found Susan in her bed

References


