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# **Economy conditions and coreference: From minimal pronouns to referential acts**

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Abstract:

It is well known that possible coreference relations between noun phrases in a sentence are constrained by syntactic structure. Lasnik (1976) argued that coreference relations, thought to be a matter of pragmatics, are available or excluded according to the structural configuration and introduced the (grammatical) notion of obligatory non-coreference. In the 1980s, the binding theory was devised in which the binding principles A, B and C acted as filters, ruling out impossible interpretations of noun phrases in a grammatical system which assumes free, optional indexing. This particular implementation of restrictions on coreference relations led to a system in which noun phrases were either co-indexed to account for the grammatically determined coreference between variables and (syntactic) anaphors and their antecedents or contra-indexed to account for the grammatically determined non-coreference between nouns and pronouns.

Various researchers have pointed out that this implementation is too general and simplistic since it rules out systematic cases of possible coreference and proposed alternative solutions (cf. Evans 1980, Higginbotham 1980, Fiengo & May 1995). A particularly elegant solution has been proposed by Tanja Reinhart (cf. Reinhart 1983, Reinhart and Grodzinsky 1993). Reinhart argues that only one type of coreference relation is syntactically represented and constrained by syntactic principles, namely the relation of variable binding. Semantic relations between two referring nominal expressions are not represented in the syntax and thus are not subject to structural constraints. They are regulated by an extra-grammatical principle and thus cannot be ruled out by structural conditions. Reinhart's coreference rule states that coreference is excluded whenever the same meaning can be conveyed by means of variable binding.

While Reinhart's approach is empirically superior to the standard binding theory, it leads to an unwelcome division of regulating coreference relations between nominal expressions: some are accounted for in the syntax and some are regulated in the semantic component. In this paper, I argue that also coreference relations between referring nominal expressions are represented and constrained in the syntax. In particular, I will argue that coreference relations are constrained by syntactic economy conditions that are also operative in other grammatical relations (cf. Fox 1993).

## **1 Introduction**

One case of coreference relations that will be of interest in this paper is the so-called Adenauer-sentences, illustrated in (1). What is special with the example in (1) is that two occurrences of the same name in a binding configuration can be taken to refer to the same individual, namely Adenauer. As is illustrated in (2), this state of affairs is generally excluded and gave rise to the Binding Principle C in (6) below. As is common practice, I will indicate coreferent interpretations of nominal expressions with co-indexation and non-coreferent interpretations with contra-indexation.

- (1) At the meeting many members voted for Adenauer.  
Even Adenauer voted for Adenauer
- (2) John<sub>1</sub> likes John<sub>\*1/2</sub>'s brother<sup>1</sup>

In the classical treatment of the binding theory, the class of pronouns that constitute the core elements in language for establishing coreference relations is divided into two groups. Anaphors comprise reflexive and reciprocal pronouns which need to have a local c-commanding antecedent, as is illustrated in (3), while pronominals contain non-reflexive and non-reciprocal personal pronouns, which are relatively free to choose their antecedent unless the antecedent c-commands the pronominal within a certain local domain, as is illustrated in (4). Bound pronouns are similar to anaphors in that they require a c-commanding antecedent, but outside of their local domain, as is illustrated in (5).

- (3) a. John<sub>1</sub> likes himself<sub>1</sub>.  
b. \*John<sub>1</sub> said that she likes himself<sub>1</sub>
- (4) a. \*John<sub>1</sub> likes him<sub>1</sub> / John<sub>1</sub> likes him<sub>2</sub>  
b. John<sub>1</sub> said that she likes him<sub>1</sub>
- (5) a. Every boy<sub>1</sub> likes himself<sub>1</sub>  
b. Every boy<sub>1</sub> said that she likes him<sub>1</sub>

The Binding Principles A, B and C, given in (6), have been designed to regulate the relevant configurations with obligatory coreference for anaphors and bound pronouns (= variables) and the configurations with obligatory non-coreference for nouns in all domains and for pronouns within their local domain (cf. Lasnik 1976).

- (6) Binding Principles (Chomsky 1981)  
A binds B iff A and B are co-indexed and A c-commands B  
Principle A: Anaphors must be locally bound.  
Principle B: Pronominals must be locally unbound.  
Principle C: All other NPs (including names) must be unbound.

It is immaterial for the purposes of this paper to characterize what the relevant local domain for anaphors and pronouns is. It is important, however, to point out

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<sup>1</sup> In this paper, as is common practice, I will use indices to indicate a coreferent interpretation between two nominals for expository reasons only. The account that I am developing is free of indices, since I am proposing that bound pronouns and coreferent pronouns alike are bound by a  $\lambda$ -operator.

that this system of co- and contra-indexation leads to wrong results in various domains that are discussed in detail in Section 2. In section 3, I present the account of Fiengo and May (1995) and Heim's (1998) elaboration of the classical account by Reinhart (1983) and discuss their merits and shortcomings. In Section 4, I present my alternative account, in which coreference relations are represented in the syntax in terms of a binding relation to an abstract head in the C-domain representing given discourse referents. In this account, the approach to binding in Kratzer (2009) is extended to discourse anaphors. Section 5 discusses how coreference relations in VP-ellipsis sentences and in embedded contexts can be dealt with in the alternative account. Section 6, finally summarizes the paper.

## 2 Problems with the Extensional Interpretation of Indices

There are at least three contexts where the system of co- and contra-indexed nominal expressions causes problems. First, already Evans (1980) pointed out that the extensional interpretation of indices imposed by the binding theory renders true identity statements ungrammatical, while negated identity statements would be necessarily true, that is trivial, contrary to fact, as is illustrated in (7).

- (7) Who is Oscar?
- a. He<sub>1</sub> is Oscar<sub>1</sub> (ungrammatical, if true)
  - b. He<sub>1</sub> is not Oscar<sub>2</sub>. (uninformative)

Second, there are cases of non-intended coreference. These are cases in which the speaker is not sure (8) or unaware (9) about the identity of the persons referred to. In the context of (8), a person watches a man leaving the room without seeing his face and asks who that man was and receives the following answer which indicates that the person referred to was in all likelihood Oscar (given that people usually wear their own coats), but this interpretation would be excluded by the obligatory contra-indexation with the subject pronoun *he* required by the name *Oscar*.

- (8) I do not know, but he wore Oscar's coat

The following example constitutes a core case of unintended coreference. In the context of a mask ball, one person is overhearing a conversation in which another person claims that Oscar is crazy and pointing at that person utters the sentence in (9). If at the end, it turns out that the person pointed at was indeed *Oscar*, we again have a case in which a true sentence would have to count as ungrammatical according to the binding principles.

(9) He thinks Oscar is crazy.

Third, the following cases have been called contexts without referential dependency in Higginbotham (1980). The examples in (10) and (11) are due to Evans (1980). (12) is another instance of an Adenauer-sentence.

(10) a. Everyone has finally realized that Oscar is incompetent.  
b. Even he has finally realized that Oscar is incompetent.

(11) I know what John and Mary have in common. She thinks John is terrific and he thinks John is terrific too.

(12) In this election only a few members voted for Adenauer.  
In fact only Adenauer had voted for Adenauer

Higginbotham (1980) accounts for these cases by suggesting that the names *Oscar*, *John* and *Adenauer* are not referentially dependent on the c-commanding pronoun within the same clause, but refer back to the occurrence of this name in the preceding clause. Thus pronoun and name within the same clause end up with the same index, instantiating a typical case of accidental coreference. While this intuition is probably on the right track, it is far from clear under which circumstances two referential expressions, one c-commanding the other, can be linked to a common antecedent in the discourse. For instance, as is pointed out by Grodzinsky and Reinhart (1993), these linking relations are not generally available, as is illustrated in (13).

(13) \* Oscar<sub>1</sub> is sad. He<sub>1</sub> thinks Oscar<sub>1</sub> is incompetent

Given these and many other cases discussed in the literature (see also Heim 1988, 1998), we can savely conclude that this system of contra-indexation imposed by the Binding Principles B and C is too powerful and incorrectly rules out many cases of possible intended and unintended coreference. The difficult issue is only to work out under which circumstances coreference is possible between two referential expressions in a clause, as in (12) and under which circumstances it is excluded, as predicted by the Binding theory, as in (13).

### 3 Possible Solutions

In this section, I will discuss two solutions that both build on Reinhart's original proposal in (1983). The first one is the account of Fiengo and May (1995) and

may be called – a pragmatically oriented account and the second one is Heim’s (1998) reinterpretation of Reinhart’s approach.

### 3.1 The pragmatic account of Fiengo and May

Fiengo and May (1995), like Reinhart (1983), assume that only the interpretation of co-indexed expressions is grammatically determined and are interpreted as obligatorily coreferent. Unlike Reinhart (1983), they do not dispense with contra-indexing, but assume that the interpretation of contra-indexed expressions is a matter of pragmatics. They argue that dependent on the context, contra-indexed expressions can be interpreted as non-coreferent or as coreferent. In particular, they propose that contra-indexed expressions only conversationally implicate non-coreference. However, since conversational implicatures are subject to cancellation, also the implicature of non-coreference can be cancelled in specific contexts.

In their account, referring expressions are either co-indexed or contra-indexed as demanded by the Binding Principles. For instance, contra-indexation of the two referring expressions in (14) correctly indicates that the speaker intends non-coreference in the context of the mask ball above. The sentence simply conveys the meaning that according to the knowledge state of the speaker, the person over there thinks that Oscar is crazy. If it later turns out that the person pointed at was indeed Oscar, this would not create any problems since the speaker’s implicature, arising from incomplete knowledge, is subject to cancellation.

(14) He<sub>1</sub> thinks Oscar<sub>2</sub> is crazy.

In the following, I will scrutinize their account by discussing how they treat the three cases of exceptions introduced in the previous section. As far as identity statements are concerned Fiengo and May (1995) argue that the standard implicature of non-coreference, imported by contra-indexation demanded by the grammar in (15), is cancelled, since the predicate of identity logically implies that both arguments are coreferent. This is a good result, even though it is not clear to me why a speaker should implicate non-coreference in an identity statement in the first place.

(15) He<sub>1</sub> is Oscar<sub>2</sub>

As far as contexts without intended coreference are concerned, Fiengo and May (1995) point out that in the case of the person leaving the room unrecognized by the speaker, the standard implicature of the contra-indexation in (16), namely that the person in question cannot be Oscar would lead to a violation of the

maxim of relevance and is thus cancelled. The explanation of the second case (in the context of a mask ball) is already given in (14) above.

(16) He<sub>1</sub> wore Oskars<sub>2</sub> coat.

As far as the contexts without a referential dependency are concerned, Fiengo and May (1995) discuss the case first provided by Evans (1980) in (17) and argue that also in (17) the standard implicature of contra-coindexation is cancelled since the if-clause entails that no one can be excluded from the admirers of Oscar.

(17) If everyone admires Oscar<sub>2</sub>, then also he<sub>1</sub> admires Oskar<sub>2</sub>

To summarize, this seems like an elegant and adequate solution to the problem at hand. Fiengo & May (1995) point out that their system is superior to the original account by Reinhart (1983), since it does not require that the hearer has access to any particular sentence that the speaker did not use. In Reinhart's view, a hearer will take a speaker to not intend coreference in his utterance, because the speaker did not use some other particular sentence that expresses the coreference that the speaker might have intended with a bound pronoun. I will come back to this point in section 4.2 below. In the following section, I would like to discuss some cases that cast doubt on the general validity of the approach of Fiengo and May (1995).

### 3.2 Problems with the account of Fiengo and May

While their treatment of identity statements and of the so-called cases without intended coreference is rather convincing, a closer look at other cases without referential dependency reveals that their account is insufficient for at least this domain. Note that the cancellation of the implicature of non-coreference in (17) above in their account crucially depends on the type of quantifier. If we change the quantifier, as in (18) and (19) below, it becomes unclear what could lead to the cancellation of the standard implicature and yet coreference is possible in these cases. Certainly there is no entailment provided by the first clause which would exclude the implicature of non-coreference in the continuations in (18) and (19). Furthermore, the standard implicature can also not be taken to fall prey to the maxim of relevance, since both continuations may be taken to provide relevant information in the case of a non-coreferent interpretation of the two nominal expressions.

(18) Most people like John. Even / also John<sub>1</sub> likes John<sub>2</sub>.

(19) Who the hell likes John? Well, at least John<sub>1</sub> likes John<sub>2</sub>.



In section 4, I will argue that what is crucial about Adenauer-sentences and the examples in (18) and (19) is that the object is interpreted as discourse anaphor (following the intuition of Higginbotham 1980) and that the subject is not referential. In the following section, I discuss Heim's reinterpretation of Reinhart's approach.

### 3.3 A semantic account of coreference

I will not do full justice to Heim's reinterpretation of Reinhart's original approach, since, as Heim puts it herself, her reformulation is not a correction or overhaul of Reinhart's account, but only makes somewhat more explicit what is already there in the original proposal. Rather I would like to concentrate on two issues that Heim raises and which are important for the account to be developed in Section 4.

In her paper, Heim (1998) goes over the standard cases of excluded coreference and over the three contexts discussed in the previous section to show how they either follow directly or can be made to follow from Reinhart's (1983) coreference rule given in (20)<sup>2</sup>. The interested reader is referred to Heim's paper for the details.

(20) Coreference Rule:

$\alpha$  cannot corefer with  $\beta$ , if an indistinguishable interpretation can be generated by replacing  $\beta$  with a variable A-bound by  $\alpha$

The first issue that I would like to discuss concerns the status of indistinguishable interpretation in the rule in (20). Obviously the interpretations of two utterances count as indistinguishable if they express the same proposition. Heim shows that coreference is possible even in cases in which two different utterances express the same proposition, as is illustrated in (21). The original utterance and the alternative utterance with a bound pronoun (she praises herself to the sky) express the same proposition in (21), namely that z praises z to the sky.

(21) Is this speaker Zelda?

How can you doubt it? She praises her to the sky

Heim notes that it is commonplace in the philosophical literature to distinguish the proposition expressed by an utterance from its cognitive value and argues that when an utterance contains referring terms, the proposition expressed

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<sup>2</sup> In addition, she discusses (i), Lakoff's example which I will not treat in this paper.

(i) I dreamt that I was Brigitte Bardot and I kissed me

depends not only on their referents, but that its cognitive value depends also on the way these referents are presented. In the example in (21), the person *z* is presented in two different guises: as the speaker in the discourse situation and as person called *Zelda*. Each of the two pronouns in (21) connects to its referent via one of these two guises, giving rise to the proposition that the speaker in the discourse situation (possibly visible in the context) praises the person called *Zelda* to the sky. This proposition clearly has a distinct cognitive value from the proposition of the utterance in which one of the guises in object position is replaced by an anaphor.

Heim concludes from this that an utterance context does not only provide referents for referring pronouns, but rather supplies them with guises that in turn link them to referents. This raises the question when two guises (of the same referent) are admissible in a specific context. Heim (1988: 215-320) proposes the restriction that no context assigns distinct but pre-supposedly coreferential guises to any pair of NP-occurrences, yielding the effect that reference to the same object via two different guises is possible only as long it is still an open question in the discourse whether the same object is behind two different guises.

This implies that interlocutors negotiate the use of referential expressions in achieving their referential goals and that speakers tend to use pronouns rather than names and definite descriptions when referring back to already established discourse referents. I will come back to this point in section 4.3 below.

The second issue concerns the role of coreference relations in contexts of VP-ellipsis. It is well-known that standard cases of VP-ellipsis, as given in (22a) are ambiguous between a sloppy (22b) and a strict identity reading (22c). It is assumed that while the reading in (22b) is due to a parallel interpretation in which the pronoun *his* is bound by the subject in the first conjunct, the reading in (22c) is due to a parallel interpretation in which the pronoun *his* is interpreted as coreferential with the subject *John* in the first conjunct.

- (22) a. John loves his mother and Peter does too.  
 b. Peter loves his own mother too.  
 c. Peter loves John's mother too.

Heim argues that not only coreferential pronouns but also bound pronouns can give rise to strict readings. She discusses the example in (23) and focuses on the reading in which the correspondent of *the teacher* is the embedded subject and both *he* and *his* are anaphorically related to *every boy*. The relevant readings are specified in the paraphrases for the second conjunct in (23bc). While (23b) expresses a sloppy identity reading, (23c) expresses a reading that may be defined as a strict identity with the variable reading of the pronoun in the first conjunct.

- (23) a. Every boy said the he called his mother and the teacher too

- b. and the teacher called his (the teacher's) mother
- c. and the teacher called his (the boy's) mother

How can the two readings in the second conjunct be derived? To account for these readings, Heim (1998) introduces the notion of co-binding and proposes a mechanism of double indexing that mimics or is equivalent to Higginbotham's (1983) system of anaphoric linking. Heim (1998) devises a rather complex system in which every nominal expression has an inner and an outer index, indicating whether it is a coreferent binder or a coreferent bindee. Since I will argue in the following section that this system cannot solve the problem for which it has been introduced, I will simply illustrate how the strict reading and the sloppy reading are thought to come about in Higginbotham's framework. In his account, the first conjunct in (23) is generated with two different linked structures, as indicated in (24).

- (24) a. every boy said that he called his mother (binding)  

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b. every boy said that he called his mother (co-binding)  


While the representation in (24a) is thought to give rise to the sloppy reading in the second conjunct, the strict reading in the second conjunct is based on the representation in (24b). Note that the interpretations of the two linked structures are logically equivalent. The problem with this account is that the representation in (24b) is ruled out by economy, as I will show in the following section.

### 3.4 Coreference and co-binding in VP-ellipsis

There is an interesting contrast between the interpretation of pronouns and the interpretation of quantifiers in cases of VP-ellipsis that to my knowledge has been left unaddressed so far.

Note that the two readings required for the first conjuncts in (22) and (23) are unavailable within Reinhart's account and Heim's reformulation of it. In particular, the coreferent interpretation of the pronoun in (22) in the first conjunct is excluded by the Rule of Coreference in (20), since it does not yield an interpretation that is distinguishable from the one derived by its bound pronoun interpretation. For sure the coreferent interpretation of the pronoun in the first conjunct is taken to give rise to a different interpretation, namely the strict reading, in the second conjunct, but that should not matter since the evaluation of two representations in terms of economy is strictly clause-based, as has been shown by Fox (1993).

Let us look at the example in (25), which is one of Fox's examples adjusted for our purposes. While (25a) is ambiguous with respect to the scope of the two quantifiers, (25b) is unambiguous and only expresses the meaning that a certain boy loves every teacher too. In particular, the interpretation, available in (25a), that for every teacher there is also a potentially different boy that admires him is excluded.

- (25) a. Some girl admires every teacher and some boy does too  
 b. Mary admires every teacher and some boy does too

Fox (1993) argues convincingly that the unambiguity in (25b) follows from an interplay between a condition on parallelism in contexts of VP-ellipsis and an economy condition that rules out QR which does not have an effect on interpretation within the same clause. To put it in simple terms, (25b) is unambiguous, since QR of *every teacher* is ruled out in the first conjunct by economy (since it would not yield a different interpretation from the one achieved without QR) and since QR in the second conjunct is ruled out by the condition of parallel interpretation in both conjuncts. If we apply the same logic to (22), the strict identity reading of the second conjunct cannot be derived, since the coreferent interpretation in the first conjunct on which it is based is ruled out by economy.

The same problem arises for the derivation of the strict reading of the bound pronoun in (23) in Heim's account. Co-binding of the object pronoun and the subject pronoun by the higher quantifier (cf. 24b) is ruled out by economy, since it does not give rise to a distinct interpretation from the one achieved by direct binding between the embedded subject and the embedded object (cf. 24a). This leaves the behaviour of pronouns in contexts of VP-ellipsis unaccounted for. In the following section, I will develop a syntactic approach to coreference relations that does not run into the difficulties of the two accounts discussed above.

#### **4 An economy-based integrated approach**

In this section, I will argue that coreference is a matter of grammar after all. In particular, I will show that coreference relations are crucially constrained by economy conditions in the syntax. There are two main ingredients that make this account an integrated syntactic-pragmatic approach. First, I argue that the application of the Binding Principles A and B is restricted to apply only within a referential act. Second, I argue that the Binding Principle C is dispensed with and replaced by an economy principle that restricts the number of referential acts, where a referential act is defined as given in (26).

## (26) Referential act:

A speaker S uses the referential force of a linguistic expression E in the utterance context c to indicate to the hearer H that S is referring to the individual x, with  $[[E(c)]] = x$

In this account the class of nominal expressions is divided into those that have a referential force and those that lack referential force. It is in the spirit of Reinhart (1983) that the use of nominal expressions with referential force is preempted by the use of nominal expressions without referential force, if the latter gives rise to the same reference (based on binding by its syntactic antecedent) according to the shared knowledge state of speaker and hearer.

Let us see what this means by discussing how the three exceptional cases of coreference treated in the previous section are accounted for in this approach.

#### 4.1 Three case studies in the integrated approach

Let us start with discussing the interpretation of referential expressions in identity statements. A particularly interesting solution to the problem of the informativeness of identity statements was given in Frege (1892), which gave rise to the notion of cognitive significance of referring expressions and which Heim (1998) adopted to provide a more accurate characterization of the notion of indistinguishable interpretation in a Reinhart's type of approach to coreference. Frege put forward the question of how it is possible that an identity statement like (27) is informative, given that the meaning of referring expressions is (reduced to) their denotation.

(27) Der Morgenstern ist der Abendstern.  
The morning star is the evening star

Frege introduces the famous distinction between sense and meaning (*Sinn* und *Bedeutung*), where sense stands for the way in which a speaker connects with or presents a certain referent. Frege concludes that (27) is informative and does not present a tautology, since the same referent is presented in two different ways, or guises as Heim (1998) has put it. In other words the statement in (27) is informative, since the two presentations potentially may connect with two different referents and the speaker informs the hearer that these two presentations or guises, in fact, connect with the same individual. The way a speaker connects with a certain referent, I identify with a referential act.

Thus I would like to propose that an identity statement *presupposes* two independent referential acts, but asserts that these references (or guises) denote the same object. Since the statement in (27) contains two distinct referential acts the binding theory does not come into play. Normally, two distinct referential acts that connect with the same referent are excluded by economy (see below).

However, in the case of an identity statement, a more economic way of referring to the same individual (via a binding relation) is not possible, since by our assumptions two referential acts are required to secure the informativeness of an identity statement.

Things are slightly different in the case used by Heim (1998), discussed in the previous section and repeated here in (28). Heim argues that the two pronouns in (28B) hook up with two different guises. Hence we have two distinct referential acts in (28B): the subject pronoun *she* is used as an indexical and connects with its referent via the referential act of ostentation, while the object pronoun *her* is used as a discourse anaphor that connects with the name *Zelda*. Thus the object pronoun is part of the referential act of referring by a proper name (which has different properties from the act of referring by a definite description).

- (28) a) A: Is this speaker Zelda?  
       B: Well, she praises her to the sky  
       b) Well, she praises herself to the sky

In this case, however, two referential acts are not presupposed and thus the question of a more economic way of referring arises. Note that speaker B may or may not be aware of the identity of the two women in (28). Thus, he may be taken to either imply or to assert the identity of the two persons in question. But for sure speaker A is unaware about the identity of the two women. Therefore speaker B would miss his referential and communicative goals if he conveyed his belief or knowledge with the utterance in (28b). Using (28b), he could not imply to A or inform A that he believes that the two women are the same person. This suggests the relevance of the following economy condition on the use of distinct referential acts, given in (29).

(29) **Economy of Reference (substitute of Principle C):**

Use the minimal referential acts to achieve your referential and communicative goals

How does this approach work in contexts without intended coreference? The two cases are repeated in (30ab). Both utterances exhibit two distinct referential acts.<sup>3</sup> The higher pronouns are used indexically (indicated by “!”) and constitute the referential act of ostentation, while the lower referential nominal expressions constitute referential acts by naming.

- (30) a. He! wore Oscar’s hat

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<sup>3</sup> Note that this already follows from their different semantic/pragmatic type. While one is based on the gesture of ostentation, the other is based on a (specialized form of) description.

- b. He! thinks Oscar is crazy

Also in these cases two distinct referential acts are necessary to convey the referential goals of the speaker *s*, since the speaker wants to refer to a person present in the utterance context and convey that person's propositional attitude about a second person called Oscar, about whose identity there is not sufficient common knowledge between the speaker and the addressee.

Finally, let us have a look how this account fares in the so-called contexts without referential dependency. (31) provides another example of an Adenauer-sentence. Also here we could assume that there are two distinct referential acts present and try to argue that economy is not violated by this, since the alternative utterance in (31b) could not convey the referential and communicative intentions of the speaker. Moreover, we could argue in a Reinhart-style fashion that the alternative utterance in (31b) is not truth-conditionally equivalent to the utterance in (31a). But this would miss the point for two reasons.

- (31) Almost noone voted for Adenauer.  
 a) Only Adenauer voted for Adenauer.  
 b) Only Adenauer voted for himself

First, such an account would neglect the fact that Adenauer-sentences are not possible in out of the blue contexts. The particular sentence in (31a) with two coreferent occurrences of the name *Adenauer* is possible, since at least the second occurrence is used discourse-anaphorically. This is the insight in Higginbotham's linking account and is also stressed by Heim (1998).<sup>4</sup>

Second, such an account must revert to a costly Reinhart-style evaluation and comparison of two propositions to explain why coreference is possible in (31a), given that (31a) and (31b) express different propositions, but is not available in (32), since (32a) and (32b) express the same proposition.

- (32) a. \*Oscar<sub>1</sub> is sad. He<sub>1</sub> thinks Oscar<sub>1</sub> is incompetent  
 b. Oscar<sub>1</sub> is sad. He<sub>1</sub> thinks he<sub>1</sub> is incompetent

In the following section, I will provide a solution that takes into account the discourse anaphoric nature of the second occurrence of coreferent expressions in cases like (31) and explains the difference between cases like (31) and cases like (32) in a simple and structural way.

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<sup>4</sup> In her conclusions, she makes the following remark on an observation credited to Hans Kamp: "If we have not been talking about Lucifer before, an utterance like *Only he pities him/Lucifer* is quite bad under a coreferential reading. So the condition identified by Reinhart ... is not by itself sufficient, and a common antecedent seems to be required on top of it. This needs further exploration."

## 4.2 The grammatical nature of discourse-anaphoric elements

So far we have encountered two different types of interpretations of referential expressions. Nominals and also pronouns, the latter when used indexically, have referential force and represent independent referential acts (RAs). Pronouns can also be interpreted as variables and (syntactic) anaphors. In this case, I will assume they lack referential force and hence do not represent an independent RA. They simply take their reference from the syntactically specified antecedent. Below I will argue that this property follows from their lacking of semantic and formal features (cf. Kratzer 2009).

Now, I would like to make the following proposal: A) Discourse anaphors (DA) do not represent a referential act by themselves either. Like bound pronouns and anaphors, they lack referential force and assume the reference of an antecedent. B) The antecedent relation is abstract and involves a syntactic relation to a functional head in the C-domain that represents an ordered set of pre-established, given discourse antecedents. Note that these assumptions are contrary to assumptions made within the standard theory. The notion of accidental coreference implies the presence of two referential expressions with independent referential force which happen to refer to the same individual. Consequently rules of non-coreference in syntax (cf. Lasnik 1976) and semantics (cf. Reinhart 1983) were established to filter out illicit cases of coreference.

The syntactic background of this proposal is the observation that discourse-anaphoric expressions, pronouns and DPs alike, are deaccented and move to the top of the middle field in German, as is illustrated in (33). In the mini-text in (33), the DP *seine Freundin* is interpreted as coreferent with *Sabine*, if the former is de-accented and scrambled across the sentential adverb *sofort*, as in (33b), while if the DP is stressed in situ, it is interpreted as introducing a new discourse referent and hence as non-coreferent with the potential discourse antecedent *Sabine*.<sup>5</sup>

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<sup>5</sup> Christer Platzack (pc.) informs me that the parallel effect is not present in Swedish. According to him, the DP *his girlfriend* in (iib) must be interpreted as a discourse anaphor and cannot be taken to introduce a new discourse referent. I have nothing to say about this interesting difference between Swedish and German. For the purposes of this paper, however, it is only relevant that Swedish, like German, allows for the discourse-anaphoric reading of the DP *his girlfriend*.

- (ii) a. Rune träffade Sabine igår  
Rune met Sabine yesterday
- b. Han omfamnade genast sin vännima

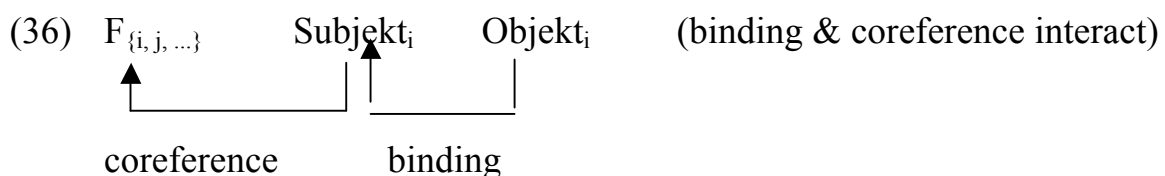
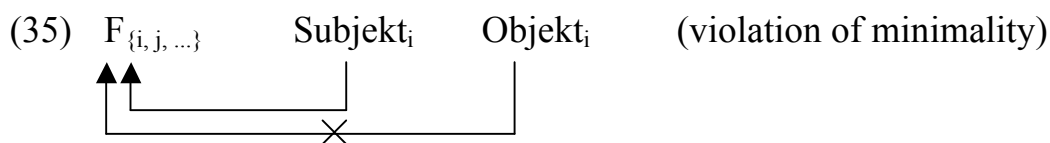


- (33) a. Hans hat gestern Sabine getroffen.  
Hans has yesterday Sabine met  
b. Er hat *seine Freundin* sofort umarmt. (seine Freundin = Sabine)  
He has his girlfriend immediately embraced  
c. Er hat sofort *seine Freundin* umarmt. (seine Freundin ≠ Sabine)  
He has immediately his girlfriend embraced

We may assume that with using the specific grammatical form of de-accenting and scrambling the speaker instructs the hearer not to establish a new discourse referent but to identify the referent with the most salient suitable antecedent in the discourse. I will come back to this point in section 4.3 below.

What is the advantage of assuming such a syntactic discourse anaphoric relation? As is illustrated in (34), the relation of a DA to its antecedent can be made subject to the syntactic condition of minimality (cf. Rizzi 1991). Thus the impossibility of a coreferent interpretation between the pronouns *he* and *him* in (34a) can be given a simple syntactic explanation. As is illustrated in (35), an intervening referential expression blocks the discourse anaphoric relation between  $F_{\text{given}}$  and the object pronoun *him*, since the subject represents a closer potential referential antecedent. As is illustrated in (36), binding of the object by the subject represents a more economical option (cf. Chomsky 1995 for MLC, Fox 2000). The same explanation holds for the case in (32) above, repeated in (34c).

- (34) a. Oscar<sub>i</sub> is is my best friend. \*He<sub>i</sub> considers him<sub>i</sub> very intelligent.  
b. Oscar<sub>i</sub> is my best friend. Oscar<sub>i</sub>'s father considers him<sub>i</sub> very intelligent  
c. Oscar<sub>i</sub> is sad. \*He<sub>i</sub> thinks Oscar<sub>i</sub> is incompetent



In (34b) on the other hand, there is no c-command relation between *Oscar* and *him*. Thus, *Oscar* does not intervene between the discourse anaphoric head and the pronoun and two discourse-anaphoric relations can be established with the head  $F_{\text{given}}$

In my opinion it is crucial that in the example (31) above, the intervening expression *only Adenauer* has a focus-affected quantified interpretation and does

not constitute a referential expression. Thus, it cannot block the establishment of a discourse anaphoric relation between the object DP *Adenauer* and the functional head  $F_{\text{given}}$ , as is illustrated in (37).<sup>6</sup> In this case, there are two economically equivalent alternatives: a discourse-anaphoric reading as in (32/37) and a binding relation as in (38), which however gives rise to a different, truth-functionally non-equivalent interpretation.

(37)  $F_{\{i\}}$  only Adenauer voted for Adenauer<sub>i</sub> (no violation of minimality)



(38)  $F_{\{i\}}$  [only Adenauer<sub>i</sub>]<sub>k</sub> for himself<sub>k</sub> (binding-configuration)



In conclusion, the discourse anaphoric reading in (32) is excluded due to economy. A more economic representation of the same meaning arises if the discourse anaphoric relation is replaced with a binding relation. The same situation does not arise in (31/37) though, since the non-referential subject cannot block the establishment of a discourse-anaphoric relation between the object and the head  $F_{\text{given}}$  in the C-domain.<sup>7</sup>

In particular, I propose that the context with respect to which an utterance is evaluated does not only contain the speech participants, speech location, speech time and the so-called common ground, assumed to be the set of propositions shared by speaker and hearer, but also an ordered set of discourse referents shared by speaker and hearer (cf. Reinhart 1991). This set of discourse referents is ordered according to the salience of each discourse referent (DR) and like the common ground is potentially updated after each utterance.

The notion salience is used a lot in linguistic literature and is thus multiply ambiguous.<sup>8</sup> The notion that is relevant for our purposes here, is the entity-based notion as it is used in dynamic semantics (Kamp 1981, Heim 1982, Groenendijk and Stokhof 1991), where the relative salience of a DR for an anaphor in a given utterance *U* is determined by the input context of *U*.

<sup>6</sup> Note that we have the same configuration as in (34b). The referential expression *Adenauer* that may be taken to be discourse anaphoric is embedded in the non-referential expression *no one but Adenauer*.

<sup>7</sup> Christer Platzack points out that in Swedish the relevant reading in (31/37) is also possible without a quantifier. This is also true for German. The reading is available as long as the subject is either focussed or quantificational.

<sup>8</sup> The notion salience may refer to things that stand out from the ground, that can be easily recognized, or are in the focus of attention or foremost to a person's state of mind (cf. Heusinger 1997 for a history of the term and its uses).

These assumptions about the context are fairly standard. What is special in this proposal is that the ordered set of DRs is represented in the syntax, by a functional head in the C-domain. The advantage of this move is that the regulation of coreference relations anew becomes the subject of simple structural conditions in the syntax and does not require anymore transderivational considerations as in Reinhart's type of approach as to whether there exists an alternative representation that expresses an indistinguishable meaning (and we have seen the difficulties that this poses) by variable binding. Coreference is possible whenever there is a salient discourse-antecedent and the discourse-anaphoric relation (to the functional head  $F_{\text{given}}$ ) is not blocked by a more economic binding relation in the syntax, that is to say, at LF.

The proposal thus follows recent work on the interaction between syntax and pragmatics. Sigurðsson (2011) proposes that deictic first and second person pronouns are licensed by respective functional heads in the C-domain. Frascarelli (2007) argues that null referential subjects in Italian are licensed by entering into an agree relation with a functional head that encodes aboutness topics in the sense of Reinhart (1981) (for the distinction between aboutness topics and given (familiar) topics see Frascarelli & Hinterhölzl 2007). In section 5.1 below, I will discuss in more detail the properties of the functional head  $F_{\text{given}}$  that is proposed above.

### 4.3 A typology of referential expressions

The empirical claim of the previous section was that quantificational, including focus-affected subjects will allow a discourse-anaphoric interpretation of the object, but if the subject is itself a referential expression, this reading is blocked by a more economic binding relation between subject and object. This claim needs to be evaluated in a broader empirical perspective. The data discussed in the literature so far suggest that this is the correct generalization.

In this section, I would like to return to the notion of referential force of a nominal expression. The above account rests on the assumption that DA lack referential force and thus need to establish a relation with an antecedent that provides them with a referential value.

Bound pronouns and (syntactic) anaphors are semantic variables. I argue that they are interpreted in a binding configuration and lack both semantic and formal features (cf. Heim 2005, Kratzer 2009). Heim (2005) discusses the interpretation of deictic pronouns bound by an operator, as in (39). If the reference set, quantified over, contains next to the speaker, John, Mary and Peter, (39a) is ambiguous between the readings specified in (39b) and (39c).

- (39) a. Only I did my homework  
 b. John, Mary and Peter did not do my homework  
 c. John, Mary and Peter do not do their (own) homework

In (39b), the pronoun *my* is interpreted indexically, rigidly referring to the speaker in the utterance context, but in (39c), it co-varies with the local antecedent. For this to be possible, it is necessary that its formal features are ignored/not interpreted in logical form. Kratzer (2009) proposes that bound pronouns are minimal pronouns in the sense that they lack formal features altogether and argues that bound pronouns acquire their formal features in a binding configuration. Given the assumption that bound pronouns lack referential and formal features, it follows straightforwardly that they should lack referential force. As minimal pronouns they are only interpretable in a binding configuration.

What about DAs? Can we make the case in a convincing manner that they lack referential force as well? For sure, they do not establish a discourse referent. It is already given in the context. Arguably they do have formal features that are used to discriminate between possible discourse antecedents. Thus, I would like to make the following proposal. DAs come with the presupposition that the antecedent is an element of the ordered set of given DRs and use their formal features < number, gender > to identify the correct DR. Note, however, that these features are interpreted as presuppositions as well rather than as being asserted.

To provide a concrete example, *he* used as a DA does not “assert” that there be a unique male individual in the context as the nominal expression *the/a man* does. In other words, I would like to argue for the following parallelism. A proposition that is asserted by a speaker (if agreed upon) is added to the common ground of shared propositions, a referential expression that is asserted by the speaker is added to the ordered set of shared discourse referents. A proposition that is marked as presupposed by the speaker has to be retrieved from or activated in the common ground, a referential expression that is marked as presupposed leads to the retrieval of the appropriate antecedent from the set of given discourse referents.<sup>9</sup>

This implies that also deictic pronouns of first and second person lack referential force (cf. Sigurðsson 2011). The identity of the speaker cannot be established within the content of an utterance. It is already fixed and hence given by the mere execution of an utterance. The same considerations apply for the identity of the hearer. Matters are different for indexicals of the third person. The identity of a third person present in the utterance context is not fixed by the

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<sup>9</sup> Despite this similarity between the assertion of a proposition and the assertion of a discourse referent, I will continue to use the term referential force to denote the illocutionary effect that (the use of) a referential expression may have. The reason is that we will see in the following section that the descriptive content of a discourse-anaphoric DP is interpreted as being asserted. To distinguish between definite descriptions that have and that lack referential force, I will speak of the illocutionary and the discourse-anaphoric use of a referential expression below.

mere act of utterance itself. Several persons may be visible and referred to in a specific utterance context. As we have seen above, the indexical use of a third person pronoun is accompanied by a pointing gesture, indicating the illocutionary nature of this use. Such a gesture is not necessary in the indexical use of first and second person pronouns, indicating that they differ from indexicals of the third person.

Third, there are referential expressions that do have referential force as defined above. Names, indefinite and definite descriptions (when not used discourse-anaphorically) have referential force in the sense that their formal and lexical features are interpreted to establish a new DR. The lexical content of the nominal thereby serves as mental address (cf. the file card metaphor in Heim 1982), that is, as the cognitive label with which a certain DR is identified, stored and retrieved. To clarify the difference between the illocutionary and the discourse-anaphoric use of a definite description, let us reconsider the example in (33) above. With the illocutionary use of the nominal expression *seine Freundin*, the speaker informs/instructs the hearer that the story contains a third individual that stands in the relation girl-friend to the protagonist *Hans*, while with its discourse anaphoric use, the speaker informs/instructs the hearer about an additional property of the already familiar individual *Sabine*.

To summarize, I have provided a typological classification of referential expressions in terms of their richness in formal and semantic (illocutionary) features. (i) Bound pronouns are minimal pronouns in the sense of Kratzer (2009), since they lack both formal and semantic (illocutionary) features. (ii) Discourse anaphoric pronouns are less minimal in the sense that they possess formal features but lack illocutionary features and (in)definite descriptions and names have both formal and illocutionary features.

It stands to reason that this difference in feature structures corresponds to a difference in syntactic structure. It has been proposed by Cardinaletti & Starke (1999) that deficiency in features corresponds to structural deficiency. So one could surmise that minimal pronouns have a D-layer and no (or only a deficient)  $\phi$ -layer. DAs have a D-layer and a  $\phi$ -layer (cf. the IP-layer in the clause), but lack a C-layer (or only have a deficient one), while fully referential nominal expressions also have a (non-deficient) C-layer expressing independent referential force. I will not pursue this point any further here.

Note that it already follows from this typology that bound pronouns represent the most economical way for expressing coreference, since they constitute the minimal effort and means of achieving reference to an individual already denoted by the antecedent. Along the same lines, the use of a DA constitutes a more economic way of referring back to a certain individual than re-establishing the reference with a nominal expression with its own referential force. In essence, the principle of economy of reference in (29) (Section 4.1) above can be taken to follow from this typology of referential expressions. The

use of all three types of nominal expressions can be taken to be regulated by the following overarching principle.

- (40) Economy condition on the use of nominal expressions:  
Use the minimal referential means to achieve your referential and communicative goals

## 5 Some consequences of the integrated approach

In this section, I would like to discuss some implications that this approach has for the proper analysis of discourse-anaphoric definite descriptions, for the analysis of referential dependencies in cases of VP-ellipsis as well as for the analysis of referential expressions in embedded contexts.

### 5.1 Coreference and VP-ellipsis revisited

Let us come back to the question why a discourse anaphoric reading is possible in cases of VP-ellipsis like (41). In section 3.4 above, we have concluded that neither syntactic economy conditions nor Reinhart's coreference rule allow that the first conjunct is ambiguous in the manner sketched in (42) below. Reinhart's (1983) proposal is that the first conjunct is ambiguous, since the subject *Max* can be interpreted as a name (42a) or as a generalized quantifier (42b).

(41) Max loves his mother and Oscar does too

- (42) a.  $\text{Max}_i$  loves  $\text{his}_i$  mother (coreference)  
b. (Max)  $\lambda x. x$  loves  $x$ 's mother (binding)

In the present account, the only source of potential ambiguity in (41) is the pronoun *his*. It can be a minimal pronoun (lacking  $\phi$ -features) or it can be a discourse-anaphoric pronoun endowed with  $\phi$ -features. Independently of this, the discourse-anaphoric reading is excluded in the first conjunct due to economy, as we have concluded in section 3.4 above.

However, a discourse-anaphoric reading is possible in the second conjunct nevertheless. To answer why this should be so, two cases have to be distinguished in the present approach. A) Let us assume that *Max* is already discourse-given before the utterance of (41). This means that it is an element of the ordered set of discourse referents. Let  $i$  be its index, as illustrated in (43b), then linking the pronoun *his* with this DR does not violate the minimality condition, since the intervening subject in the second conjunct refers to *Oscar*. B) If *Max* is not already discourse-given before the utterance of (41), then the

set of ordered discourse referents will be updated with *Max* after the utterance of the first conjunct, if we make the assumption that (41) constitutes a conjunction of two assertions rather than the assertion of two conjoined propositions. As before, the pronoun *his* can be linked to this newly added discourse referent without giving rise to a violation of minimality (cf. again 43b).<sup>10</sup>

- (43) a.  $F_{\{i,j\}}$  Oscar<sub>k</sub> does too **love his<sub>k</sub> mother**  
 b.  $F_{\{i,j\}}$  Oscar<sub>k</sub> does too **love his<sub>i</sub> mother**

Note that this explanation of the availability of the discourse-anaphoric interpretation of the pronoun *his* in (41) can be applied in a parallel fashion to Heim's example of the strict interpretation of a bound pronoun in (23) in Section 3.2 above, repeated here in (44a). The reading that we are interested in is given in (44b), where the pronoun is interpreted as co-varying with the quantifier in the matrix clause. The structural configurations of (44b) and (43b) are identical. In (44b), the higher quantifier can directly bind the pronoun, since it does not bind the intervening subject (contrary to what is claimed in Fox 2000).

- (44) a. Every boy said that he called his mother and the teacher too  
 b. Every boy said that the teacher called his mother too

This parallelism in the explanation of (43b) and (44b) provides further support for the assumption that discourse-anaphoric elements do have an antecedent in the syntactic representation.

The crucial question now becomes whether the representations in (43) and (44) can be taken to respect the principle of structural and interpretational parallelism. Without question, the syntactic structure of the second conjunct in either interpretation in (43) is parallel to that of the first conjunct. What about

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<sup>10</sup> An interesting test for theories of VP-ellipsis is posed by Swedish data, pointed out to me by Christer Platzack. Swedish distinguishes between a possessive anaphor (*sin*), to refer to the subject, as in (iiia), and a possessive pronoun (*hans*), to refer to a discourse referent other than the subject, as in (iiib).

- (iii) a. Max älskar sin mor och det gör Oscar också  
 Max loves his mother and that does Oscar too  
 b. Max älskar hans mor och det gör Oscar också  
 Max loves his mother and that does Oscar too

Nevertheless, (iiia) is ambiguous between a strict and a sloppy reading of the ellided VP. This fact constitutes a real challenge to any account of discourse anaphors in cases of VP-ellipsis. In the present account, this can be explained by assuming that the anaphor *sin* is copied both with and without its  $\phi$ -features into the ellipsis site. The present approach then has the advantage over other accounts that there is indeed a syntactic antecedent for the anaphor in the C-domain. I leave this issue for further research.

the interpretation? In the first conjunct, the pronoun is interpreted as coreferent with the subject *Max*. In the representation (43a), this pronoun is interpreted as coreferent with the new subject *Oscar*. In the representation (43b), this pronoun is interpreted as coreferent with *Max*. In the first case, the parallelism is more strictly structural, in the second case, it is more strictly interpretational, but both representations may be said to respect the principle of parallelism. Also in (44), the second conjunct is structurally and interpretationally parallel to the first conjunct. In both conjuncts, the pronoun is interpreted as a bound pronoun. In the first conjunct, it is bound by the local subject (which in turn is bound by the higher subject), while in the second conjunct, it is directly bound by the higher subject.

It is well-known that there are interpretive asymmetries in cases of ellipsis of pronominal dependencies, called Dahl's puzzle (cf. Dahl 1974, Fiengo & May 1995, Fox 2000 among others). Dahl's puzzle is illustrated in (45) and (46). Of the four potential readings, the strict-sloppy pattern in (46d), which requires binding of the pronoun in object position by the matrix subject, is excluded. Fox (2000) argues that the unavailability of the reading (46d) is due to a lack of parallelism in binding relations. Since non-local binding of the pronoun in object position by the matrix subject is excluded by economy in the first conjunct, this relation is not available in the second conjunct either, due to the requirement on parallel interpretation.

(45)  $Max_i$  said  $he_i$  saw  $his_i$  mother and Oscar did too.

- (46) a. Oscar said Max saw Max's mother [strict + strict]  
 b. Oscar said Oscar saw Oscar's mother [sloppy + sloppy]  
 c. Oscar said Oscar saw Max's mother [sloppy + strict]  
 d. \* Oscar said Max saw Oscar's mother [strict + sloppy]

Note, however, that this interpretation of the facts would also rule out the interpretation of the bound pronoun in (44b) and the discourse anaphoric interpretation, that is, the strict reading of the pronouns in (43b) and (46c).

What is the difference between (46c) and (46d)? Or put differently, why does (46c) obey parallelism but (46d) fails to do so? The explanation is parallel to the explanation we have given for (43b) and (44b) above. In the first conjunct, two local binding relations, one between the matrix subject and the embedded subject and one between the embedded subject and the pronoun in object position, render the three referential expressions coreferent. Obviously, these binding relations need not necessarily be preserved all in the second conjunct, as is evident from the interpretations in (46a) and (46c). In (46a) only the lower binding relation and in (46c) only the higher binding relation is paralleled. In (46c), the lower binding relation is dismissed, but the pronoun in object position preserves the interpretation obtained in the binding relation by this element in the



first conjunct, namely *Max*. In (46d), both the higher and the lower binding relation are dismissed, but in addition, the pronoun in object position does not preserve the interpretation of the parallel element obtained in the local binding relation in the first conjunct, since it refers to *Oscar*. This leads to the following empirical generalization about parallelism of pronominal dependencies in ellipsis contexts.

- (47) Parallel interpretation of pronominal dependencies  
 In the second conjunct either the binding relation or the interpretation obtained by this binding relation in the first conjunct must be preserved.

Things are slightly different in the case of quantifier interpretation in VP-ellipsis contexts discussed by Fox (1993) and repeated in (48).

- (48) Mary admires every teacher and some boy does too

Since QR of the object quantifier over the subject in the first conjunct is excluded by economy, QR of the object quantifier over the subject in the second conjunct results in a representation that is not structurally parallel to the first conjunct.<sup>11</sup> Hence the interpretation requiring QR of the object quantifier over the subject is ruled out in (48).

This implies that the discourse-anaphoric pronoun in (43b) does not undergo movement to the head  $F_{\text{given}}$  at LF, otherwise also (43b) should be ruled out for lack of structural parallelism. Consequently, the relation between  $F_{\text{given}}$  and the discourse-anaphoric pronoun in (43b) must be taken as a licensing relation that employs agreement but not movement.

Assuming that there is a relation between a functional head and a referentially dependent or deficient element, like a discourse-anaphoric expression, is in line with Kratzer (2009), who proposes “that verbal functional heads, rather than DPs, are the true syntactic antecedents for bound pronouns” (p. 12). Thus, I propose to extend Kratzer’s analysis of bound pronouns to DAs. In the case of a bound pronoun, the binder is a  $\lambda$ -operator, introduced by a verbal functional head, that has its argument specified in the syntax, the specifier of  $v$  in (49a) taken from Kratzer (2009). In the case of a DA, the most salient DR that matches the formal features of the DA, shared with the functional head, is inserted in the Specifier of  $F_{\text{given}}$  at the relevant point of the derivation (or at the end of the derivation in a strictly modular approach), as is illustrated in the representation of (43b) in (49b).

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<sup>11</sup> Even the interpretation may be said to be non-parallel in this case: while the object quantifier is interpreted with narrow scope over the subject in the first conjunct, it is interpreted with wide scope over the subject in the second conjunct.

- (49) a. I blame myself [v<sub>VP</sub> I [v λ<sub>n</sub> [v<sub>VP</sub> blame n]]]  
 b. [CP <Discourse antecedent >[C λ<sub>i</sub> [IP Oscar<sub>k</sub> loves i's mother]]  
 c. [v<sub>VP</sub> Every boy [v λ<sub>i</sub> [v<sub>VP</sub> said [CP that [IP teacher called i's mother ]]]]]

This assumption makes the structures in (43b) and (44b) even more parallel. The quantifier phrase in (44b) is the argument of a  $\lambda$ -operator introduced by a functional head that binds the pronoun across the non-coreferential subject in Kratzer's (2009) proposal, as is illustrated in (49c). If we assume that the functional head  $F_{\text{given}}$  also introduces a  $\lambda$ -operator that licenses the discourse-anaphoric pronoun, then the only difference in (49b) is that the argument of the  $\lambda$ -operator must be retrieved in the (interface to the) pragmatic component. In this approach, the functional head must be taken to also express an instruction to access the ordered list of given DRs in the interface.<sup>12</sup>

## 5.2 On the proper analysis of discourse anaphoric definite descriptions

In this section, I want to discuss some observations and implications of the discourse-anaphoric use of definite descriptions. The interpretation of cases like (33b) above has not been discussed much in the literature (a notable exception is Umbach 2004). Note that the de-accented referential expression *seine Freundin* is not only prosodically weak due to its discourse-given status, which hints at an interaction between pragmatics and prosody, possibly mediated by the syntax, but represents a different grammatical object. As is illustrated in (50) (taken from Umbach 2004), a discourse-anaphoric definite description loses its referential force and its potential descriptive content is interpreted as an apposition rather than as a (referential) restriction.

- (50) a. Hans hat sich neulich ein kleines Häuschen am Land gekauft.  
 Hans recently bought a little house in the countryside  
 b. Nächstes Wochenende will er die alte Hütte abreißen  
 c. Next weekend he will tear down the old shed  
 d. Next weekend he will tear down the house which is an old wrack

Depending on whether main stress falls on the direct object or on the verb in (50b), the direct object *die alte Hütte* is either interpreted as a new discourse referent (cf. 50c) or as referring back to the house, as is indicated in (50d). With the object stressed, the speaker informs the hearer via a standard bridging relation that the small house in the countryside came with an old (garden) shed that the protagonist will tear down shortly. With the object unstressed, the

<sup>12</sup> In this approach, the meaning of this functional head must be represented as a predicate that relates individuals and contexts, where MSDR stands for most-salient-discourse-referent:  $\lambda.x \lambda.c \text{MSDR}(x, c)$ .

speaker informs the hearer that the acquired house in the countryside is in a deplorable state (constitutes a wrack) and must be torn down.

This means that the content of the NP of a discourse anaphoric DP is asserted and does not restrict the reference of the determiner. Very much like the content of an appositive relative clause is asserted, that is to say, provides additional information on a given DR rather than restricting the reference of its head noun, as a restrictive relative clause does.

In (50), the descriptive content of the discourse-anaphorically used DP takes on an expressive meaning (cf. Potts 2005). Potts (2005) proposes that expressive meanings are allocated at a separate level of semantic representation. But discourse anaphoric definite descriptions do not necessarily contribute only expressive meaning. This is shown in the example (33) above as well as by the following example. In (51a), a new female discourse referent is introduced. In (51b), the speaker provides relevant information about this referent synoptically with describing the circumstances of their meeting. This information about the new discourse referent is simply added to the common ground of shared propositions.

- (51) a. John met a woman in the park  
 b. He bumped into the (good-looking) actress from London, while jogging

Taking up once again the file card metaphor, we may conclude that the descriptive content of an NP within a DP with referential force acts as restriction on the referent and constitutes the address of a newly added file card, while the descriptive content of an NP within a discourse anaphoric DP constitutes an entry on an already established file card under the address of the appropriate discourse antecedent.

Finally, let us have a look at the case in (52). While the definite description *der exzellente Physiker* can be used discourse-anaphorically to refer back to *Hans* in (52a), coreference between the discourse anaphoric expression and the matrix subject in (52b) is excluded. The relevant reading is made available in (52c), where the DP is interpreted as expressing a property of *Hans*, with coreference being achieved by the pronominal within the added PP *in ihm* that refers back to the matrix subject.

- (52) Gestern hat Hans Maria zum ersten Mal ausgeführt.  
 Yesterday Hans took out Maria for the first time  
 a. Sie soll sich in den exzellenten Physiker verliebt haben.  
 She is reported to have fallen in love with the excellent physicist.  
 b. ?? Er hofft, dass sie sich in den exzellenten Physiker verliebt hat.  
 He hopes that she has fallen in love with the excellent physicist

- c. Er hofft, dass sie sich in den exzellenten Physiker in ihm verliebt hat  
 He hopes that she has fallen in love with the excellent physicist in him

The improved status of the parallel utterance with a pronoun in (52c) seems to indicate that (52b) is ill-formed due to a violation of economy/the binding theory. Note first that cases like (52b) are a problem for a Reinhart-type of account. Since the discourse anaphoric interpretation of the DP gives rise to a different proposition than the parallel sentence using a bound pronoun instead of it, as specified in (53ab) for the sentence in (52a), Reinhart would predict (52b) to be okay.

- (53) a. She has fallen in love with Hans which (by the way) is an excellent physicist  
 b. She has fallen in love with Hans.

In the present account, the ill-formedness of (52b) can be explained as a violation of economy. It seems natural to interpret the contribution of the descriptive content of the NP within the discourse anaphoric DP as the speaker's (additional) description in (52a). If the content of the NP in the discourse-anaphoric DP in (52b) is interpreted as the speaker's description, then the D-head of embedded object should enter into an antecedent relation with the functional head  $F_{\text{given}}$  in the C-domain of the matrix clause, crossing the matrix subject. This is clearly ruled out by minimality/economy that requires the establishment of a more economical binding relation between the matrix subject and the embedded object instead, as in (52c).

At this point, one may ask the question why the nominal description in (52b) cannot be interpreted as the description of the embedded "speaker" *Hans*? In this case, the discourse-anaphor could enter into a relation with the local C-domain, only crossing over the disjoint local subject *she* which would not lead to a violation of economy.

More data have to be checked to see whether this could be an option in grammar in principle. It would require that embedded C-domains also contain an ordered set of discourse referents, possibly copied from the matrix C-domain (also see section 5.3 below for further discussion). In this case, however, this is irrelevant, since the nominal description cannot be interpreted in the embedded clause for independent reasons. If indeed the descriptive content of the nominal within a discourse anaphoric definite description is interpreted as an assertion, it must be interpreted with respect to the actual speaker and cannot be interpreted within the scope of an attitudinal verb like *hope*, as is illustrated (54). Such a

reading is not possible and is excluded by the principle in (55), adapted from Green (2000).

(54) %Hans hopes that she has fallen in love with him and that he is an excellent physicist

(55) Embedded Force Exclusion:

If  $\phi$  is either a part of speech or a sentence, and  $\phi$  contains some indicator  $f$  of assertive force, then  $\phi$  does not embed.

Since the descriptive content of the nominal embedded in a discourse anaphoric definite description is asserted and interpreted in the matrix clause, the discourse anaphoric interpretation of its determiner must be licensed by being anchored to the matrix C-domain leading to a violation of the minimality condition on coreference, while it is not clear how these facts could be explained in a Reinhart-type of approach.

Finally let us address the question why names and definite description can be used as discourse anaphors but resist binding. Note that this question becomes relevant since, names and definite descriptions used as discourse anaphors lose their referential force and since we have also dispensed with Principle C of the binding theory. In the present account, the answer must be that these categories resist binding, since their nominal head has inherent formal features which are shared with the determiner by agreement (cf. Longobardi 1994). Thus the D-head with names and definite descriptions is never featureless as we have assumed bound pronouns are. Thus we can assume the following corollary about bound pronouns in (56) (cf. also Kratzer's 2009 notion of minimal pronouns).

(56) Corollary about the relation between binder and bindee:

A bound pronoun must have all its features valued by its antecedent

To summarize, let us briefly discuss how invalid referential possibilities are excluded in a standard case of combining a name c-commanded by a pronoun, like in (57), in this approach.

(57) \*He<sub>k</sub> admires John<sub>k</sub>

First, binding is impossible since the name has inherent features and thus cannot be fully valued by its antecedent. Second, a separate referential act by the name is excluded by the economy condition on coreference in (29) above. Third, a discourse anaphoric interpretation of the name is excluded by minimality. In conclusion, the difference between a bound pronoun and a discourse anaphor in the present approach boils down to a difference in the interpretation of its  $\phi$ -

features: they are uninterpretable with bound pronouns, but interpretable with discourse anaphors. With bound pronouns they derive from an Agree-relation with a syntactic antecedent, with coreferent pronouns they are there from the outset, hence present in the numeration.

### 5.3 On the interpretation of referential expressions in embedded contexts

In this section, I would like to discuss the different interpretations that referential expressions in embedded contexts may have. Before that, I would like to briefly discuss the parallelism between DAs and pronouns that refer to the speaker or the hearer in the present account.

Indexicals of first and second person and discourse anaphors have in common that they lack referential force. In the present approach, indexicals of first and second person thus will also require a syntactic binder, that is, the presence of a functional head that licenses them. These functional heads must then trigger access to two separate indices of the context, namely the one for the speaker and the one for the hearer (rather than to the set of given DRs, as is the case with discourse-anaphoric expressions). This implies that the actual pronouns do not denote the speaker or the addressee themselves but only presuppose that there is a speaker and an addressee. In other words, they presuppose/require the presence of the respective functional head since it is these functional heads that express the relevant interpretations (cf. Sigurdsson 2011). Thus, I propose that these functional heads denote a predicate relating individuals and contexts:  $\lambda x \lambda c$  speaker (x,c) and  $\lambda x \lambda c$  addressee (x,c).

Let us now look at the interpretation of referential expressions in attitude reports. Sentences that report what someone desires, hopes or dreams about can do so in different modes. The best known distinction between different modes of reporting is the one between *de re* and *de dicto*. On the *de dicto* reading of (58), Gianni has an attitude towards whoever happens to win the specific beauty contest. On the *de re* reading of (58), Gianni has an attitude towards a specific individual (the *res*), say, *Maria*, who we know has just won the relevant beauty contest. On the *de dicto* reading the definite description clearly constitutes an embedded RA. On the *de re* reading, the descriptive content of the definite DP in (58), is interpreted in the matrix clause as constituting the speaker's description of *Maria*, parallel to the discourse anaphoric use of the definite description in (52b) above. Can we thus assume that an embedded DP interpreted *de re* constitutes a DA? The interpretation of the definite description in (59) shows that this is indeed correct. In (59), the speaker gives the hearer additional information about the DR *Maria*, while specifying Gianni's attitude towards *Maria*. Of course, the definite description in (59) also has a *de dicto* reading that is irrelevant for our purposes here.

- (58) Gianni wants to date the winner of the Miss Italy contest  
 (59) Maria is a beautiful young woman. Thus, Gianni wants to date the winner of the Miss Italy contest

(58) and (59) only differ in the respect that while the discourse antecedent is established in the preceding clause in (59), the respective discourse antecedent must be accommodated in the input common ground, on the basis of which (58) is evaluated. In particular, we can assume that the descriptive content of the discourse anaphoric definite description in (58) serves to specify the *acquaintance relation* (cf. Lewis 1979) that the speaker holds with respect to the *res*. In the present account, specifying the so-called acquaintance relation is equivalent to specifying the respective discourse antecedent, that is to say, the relevant RA that a referential expressions in its *de re* reading connects to. In other words, the definite description in (58) is a DA that is linked to a functional head in the C-domain of the matrix clause.

It is often argued that DPs interpreted *de re* cannot be analysed as DAs, since also quantificational expressions allow for a *de re* reading (cf. Schlenker 2003). It is clear that the quantified expression itself may not function as a DA, but it may contain a DA, as in the example (60) below, discussed in detail in Maier (2011). Maier (2011) provides a context in which the description a *woman from South Carolina* is interpreted *de dicto* and takes wide scope over the quantified expression *every Red Socks player* which is interpreted *de re*. Maier (2011) convincingly argues that this scope paradox (cf. Bäuerle 1983) is resolved if the set quantified over by the universal quantifier, namely the set of Red Socks players, is a DA.

- (60) George thinks a woman from South Carolina loves every Red Socks player.

On the other hand, it should be clear from the discussion of example (52b) in the previous section that not every referential expression interpreted *de re* is a DA. If the expression interpreted *de re* has a syntactic antecedent in the matrix clause, the DA is illicit and replaced with a minimal pronoun, since the syntactic antecedent would constitute a more local binder provided that the same interpretation can be obtained with a minimal pronoun.

Let us briefly discuss Percus and Sauerland's (2003) puzzle involving quantified reports in mixed *de re* / *de se* contexts, to work out the difference between reports *de re* and reports *de se* and the special role that DAs have in these reports. It has been proposed that a *de se* belief is just a special kind of a *de re* belief, in which the acquaintance relation happens to be the identity relation. In other words a belief *de se* is a conscious belief *de re* about oneself.

The scenario is a bit complicated and discussed in detail in Maier (2011). During the beauty contest Elisa, Maria and Mathilde see their latest photoshoot.

Elisa takes a look and sobs, “I can’t make it. It is over for me”. Her *de se* belief can be reported as in (61a). Maria and Mathilde instead, not lacking self-confidence and not recognizing themselves in their photos, but not liking what they are seeing, exclaim: “She looks awful. She will be eliminated for sure.” Without realizing it, Maria and Mathilde express *de re* beliefs about themselves which can be reported as given in (61bc).

- (61) a. Elisa thinks she will be eliminated  
 b. Maria thinks she will be eliminated  
 c. Mathilde thinks she will be eliminated

Note that in such a mixed *de re / de se* scenario (62a) is felicitous: every girl has a (de re) belief that she herself should be eliminated. Percus and Sauerland note that (62b) is false, because Elisa thinks about herself (de se) that she should be eliminated.

- (62) a. Each girl thinks she will be eliminated  
 b. No girl thinks she will be eliminated

Now, Elisa is indeed voted out leaving a situation in which just Maria and Mathilde are left. In this reduced context (62a) is still true, but also (62b) becomes true. This implies, as Percus and Sauerland argue, that *de se* is more than just one among the many possible *de re* beliefs about the self: all three beliefs in the above scenario are *de re*, but only Elisa’s *de se* belief can falsify the negative report.

How can we explicate the difference between a report *de se* and a report *de re*? In the present account, the LF of the *de re* reading of (62a) can be given as in (63a). While the LF of the *de se* reading of (62b) is given as in (63b).

- (63) a. every x girl(x)  $\exists$  y givenDR(y) [x thinks that y will be eliminated  
 & S knows x=y ]  
 b. no x [girl (x) & x thinks x will be eliminated]

The crucial element in the LF in (63a) is the presence of a given DR *the girl on the photo* that y is connected with (for the *de re* interpretation of (61a), the respective DR is *Elisa* itself). In other words, *she* in (61bc) is analysed as a DA that despite minimality is licensed by a functional head in the matrix C-domain, since it gives rise via the description *the girl on the photo* to a possible *de re* ascription.

Note, however, that the LF-representation in (63b) incorrectly proposes that an expression interpreted *de se* is directly bound by an antecedent in the matrix clause. That expressions interpreted *de se* are primarily linked to the speaker of the embedded context in speech reports or to the author of the



embedded context for other attitudinal verbs is implicated by the use of a special class of pronouns, called logophoric pronouns in many languages (cf. Clements 1975, Sells 1987). In these languages a distinct set of logophoric pronouns exists for the sole purpose of referring to an antecedent whose speech, thoughts, feelings or general state of consciousness are reported. These pronouns are strictly interpreted *de se*.

It is argued most forcefully in Schlenker (2003) that referential expressions interpreted *de se* including logophoric pronouns are linked to the embedded context. In our approach, this implies that these expressions are licensed by a functional head in the embedded C-domain with the interpretation  $\lambda x \lambda c'$  author (x,c'), where c' refers to the embedded context. However, this functional head itself is licensed (linked to) a functional head that introduces the attitude holder in the matrix clause. In other words, the interpretation *de se* is composed of a *de dicto* part, namely the predicate author (x, c'), and a *de re* part which ascribes as the value of this predicate the attitude holder deriving the correct semantics of *de se* interpretations: while the attitude holder may not be aware of his own identity (for instance that his name is John), he is necessarily aware of the identity between the attitude holder and the author of the embedded context.

This account of *de se* interpretation is further supported by the observation that there is a similar binding asymmetry between pronouns *de se* and *de re*, as there is between DAs and bound pronouns. Percus and Sauerland (2003) observe that no obligatory *de se* anaphor can be c-commanded by a *de re* counterpart, while we have seen in this paper that no discourse anaphor can be c-commanded by a coreferent referential expression. Furthermore, as with discourse anaphors, this intervention effect is obviated, that is, an object can be interpreted *de se* if the intervening subject in the embedded clause has a quantificational or focus-effected interpretation (cf. Anand 2007). This parallelism speaks for a common treatment of DAs and pronouns interpreted *de se*, in my opinion, in terms of a (primary) licensing relation to a functional head in the relevant C-domain.

#### 5.4 Open ends and questions for further research

We have seen that both deictic pronouns (of first and second person) and third person pronouns can be used as bound pronouns which are devoid of any features and as DAs when they are endowed with formal features which serve to discriminate between potential discourse antecedents. It seems that anaphors, that is, reflexive and reciprocal pronouns are special in that they can only be used as bound pronouns indicating that they are inherently featureless or minimal pronouns in the sense of Kratzer (2009).

However, there are cases of syntactic anaphors in main clauses which are interpreted discourse-anaphorically, as is illustrated in (64) and (65) below.<sup>13</sup> Note that the bound pronoun interpretation of the reflexives in (64) and (65) would give rise to the presuppositions given in (64b) and (65b) respectively, which are not warranted in their context. Rather (64a) means that even Adenauer voted for Adenauer and (65a) means that only Adenauer did not vote for Adenauer. How is this possible?

- (64) a. Die meisten Abgeordneten haben für Adenauer gestimmt  
 Most representatives have voted for Adenauer  
 Selbst Adenauer hat für sich gestimmt  
 Even Adenauer has voted for himself
- b. % also the other members of the parliament voted for themselves
- (65) a. Fast alle Mitglieder haben für Adenauer gestimmt.  
 Almost all members have voted for Adenauer  
 Nur Adenauer hat nicht für sich gestimmt  
 Only Adenauer did not vote for himself
- b. % all other members voted for themselves

One way of accounting for these readings in (64) and (65) would be to assume that the reflexive pronouns in (64) and (65) are ambiguous between a minimal pronoun and a DA. It has been observed that long distance reflexives in embedded contexts are interpreted *de se* (cf. Huang & Liu 2001), suggesting that they are interpreted as being licensed by a head in the local C-domain. The two readings of the anaphor can then be represented, as given in (66ab), respectively.

- (66) a. Selbst / nur Adenauer hat für sich gestimmt  
 |-----|  
 b. F<sub>given</sub> selbst/nur Adenauer hat für sich gestimmt  
 |-----|

This account, of course, raises the question of when to use a pronoun and when to use an anaphor to establish a discourse-anaphoric reading. In the present context, the use of a pronoun should be preferred, since it does not give rise to ambiguity as the use of an anaphor does. However, as noted above, in the context of (64) and (65), the interpretation as a local anaphor is excluded, leaving both options as virtually unambiguous. I will have to leave this issue for further research.

<sup>13</sup> This was pointed out to me by Hubert Haider during a presentation of this paper at the meeting of the Austrian Society of Linguistics in Salzburg 2009.

So far, the standard assumption within GB and the principles and parameters framework has been that anaphors probably lack (referential) features, while pronominals are endowed with (referential) features. If the present approach is correct, then pronominals may contain  $\phi$ -features if used as DAs or lack them if used as bound pronouns and also anaphors may lack  $\phi$ -features if used as bound pronouns or contain them if used as DAs (as in the case of long distance anaphors).

This raises the question of how to distinguish between anaphors and pronominals. In the present approach, anaphors and pronominals can only be distinguished in the following way. Anaphors (putting long distance anaphor to the side) typically relate to the closest binder, while pronominals would skip the closest binder. Since binding relations by default are local, we can assume that anaphors are grammatically unmarked. Pronominals, on the other hand, would be marked in the lexicon as obviating binding by the closest functional head (that agrees with the verb) and hence must be interpreted as being disjoint from the local subject in the clause. While these observations are rather preliminary and are still in need of further argumentation, they can be taken as an initial step towards replacing the standard Binding Principles A and B within the approach to binding advocated in this paper. However, exploring this issue any further goes beyond the scope of this paper.

## 6 Conclusions

I have argued in this paper that the use of referential expressions is subject to pragmatic and grammatical conditions. In particular, I have argued that the assumption of a functional head that triggers access to the set of given DRs and acts as  $\lambda$ -binder of discourse anaphoric pronouns enables a simple explanation of the availability of discourse anaphoric interpretations. This move allows for a complete omission of indices as well as for the dispensation with cross-derivational comparisons necessary in a Reinhart-type of approach. In conclusion, the use of referential expressions follows from economy conditions in the syntax and from economy conditions that derive from the differences in feature structure of minimal pronouns, DAs and fully referential expressions.

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# Possessives as Extended Projections\*

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**Abstract:** Arguing that Saxon Genitive possessives like *Pers* in *Pers bil* ‘Per’s car’ consist of a phrasal possessor (*Per*) and a possessive head (*-s*), this paper proposes that the possessive head takes the possessor as a complement assigning a theta role and case to it. The possessive head builds an extended projection. The possessive head and the possessor may move inside that projection and the projection as a whole may move as a unit. It is proposed that Possessor Doubling Constructions like *Per sin bil* ‘(Per his=) Per’s car’ have the same analysis as the Saxon Genitives. More generally, it is shown that this type of account fares better than the standard analysis, which takes possessives to be part of the extended projection of the noun. The main languages discussed are German and Norwegian.

## 1. Introduction

Expressing possession in language has attracted a lot of attention in the literature.<sup>1</sup> This paper offers a uniform analysis of different possessive constructions in the noun phrase. The constructions under investigation consist of a possessor and a second element indicating a possessive relation between the possessor and the possessum. This second element is either *-s* or a possessive pronoun. The construction involving *-s* is labeled SAXON GENITIVE CONSTRUCTION (SGC) and the construction involving a possessive pronoun is called POSSESSOR DOUBLING CONSTRUCTION (PDC). These two-component possessives are illustrated with German and Norwegian in (1) and (2), where the possessive as a whole precedes the possessum head noun:

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\*This paper is based on a presentation given at the 14<sup>th</sup> Colloquium on Generative Grammar in Porto, Portugal, in 2004 and on an earlier working paper manuscript (Roehrs 2005b). I thank the reviewers for questions and comments. Special thanks go to Marit Julien for always being willing to help with questions about the Scandinavian languages. All shortcomings and misinterpretations are my own.

<sup>1</sup> For instance, see the collections of papers in Alexiadou & Wilder (1998) and Coene & D’hulst (2003); for typological surveys over possessive noun phrases and pronouns, see Koptjevskaja-Tamm (2003a) and Manzelli (1980), respectively; for model-theoretic semantics of possessives, see Barker (1995); for inalienable possession, see Guéron (2006); for recent discussion of possession in the clause, see Boneh & Sichel (2010).

- (1) Pre-nominal Saxon Genitive Construction
- a. *Peters Auto* (German)  
Peter's car  
'Peter's car'
  - b. *Pers bil* (Norwegian)  
Per's car
- (2) Pre-nominal Possessor Doubling Construction
- a. *Peter sein Auto*  
Peter his car  
'Peter's car'
  - b. *Per sin bil*  
Per his car

Multi-component possessives may also follow the possessum head noun with the qualification that to the best of my knowledge, West Germanic does not have a post-nominal PDC. Consider (3) and (4):<sup>2</sup>

- (3) Post-nominal Saxon Genitive Construction
- a. *die Eroberung Peters* (German)  
the conquest Peter's  
'Peter's conquest'
  - b. *lausn Péturs* (Icelandic)  
solution Peter's  
'Peter's solution'
- (4) Post-nominal Possessor Doubling Construction
- a. \* DET N PRON POSSESSOR (West Germanic)
  - b. *bilen hans Per* (Norwegian)  
car-DEF his Per  
'Per's car'

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<sup>2</sup> Both (3a) and (3b) are provided with abstract/theta possessum nouns (as they are sometimes given as marked with concrete possessum nouns; for German, see Lattewitz 1994: 119, 123; for Icelandic, see Sigurðsson 2006: 210, 218).

As pointed out by, among many others, Delsing (1998), multi-component possessives are quite common in Germanic. Interestingly, these possessives exhibit a number of cross-linguistic differences. I briefly mention three here.

First, not all languages have both possessive constructions. For instance, note that the PDC is only possible in earlier stages of English:

- (5) Canterbury and Chillingworth their books (Early Modern English)  
(Verhaar 1997: 96, Janda 1980: 249)

Second, comparing (2a) to (4a), languages may vary as to which position a certain possessive construction can appear in.<sup>3</sup> Third, contrasting (1) with (3), languages show differences in the syntactic distribution of possessives depending on what type of possessum noun (or possessor, for that matter) is used. I take these points of cross-linguistic variation to involve no “deep” differences in the relevant grammars.<sup>4</sup>

In this paper, I will focus on proper names like *Peter* as possessors and on concrete/non-theta nouns like *car* as possessum nouns. As to the investigated languages, the following analysis recruits German and Norwegian as representatives of the West and North Germanic languages. To make certain points, I will occasionally make use of different types of possessor and/or possessum nouns as well as other languages.

To sum up thus far, possessives involve two components: a possessor and an element indicating the possessive relation between the possessor and the possessum. Second, putting certain cross-linguistic differences aside, the SGC

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<sup>3</sup> Note that the modern West Germanic languages do not tolerate simple possessive pronouns in post-nominal position either (with Yiddish being the exception presumably due to Slavic influence). I take this to mean that possessive pronouns have a tighter connection to D in West Germanic than in North Germanic. As I will show below, this is particularly clear in German as opposed to Norwegian.

<sup>4</sup> In certain ways, this stance seems to be echoed by Koptjevskaja-Tamm (2003a), who points out that possessives are prone to grammaticalization. For instance, the morphological manifestation of the *-s* in SGC ranges from a case suffix in Old High German to a cliticized element in English to an (apparently) free-standing morpheme in West Flemish (for examples, see the main text). I refer to this varying element as *-s* throughout the paper.

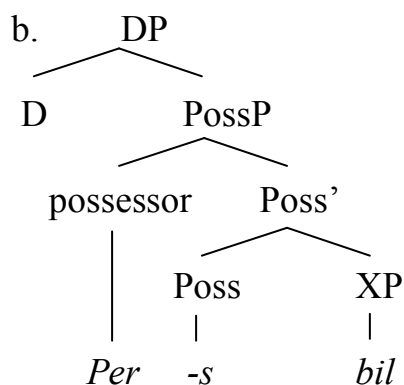
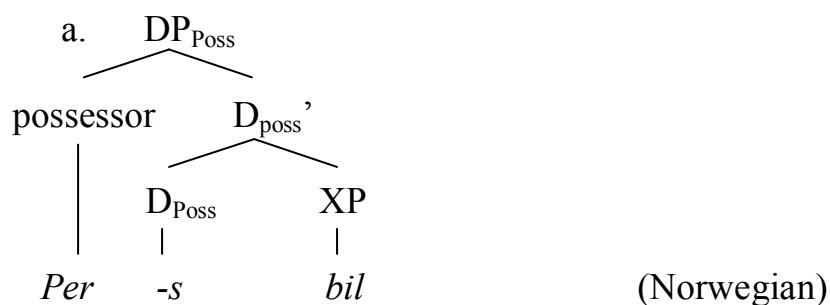
More generally, this means that some of the following discussion has to be taken with a pinch of salt as it is not always easy to determine which construction is at what stage of grammaticalization in the individual languages. In a sense, then, the proposal to be developed intends to provide a general framework for the syntactic analysis of possession.



and the PDC can appear before or after the possessum. I will propose that these commonalities in composition of elements and syntactic distribution are not accidental. I will make the theoretically desirable proposal that these types of possessives have the same underlying structure.

The second main goal of this paper is to provide an alternative perspective to the – what some scholars might call – standard view on the structure of possessives. As just illustrated, multi-component possessives consist of a possessor (e.g., *Per*) and a possessive element (e.g., *-s*). I label the latter Poss. The standard account treats these complex possessives as non-constituents such that Poss is part of the extended projection of the head noun and the possessor is in the specifier position of Poss (for discussion and references, see, e.g., Alexiadou, Haegeman & Stavrou 2007). One variant of this type of analysis is illustrated in (6a) and, abstracting away from movement of the possessor and *-s* to the DP-level, another is provided in (6b):

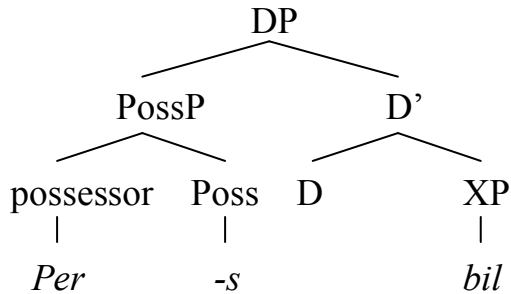
(6) *Two Variants of the Standard Analysis*



In contrast, in the proposal to be developed here, complex possessives make up constituents. Specifically, the possessor and Poss form a PossP (Anderson 1983-

83). Importantly, the latter is not part of the extended projection of the head noun. For concreteness, I put PossP in Spec,DP:

(7) *Proposal to be Developed*



Although I will devote some attention to a direct comparison between the proposals in (6) and (7), I will concentrate on the detailed discussion of (7). In the course of this discussion, I will flesh out PossP in (7) in various ways for both the SGC and the PDC.

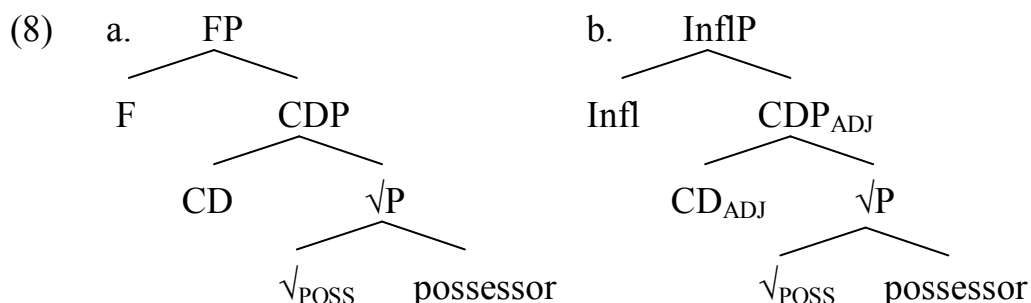
The three main claims of this paper can be summarized as follows:

- (i) possessive heads (Poss) are predicates that take the possessor as an internal argument and assign case to it
- (ii) these multi-component possessives form constituents inside the matrix DP
- (iii) possessive heads build extended projections

The first two claims go back to Anderson (1983-84). The third claim is based on more recent work (Leu 2008, Roehrs 2005b). Below I provide arguments for all three claims. Since the third claim is more recent, I briefly outline two arguments in the introduction. These points serve to lend some initial credence to the third claim.

The first argument derives from the solution to an interesting puzzle. Specifically, as is well known, possessive heads can be of different lexical categories. To name just two, they can be adjectival and prepositional. Now, although possessive heads may involve different lexical categories, they all have the same basic possessive semantics. I will propose that an abstract, categoriless root ( $\sqrt{\quad}$ ) forms the possessive head at the bottom of the tree. Immediately

dominating this abstract head, there is a category-determining head CD, which lexically specifies the possessive root (cf. Marantz 1997). Finally, depending on the kind of category-specifying head, the topmost head F of the extended projection may vary. For instance, F may stand for Infl(ection) with adjectival possessives. Compare (8a) to (8b):



A second argument for extended projections of possessives derives from movement facts. I will argue below that PossP in (7), fleshed out now as (8), is base-generated low in the noun phrase and can undergo movement as a unit to the left. This accounts for the pre- and post-nominal possessives in (1-2) and (3-4). Furthermore, while the possessive head and the possessor can move independently of each other inside the extended projection, as suggested by the mirror image-like distributions in (2b) and (4b), the individual components cannot undergo subextraction out of FP thereby “stranding” the other component. To be clear then, deriving the different lexical categories of possessives and explaining certain restrictions on movement provide some initial argumentation for possessives as extended projections, the third claim above.

To sum up this introduction, this paper focuses on the compositional and distributional commonalities of possessives. Putting aside many interesting language-specific differences, I will provide a homogenous structural account for the Saxon Genitive Construction and the Possessor Doubling Construction. Unlike the standard account, I will argue for a new structural proposal where possessives form extended projections in their own right and as such, they form constituents. The commonalities follow from the same internal syntactic

structure and the cross-linguistic variation is held to follow from different morphological realizations on the surface.<sup>5</sup>

The paper is organized as follows: after giving some arguments that possessives are in specifier positions, I lay out the proposal in more detail. Section 3 provides some evidence in favor of the view that possessives contain heads and section 4 discusses some arguments that point in the same direction. Before I summarize the main findings of this paper, I discuss two potential counterarguments to the present analysis in section 5 showing that they are not conclusive.

## 2. Proposal

In the first part of this section, I present arguments that possessives or components thereof are not in D but rather in specifier positions. Next, I develop my proposal that possessives build extended projections. Finally, I provide some arguments for the proposal briefly comparing the new account to the standard analysis.

### 2.1. *Possessive Components are not in D*

Abney (1987: 79) proposes (but ultimately “disprefers” the idea, p. 85) that the *-s* in the Saxon Genitive Construction in (9a) is in D. This fits well with the standard analysis, (9b), where I abstract away from the possibility that both the possessor and *-s* have moved to the DP-level:

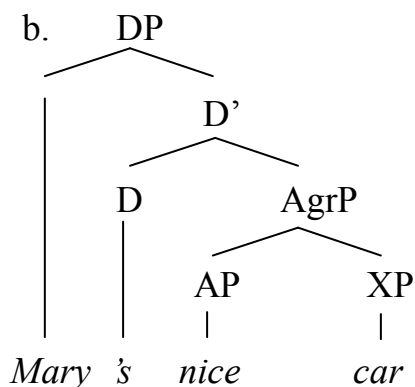
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<sup>5</sup> The syntax of the cases in the main text is quite different from Possessor Raising Constructions (for recent discussion, see Lee-Schoenfeld 2006, from which the following datum is taken):

- (i) *Tim hat der Nachbarin das Auto gewaschen.* (German)  
 Tim has the-DAT neighbor the car washed  
 ‘Tim washed the neighbor’s car.’

Of the many interpretative and distributional differences, I mention just two: the dative possessor is understood as benefactive or malefactive and adverbial elements such as *gestern* ‘yesterday’ may intervene between the possessor and the definite possessum noun phrase.

(9) a. Mary's nice car



However, considering overt distributional evidence from certain varieties of Scandinavian, (10a-c), one notices that possessives may co-occur with definite articles:

- (10) a. *Karins **den** stora bilen* (Finland Swedish)  
 Karin's the big car-DEF  
 'Karin's big car'  
 (Santelmann 1993: fn. 19)
- b. *naboens **den** sribede kat* (Danish)  
 neighbor-DEF's the striped cat  
 'the neighbor's tabby cat'  
 (Delsing 2003: 26)
- c. *minn **inn** hvassi hjorr* (Old Icelandic)  
 my the sharp sword  
 'my sharp sword'  
 (Wessén 1970: 49, Heusler 1932: 126)

It is unlikely that articles as heads are adjoined to the phrase containing the adjective (cf. (9b)). Rather, it is standardly assumed that articles are in D. If so, the possessive including *-s* cannot be in D. Furthermore, possessives can also occur lower in the structure, namely between the determiner and the head noun. In fact, they can surface on either side of the same adjective:

- (11) a. *in dhemu heilegin **daniheles** chiscribe* (Old High German)  
 in the holy Daniel's scripture  
 'in Daniel's holy scriptures'  
 (Demske 2001: 227)
- b. *in dheru **sineru** heilegun chiburdi*  
 in the his holy birth  
 'in his holy birth'  
 (Harbert 2007: 155)

I assume that the determiners *dhemu* and *dheru* in (11a-b) are in D. It is clear that the possessive in (11a) cannot be in D.<sup>6</sup> Furthermore, assuming that D can host only one element, I conclude that the possessive co-occurring with the determiner in (11b) cannot be in D either. I turn to evidence that possessives are in specifier positions.

## 2.2. Possessives as a whole are in Specifier Positions

As is well known, possessives – be they pronouns or full DPs – may occur in different positions in one and the same language. In fact, they can appear not only in different positions before the head noun, as just illustrated with Old High German in (11), but may also follow the head noun:

- (12) a. *den gamle skoen **min*** (Norwegian)  
 the old shoe-DEF my  
 'my old shoe'
- b. ***min** gamle sko*  
 my old shoe
- (13) a. *(ther) fater **min*** (Old High German)  
 the father my  
 'my father'  
 (Demske 2001: 173)

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<sup>6</sup> There is no claim here that the genitive *-s* on *danihel* 'Daniel' in (11a) has the same status in modern German. The important point here is that this possessive or any of its components cannot be in D.

- b.     *(ther) min fater*  
           the   my father

First, it is clear that the possessive pronoun in (12a) cannot be in D. The same holds for (13a-b). This is particularly clear when the determiner is present. However, one might still claim that the possessive pronouns are in lower head positions. Interpretative restrictions on the distribution of possessives with deverbal possessum nouns militate against such a claim (for some general differences between non-theta and deverbal/theta possessum nouns, see Koptjevskaja-Tamm 2003b).

Grimshaw (1990) argues for a distinction between result and process nouns (for a convenient summary of Grimshaw's work and a following critique, see Alexiadou 2001: 10ff). To set the stage, I start with result nominals. One can observe that just like above, the possessive can follow or precede the head noun:

- (14) a.     *die Eroberungen Cäsars*                     (German)  
           the conquests    Caesar's  
           'Caesar's conquests'  
        b.     *Cäsars Eroberungen*  
           Caesar's conquests

Something similar holds for process nominals. However, here the distribution of two co-occurring arguments correlates with an interesting interpretative restriction.

Note that unlike concrete/non-theta nouns, these nouns assign "verbal" theta roles such as agent and theme. As pointed out in Gallmann (1990: 113) and Harbert (2007: 150), the agent must precede the theme, (15a). In fact, while the theme may occur in initial position, it can do so only in the absence of the agent, (15b). Interestingly, if the agent is not a DP but a PP, the theme can precede the agent, (15c):

- (15) a.     *Cäsars Eroberung Galliens*  
           Caesar's conquest   Gaul's  
           'Caesar's conquest of Gaul'

- b. ***Galliens Eroberung*** (\**Cäsars*)  
Gaul's conquest by Caesar
- c. ***Galliens Eroberung durch Cäsar***  
Gaul's conquest by Caesar

Besides this interpretative restriction on the distribution of arguments, Binding facts show that agents are higher than themes and extraction facts indicate that hierarchically higher genitive arguments block the extraction of lower ones (for details, see Cinque 1980, Giorgi & Longobardi 1991: 68, Mallén 1991, Valois 1991, Ticio 2003: 20ff). There is good evidence then for some restrictions on the interpretation and distribution of the DP-internal arguments.

Assuming that the agent argument c-commands the theme argument in their base-generated positions, these restrictions are easy to capture by movement that is subject to Relativized Minimality (cf. Rizzi 1990).<sup>7</sup> Considering (14) and (15), it is clear that arguments can move across the head noun. A simple way to capture this fact is that unlike the head noun, the arguments involve phrases. As phrases, the arguments can move across the head noun. As to the aforementioned restrictions, given a certain base-generated order, two DP-arguments are subject to Relativized Minimality and cannot cross each other, (15a-b). In contrast, a DP-argument can cross a PP-argument, (15c). If these considerations are viable, then possessives cannot be heads but involve phrases.

### 2.3. *The Proposal*

In this subsection, I propose in detail that possessives involve extended projections. Making some refinements, I will basically follow Anderson (1983-84) in treating possessives as involving Possessive Phrases (cf. also Abney's 1987: 84-85 KP in Spec,DP). However, I will argue for the presence of more structure on top of PossP. This additional structure will allow me to account for the different lexical categories of possessives, certain movement restrictions, and other facts to be discussed below.

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<sup>7</sup> An account involving different base-generations seems less straightforward (but see section 3.1 for non-theta nouns).



Discussing the Saxon Genitive Construction (SGC) in English, Anderson makes a distinction between concrete and abstract nouns (this basically corresponds to my non-theta and theta nouns). She proposes that the former type involves a lexical possessive head ('s), which projects a Possessive Phrase (PossP) and assigns case and a theta role to the possessor (cf. the structure in (7) again). In contrast, Anderson argues that it is the abstract/theta noun itself that assigns a theta role to the possessor and 's is simply inserted to assign case. The latter option does not involve a PossP. As such, possessives with non-theta and theta nouns do not involve the same structure.

While I will follow many aspects of Anderson's proposal, I will diverge from her in certain ways. For instance, I will propose that possessives with both non-theta and theta nouns involve PossP and, in addition, more structure. Furthermore, I will extend her analysis to the Possessor Doubling Construction (PDC) (for the latter parallelism, see, e.g., Fiva 1985, Krause 1999, and also Weiß 2008). Consider this in more detail.

Both the SGC, (16a-b), and the PDC, (16c-d), consist of two clearly separable elements: head-like pronouns like *se*, *'s*, *ihr*, or *d'r* and phrasal possessors like *Marie*, *Mary*, *der Maria*, or *Mieke*:

- |      |    |   |                |
|------|----|---|----------------|
| (16) | a. | <i>Marie se boek</i><br>(Haegeman 2003: 221)  | (West Flemish) |
|      | b. | Mary's book   | (English)      |
|      | c. | <i>(der) Maria ihr Buch</i><br>the Mary her book                                    | (German)       |
|      | d. | <i>Mieke d'r boek</i><br>Mary her book<br>(de Schutter 1994: 459, Verhaar 1997: 93) | (Dutch)        |

With Anderson (1983-84), I propose that possessives are complex structures. They involve a PossP, which consists of a head labeled Poss and a complement to the right, the possessor. To be precise, I claim that the head Poss is a predicate that takes the possessor as its sole argument. However, I assume that the possessive head does not only involve a PossP but also involves more

structure (also Leu 2008: 149ff, Roehrs 2005b). To motivate this claim, I will discuss certain properties shared by possessives and other elements.

First, possessives pattern like demonstratives in that they can both precede articles ((17a) is a googled example by Marit Julien, p.c.; (17b) is from Julien 2005b: 113):<sup>8</sup>

- (17) a. *mit (det) første kys* (Danish)  
 my the first kiss  
 ‘my first kiss’
- b. *dette (det) høje hus*  
 this the high house  
 ‘this tall house’

Second, possessives are also similar to adjectives, both with regard to syntactic distribution and morphological inflection. I illustrate this with a somewhat old-fashioned possessive in German. Note that both elements have the same basic internal makeup:

- (18) a. *die sein-ig-e Familie* (German)  
 the his-ADJ-INFL family  
 ‘his family’
- b. *die lust-ig-e Familie*  
 the fun-ADJ-INFL family  
 ‘the funny family’

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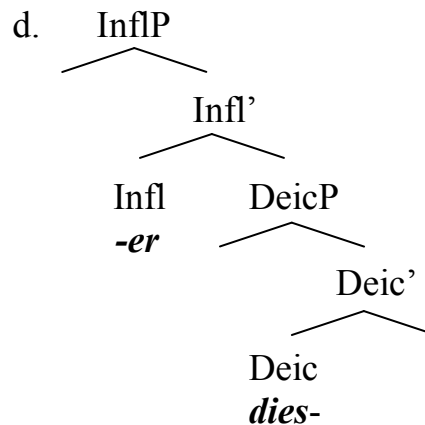
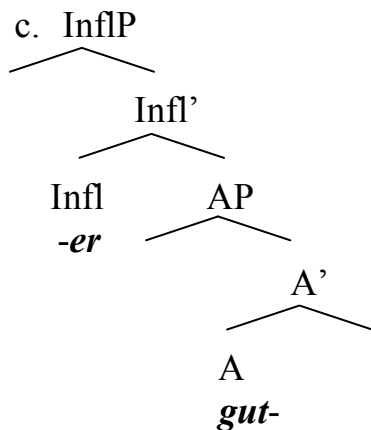
<sup>8</sup> Marit Julien (p.c.) informs me that possessives do not occur with definite articles in Norwegian (although demonstratives and definite articles do co-occur). In the West Germanic languages, the occurrence of a definite article with a preceding possessive pronoun or demonstrative pronoun is not possible at all. Given the fact that the Scandinavian languages tolerate two determiner elements, this absence in West Germanic is unlikely to follow from a structural account involving the same position. In order to capture their non-occurrence in the left periphery, one could either assume some kind of Doubly-filled DP Filter for West Germanic (e.g., Abney 1987: 271; Giusti 1997: 109, 2002: 70) or one could follow the functional account of Haspelmath (1999).

To repeat, possessives can precede and follow definite articles. As such, possessives behave like demonstratives when they are pronominal or like adjectives when they are adjectival.

In the context of Grimshaw (1991), Corver (1997) proposes that adjectives involve extended projections. This proposal is extended to demonstrative pronouns by Leu (2008) and Roehrs (2013a), among others. Simplifying somewhat, both structures can be illustrated as follows where the A(djective) and the Deic(ic) head at the bottom of the tree undergo head movement to “pick up” the inflection at the top (not shown here):

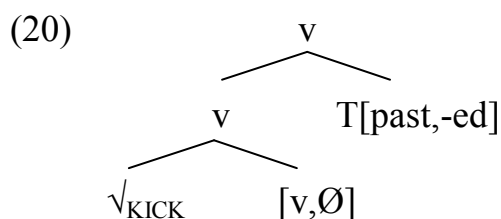
(19) a. *gut-er*  
good-INFL

b. *dies-er* (German)  
this-INFL



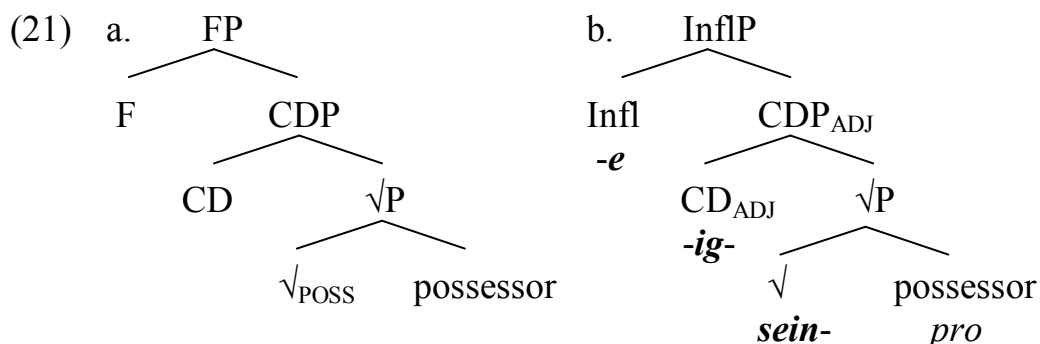
With this in mind, recall the distributional and inflectional similarities between possessives, on the one hand, and adjectives and demonstratives, on the other. Furthermore, as seen above, possessives can be of different lexical categories. Crucially though, all these possessive elements have the same basic semantics. These properties present an intriguing state-of-affairs.

To solve this puzzle, I assume with Marantz (1997) that lexical items have category-neutral roots ( $\sqrt{\quad}$ ) that have to be specified with regard to their part of speech. The roots are at the bottom and a category-defining head is immediately above. Illustrating with the implementation in Embick & Marantz (2008: 5), the English verb *kicked* has the root KICK and the category-defining head *v*. The tense inflection is at the top:



This categorization of roots is argued to hold for open-class vocabulary items. Here, I would like to extend this proposal to other elements, specifically the possessive heads, where there is good evidence for different lexical categories. Assuming that each individual part projects a phrase, we wind up with extended projections, similar to regular adjectives and demonstratives.

In more detail, I propose that the possessive head *Poss* involves a category-neutral root at the bottom of the tree. Immediately on top is a category-determining head (CD) that specifies the lexical category of the root. Finally, the functional head (F) at the very top may vary with the lexical category of the lower part of the structure. Consider the general structure in (21a). To be more concrete, (21a) can most straightforwardly be fleshed out with adjectival possessives such as German *seinige* ‘his’ in (21b): *sein-* ‘his-’ is the root, *-ig-* is the category-determining head, and *-e* is an inflectional head. I assume for now but argue later that the possessor is the null argument *pro*:



To bring about the final form in (21b), the root undergoes head movement via CD to F. For expository purposes, I will, for the most part, not distinguish between CDP and  $\sqrt{P}$  in the remaining discussion collapsing them into PossP and I will not be specific about the different instantiations of FP. The main point here was to argue that the different lexical categories of possessives can be captured by category-defining heads, which results in extended projections.

Having established that possessives are complex phrases, I turn to the question as to where possessives are located in the larger DP-structure. For adjectival possessives, I propose that they are in positions similar to regular adjectives. With Cinque (2005) and others, I assume they are in specifier positions. Furthermore, due to their semantics, I suggest that they are usually in a very high adjectival position. In other words, the lexical category and the semantics of the possessive, at least in part, determine the position of the possessive in the DP.<sup>9</sup> Next, I turn to pronominal possessives, which deserve more space.

In German the possessive pronoun *sein* ‘his’ is completely parallel to the indefinite article *ein* ‘a’. This point can be made in two ways. First, as is well known (Duden 1995), both of these elements have the same inflections and are often referred to as *ein*-words. Second, both *sein* ‘his’ and *ein* ‘a’ take adjectives with the same endings. I illustrate this with the masculine singular in the four morphological cases: nominative in (22a), accusative in (22b), dative in (22c), and genitive in (22d):

- (22) a. *sein / ein kalter Saft*  
 his / a cold-ST.NOM juice
- b. *durch seinen / einen kalten Saft*  
 through his / a cold-WK juice
- c. *von seinem / einem kalten Saft*  
 of his / a cold-WK juice
- d. *trotz seines / eines kalten Saftes*  
 despite.of his / a cold-WK juice-GEN

To be clear, the presence of the possessive element does not make a difference for adjective endings in German. A simple way to account for the same inflections, both on the *ein*-words themselves and on the adjectives, is to assume that possessive pronouns are composite forms consisting of a possessive

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<sup>9</sup> Considering the different positions and the different lexical categories of possessives, it should be clear that the distribution of possessives is not simply a matter of genitive case assignment. Rather, I take it that a number of different, in part language-specific factors are responsible. However, as I argue below, there is case assignment inside the possessive.

element and *ein*.<sup>10</sup> For instance, *sein* ‘his’ consists of *s-* and *ein*. I will categorize *s-* as a demonstrative-like element.<sup>11</sup>

Turning to the PDC, *Peter* appears in front of *sein*. Importantly, there is no change on either the possessive pronoun itself or the adjective. I illustrate this with the masculine nominative singular:

- (23) a. *sein kalter Saft*  
           his cold-ST.NOM juice  
       b. *Peter sein kalter Saft*  
           Peter his cold-ST.NOM juice

Before I related the PDC in (23b) to the simple possessive pronoun in (23a) in detail, I compare the PDC and the SGC in two aspects.

<sup>10</sup> A reviewer points out that the possessive components of the pronouns *m-ein* ‘my’, *d-ein* ‘your(sg.informal)’, and *s-ein* ‘his’ appear elsewhere in German: *m-ich* ‘me/myself’, *d-ich* ‘you/yourself’, and *s-ich* ‘himself’. Second, the remaining possessive pronouns (i.e., *ihr* ‘her/their/your(formal)’, *unser* ‘our’, and *euer* ‘your(pl.informal)’) involve feminine and plural forms. Similar to other nominal elements in German, they pattern together. Specifically, they form a different set in that these pronouns cannot be neatly parsed into subparts. For this second set, I assume that the possessive element and *ein* undergo Fusion bringing about opaque surface forms. Finally, assuming that inflections involve a separate head in syntax, they will not undergo this Fusion. As such, only the stem forms between the two sets of possessive pronouns differ but not their inflections (cf. the masculine dative forms *s-ein-em* ‘his’ vs. *ihr-em* ‘her’).

<sup>11</sup> Possessive pronouns seem to be hybrid in character. As Sternefeld (2008a: 221) points out, they may assign case like certain adjectives do (see section 3.2). In contrast, their word order properties are similar to those of demonstratives, as seen above. Furthermore, Roehrs (2013a) argues that irregular demonstrative forms can be explained by Fusion. In the previous footnote, I suggested something similar for a certain set of possessive pronouns.

In view of these sets of properties, the question arises if there is a category-defining head in the possessive structure and if so, what it is. There are two options: either there is such a head but it does not categorize the root strictly allowing for the hybrid properties, (ia). Alternatively, there is no such head, (ib):

- (i) a. [FP F [CDP Ø [√P *s-*]]]  
       b. [FP F [?P *s-*]]

As far as I can tell, the evidence for a null category-defining head is, at best, meager. To maintain structural simplicity, I will assume (ib) and classify possessive elements like *s-* as demonstrative-like. More generally, this might imply that there are category-inherent possessive elements (e.g., *s-ein* ‘his’) and category-derived ones (e.g., *sein-ig-e* ‘his’).

First, consider adjectives following the SGC. As can be observed in (24), the presence of the possessive does not make a difference with regard to the endings on the adjective:

- (24) a. *(Peters) kalter Saft*  
Peter's cold-ST.NOM juice
- b. *durch (Peters) kalten Saft*  
through Peter's cold-ST.ACC juice
- c. *von (Peters) kaltem Saft*  
of Peter's cold-ST.DAT juice
- d. *trotz (Peters) kalten Saftes*  
despite.of Peter's cold-WK juice-GEN

More generally, possessives in German, be they simple possessive pronouns, the PDC, or the SGC, do not have an influence on adjectival inflection. There is a second similarity between possessives containing overt possessors.

The possessor in both the SGC and the PDC has case. This can be illustrated with the dative:

- (25) a. *der froys auto* (Yiddish)  
the-DAT woman's car
- b. *dem Mann sein Auto* (German)  
the-DAT man his car

It is clear that the noun does not assign dative in either Yiddish or German. I propose that the possessive head assigns case to its argument, the possessor. Assuming that case assignment is a matter of heads, there is evidence then for the presence of a head inside the possessive. In other words, theta-role assignment coincides with case assignment inside the possessives. Given this proposal, the connection between these semantic and morpho-syntactic aspects avoids the assumption of “optional” case assignment with non-theta possessum nouns:

- (26) a. Peter's car  
 b. the car

In particular, the syntactically optional presence of the possessive is explained by the fact that, when a possessive predicate is present, so is the possessor and crucially also *vice versa*. In other words, the presence of the possessor and the possessive head has nothing to do with head nouns like *car*. To sum up, possessives as a whole have no influence on adjectival inflection and possessive heads assign case and a theta role to the possessor.

To derive the similarities in inflection on (following) adjectives and case on (preceding) possessors, I propose that the PDC and the SGC have the same basic structures. Furthermore, as proposed above, *pro* functions as the argument for simple pronominal possessives. In other words, simple possessive pronouns are analyzed here as PDC. Now, recalling the composite analysis of possessive pronouns, the possessive as a whole is in Spec,DP and D involves an indefinite article, *ein* with PDC or null with SGC. With possessives instantiating phrases and articles involving heads, both of these elements can be hosted by the DP-level in the required order. The schematic structures are as follows (note that (27d) is out as the possessive head has no overt host):<sup>12</sup>

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<sup>12</sup> Two comments are in order here. First, unlike the Scandinavian dialects in (10), Yiddish allows an indefinite article to intervene between the possessive and the possessum:

- (i) *mayner a guter khaver* (Yiddish)  
 mine a good friend  
 'a good friend of mine'

This makes Yiddish similar to (27a-b). However, note that the indefinite article in Yiddish is not part of the possessive pronoun. In Roehrs (2011b), I propose that the possessive pronoun in Yiddish is in a position higher than the DP-level.

Second, it is often assumed that possessive pronouns are the spell-out forms of the relevant personal pronouns and possessive *-s*. For instance, at a more abstract level, *his* consists of *he* and *-s* (cf. Stockwell *et al.* 1973: 676). So, traditionally, possessive pronouns are taken to be equivalent to the SGC. In the main text, I argued that possessive pronouns are equivalent to possessive *s-* only, which can be preceded by a possessor such as *Peter* and must be adjacent by *ein*.



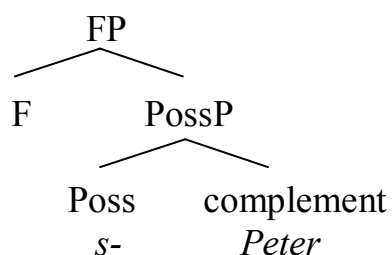
- (27) a.  $[_{FP} \text{Peter } s\text{-}] \text{ein}_D \text{Buch}$   
           Peter his     book  
 b.  $[_{FP} \text{pro } s\text{-}] \text{ein}_D \text{Buch}$   
           his         book  
 c.  $[_{FP} \text{Peter's}] \emptyset_D \text{Buch}$   
           Peter's     book  
 d. \*  $[_{FP} \text{pro 's}] \emptyset_D \text{Buch}$   
           's           book

It is interesting to point out that a definite determiner in the appropriate form can be added before the possessor in German in (27a), yielding *dem Peter sein Buch*, but not in (27c). Krause (1999: 203) proposes that *-s* and the possessive pronoun are allomorphs. In simplified terms, if the possessor is phrasal, Poss is spelled out as *sein*, (27a-b); if the possessor is head-like, Poss is spelled out as *-s*, (27c). In what follows, I will be more specific about the structures and derivations involved in (27).

I argued above that possessives involve extended projections. I illustrate the SGC and the PDC with the German PDC in (28a). The proposed underlying structure for pronominal possessives is given in (28b):

- (28) a. *Peter sein Buch* (German)  
           Peter his book  
           ‘Peter’s book’

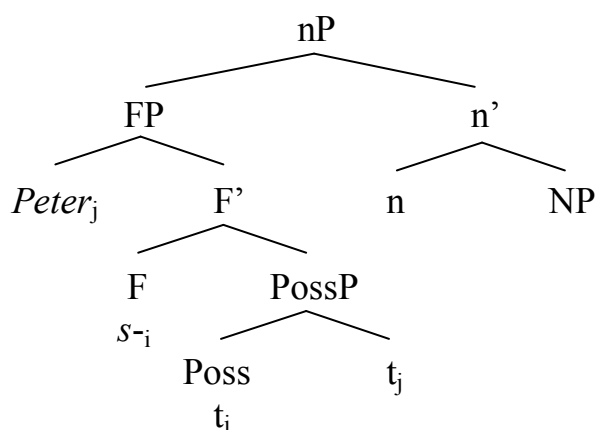
b. *Extended Projection of Possessives (Simplified)*



I propose that all possessives have this (simplified) underlying structure. As such, I make the strongest and theoretically, most interesting claim. Divergences from this structure are taken to hold on the surface only.

Next, the possessor in the complement position in (28b) may move to Spec,FP. Furthermore, the possessive element *s-* may move to F. Importantly, this reordering makes use of the extended projection of the possessive head. With all syntactic movements completed inside FP, FP itself is now ready to be merged in Spec,nP:

(29) *Base Position of Possessives inside the DP*

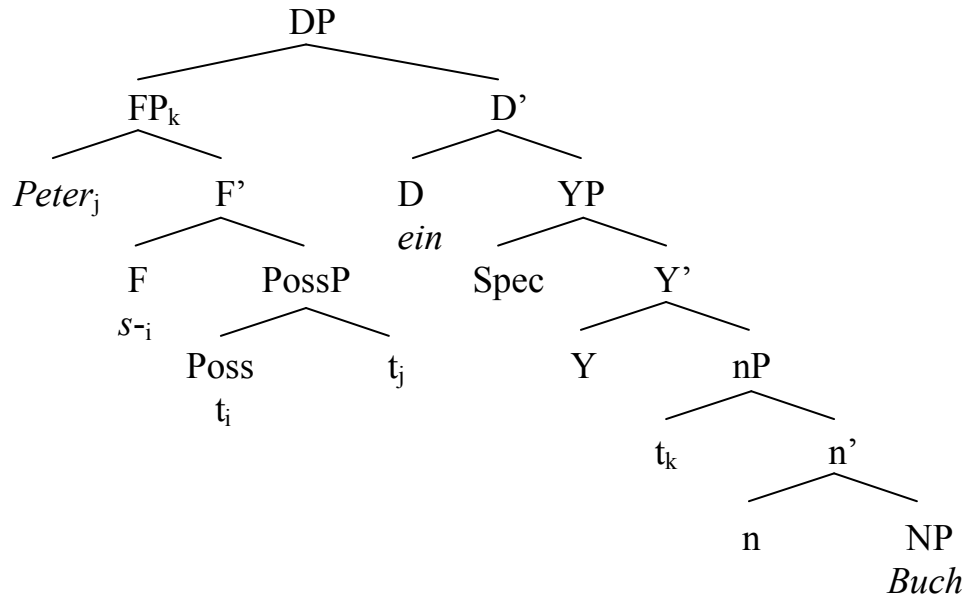


Unless indicated otherwise, I assume throughout that FP is merged in Spec,nP.<sup>13</sup>

Recall that pronominal possessors are similar to demonstrative pronouns. I propose that FP raises to Spec,DP to license D as in Longobardi (1994), Julien (2005a), and Roehrs (2009a). Finally, possessive *s-* is supported by *ein* in D under adjacency. This completes the derivation of *Peter sein Buch* ‘Peter’s book’:<sup>14</sup>

<sup>13</sup> As mentioned above, I focus here on non-theta nouns. As for theta head nouns, depending on the theta-role to be assigned to the possessive (cf. (15)), FP is merged in different positions in the nP-shell (cf. Valois 1991).

<sup>14</sup> Note that YP in (30) stands in for a number of intermediate phrases that can host other elements, for instance, adjectives. For simplicity’s sake, I abstract away here from the finer (i.e., intermediate) structure of the noun phrase (but for detailed discussion, see Julien 2005a and Roehrs 2009a).

(30) *Position of Possessives after Movements inside the DP*

Below, I provide evidence for each of these movements: the possessor moving to Spec,FP, the possessive head Poss moving to F, and FP as a whole moving to Spec,DP.

To repeat, the possessive element and *ein* combine under adjacency. Now, adjacency between the possessive head and *ein* in D only holds if FP is in Spec, DP and the possessor has moved to Spec,FP. This is the case in (30). Interestingly, these assumptions also rule out some ungrammatical cases. For instance, unlike certain Scandinavian dialects (see section 4.4), German cannot have a post-nominal PDC, (31a), or a pre-nominal PDC with the possessor left in situ, that is, in the complement position of Poss, (31b):

- (31) a. \* *das<sub>D</sub> Auto sein Peter*  
           the car his Peter  
       b. \* *sein Peter D Auto*  
           his Peter car

In both (31a-b), the possessive element is not adjacent to D, which hosts *ein*. The claim that possessive pronouns involve composite forms where the relevant components are subject to adjacency rules out the cases in (31). Note in this respect that SGC do not involve possessive pronouns. As such, they can occur

in post-nominal position, as seen above. The assumption that possessive pronouns are composite forms has more explanatory power.

It is usually assumed that the phi-features of a noun phrase originate with different heads inside that noun phrase; for instance, gender originates with the head noun N, number with Num, and person with D. As has been noted before (e.g., Behaghel 1923: 638), there is a person restriction on the PDC in that the possessive cannot be in the first or second person, (32a-b). To find a plausible analysis, I also consider a certain pronominal form that morpho-syntactically, is third person plural but semantically, is ambiguous in its reference: *sie* can be third person plural or, when used as a type of formal address, second person singular or plural. In the latter case, this element is usually capitalized (not shown here). All these interpretations are possible in (32c):<sup>15</sup>

- (32) a. \* *dir Idioten dein Auto*  
           you idiot    your car  
       b. \* *uns Linguisten unsere Bücher*  
           us linguists    our    books  
       c. *ihnen ihre Bücher*  
           them their books  
           ‘their books’  
           ‘your books’

Given the different felicitous readings in (32c), the ungrammaticality of (32a-b) is presumably not due to the semantics but rather to a morpho-syntactic restriction. Semantically, interpretations involving second person elements are clearly possible, (32c). Morpho-syntactically, the ungrammatical data in (32a-b) are in the first or second person but the felicitous example in (32c) is in the third person. Considering my proposal that possessive pronouns are composite forms and possessives as a whole involve extended projections, one can formulate a straightforward morpho-syntactic account for this restriction in person.

As discussed above, possessive pronouns are composite elements consisting of a possessive element and *ein*. I would like to suggest that third-

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<sup>15</sup> Note that these pronominal DPs can be arguments in German: *Sie haben mir Esel Geld geklaut* ‘They stole money from me (donkey)’ (see Roehrs 2005a: 256).

person possessive pronouns such as *sein* ‘his’ have a possessive element in a head position but that first- and second-person possessive pronouns such as *mein* ‘my’ and *dein* ‘your’ involve a possessive element as a phrase. In more detail, I propose that third-person *s-* is the possessive head, (33a), but that first-person *m-* is in the complement position of a null possessive head, (33b). The element *ein* originates in the matrix noun phrase in both cases:<sup>16</sup>

(33) a. [DP [FP XP<sub>k</sub> [PossP *s*-Poss t<sub>k</sub> ]] *ein* ... ]

b. [DP [FP [PossP POSS *m-* ]] *ein* ... ]

Recall again that the possessor marked as XP in (33a) has to move to Spec,FP to bring about adjacency.

If *m-* is in the complement position, then one can explain the person restriction noted above. Since the possessive head takes only one complement, this slot is already taken by the first-person possessive element but not by the third-person one. Consequently, the former does not allow a(nother) possessor but the latter does. The same argumentation extends to second-person possessive elements.<sup>17</sup>

To capture this restriction in the standard account, one could put *mein* ‘my’ in a specifier position and *sein* ‘his’ in a head position. For instance, *mein* could be in Spec,DP and *sein* in D. Unlike the former, the latter type of pronoun would tolerate a possessor in Spec,DP. However, taking these elements as

<sup>16</sup> Note that my claim about the different positions of the relevant possessive elements is in keeping with Cardinaletti (1998) and Cardinaletti & Starke (1999), who propose that pronouns may differ in structural size (cf. also Fiva 1985, Taraldsen 1990).

<sup>17</sup> For some unclear reason, adjectival possessive heads of the third person cannot take an overt possessor:

- (i) *die* (\*Peter) *seinige* *Familie*  
 the Peter his-ADJ-INFL family

Above, I assumed that the possessor is *pro* (cf. (21b)). If so, it is not entirely clear why *pro* cannot be replaced by an overt possessor. As an alternative, one could speculate for these types of possessive heads that the stem *sein-* actually consists of a root *s-* and an anaphoric part *ein* ‘one’, which gets the theta-role of the possessor.

Second, note also that this person restriction does not hold in the SGC in general:

- (i) a. us linguists’ favorite thing to do  
 b. you kids’ ideas about fun

This hints at the fact that possessive *-s* is always in Poss.

unanalyzed words, it is not clear what would motivate this difference in position and why the distribution could not be the other way around. To motivate the different positions of the possessive pronouns, the standard account would also have to posit that possessive pronouns are composite forms where the possessive element itself can be of different sizes.

More generally, this subsection has shown that the proposal that possessives involve extended projections and possessive pronouns are composite forms explains a number of phenomena. In the next subsection, I provide more arguments that possessives form extended projections briefly showing that the new proposal fares better than the standard analysis.

#### 2.4. *Two Arguments for the New Structure*

First, the assumption of an extended projection explains certain agreement facts. If one compares a noun phrase involving a possessive pronoun to one headed by a pronominal determiner (e.g., Postal 1966), one can construct another argument in favor of possessives being complex projections. While the verb and the reflexive anaphor agree with the pronominal determiner and the third-person possessive pronoun, (34a-b), they do not with the first-person possessive pronoun, (34c):

- (34) a. *Ich armer Lehrer habe mich immer geärgert.* (German)  
 I poor teacher have REFL.1.sg always be-angry  
 ‘I (poor teacher) was always angry.’
- b. *Sein armer Lehrer hat sich immer geärgert.*  
 his poor teacher has REFL.3.sg always be-angry  
 ‘His poor teacher was always angry.’
- c. *Mein armer Lehrer hat sich immer geärgert.*  
 my poor teacher has REFL.3.sg always be-angry  
 ‘My poor teacher was always angry.’

Similar facts hold for data in the second person.

These agreement facts follow if one assumes that the person feature of the relevant element percolates up to DP and then enters into an agreement relation

with the verb and reflexive anaphor. Specifically, if the relevant element is in a head position (e.g., D), the feature percolates in a direct fashion to its phrase (e.g., DP); if the element is in a specifier position, it percolates in an indirect manner, that is, by a Spec-head relation with its head (cf. Corver & van Koppen 2010: 120).

Turning to (34) in more detail, independently of whether the pronominal determiner is a head in D or a head inside a phrase in Spec,DP (cf. Roehrs 2005a), these assumptions immediately explain the agreement facts in (34a). The latter, more complex option is illustrated in (35a) below (percolation is illustrated with superscripts). More needs to be said about the possessive pronouns, (34b-c). Note now that I proposed above that both types of possessive pronoun are part of FP, the difference being that the third-person pronoun itself is the possessive head but the first-person pronoun is in the complement position of an abstract possessive head. I analyze the relevant parts of (34b) and (34c) as (35b) and (35c), respectively:

- (35) a.  $[DP^i \quad [DemP^i \text{ ich}^i] \quad D^i \quad [NP \text{ armer Lehrer} ]]$
- b.  $[DP^i \quad [FP^i \quad XP_k^i \quad F^i \quad [PossP \text{ s-Poss } t_k ]]] \quad ein^i \quad [NP \text{ armer Lehrer} ]]$
- c.  $[DP \quad [FP \quad F \quad [PossP \text{ POSS } m- ]]] \quad ein \quad [NP \text{ armer Lehrer} ]]$

Above, I also proposed that the possessor XP has to move to Spec,FP so that *s-* and *ein* can combine under adjacency. Notice that movement similar to that of XP is not needed for *m-*, which is adjacent to *ein* when it is in situ. Compare (35b-c). With movement not needed, it is out by economy considerations. Consequently, *m-* stays in the complement position of Poss. If so, *m-* is not in a Spec-head relation with any head and cannot percolate its person feature. The same argumentation applies to the cases in the second person. Note that in the standard analysis, possessors are not in complement positions when they are in the left periphery of the matrix DP. Rather, they are either in specifier or head positions. Unlike complement positions, these two types of position should, at least in principle, allow percolation, contrary to what is needed here.

Continuing with the explanation of the third-person feature on the DP, there are two options: either one assumes that (34b) involves a (double) Spec-head relation and percolation, (35b), or, alternatively, one assumes for both (34b) and (34c) that the third-person feature is a default option (cf. Julien 2005a: 147). The latter option can be illustrated by leaving out the superscripts, cf. (35c). More generally, the different positions of the relevant possessive elements in conjunction with the assumption of an extended projection of the possessive head affords us an explanation of the above agreement facts. Before I close this section, I consider a second argument for possessives involving extended projections. It derives from restrictions on movement.

Recall that in PDC, a possessor occurs with a possessive pronoun. These two elements either precede the head noun, (36a), or follow it, (36b):<sup>18</sup>

- (36) a. *Per sin bil*  
 Per REFL car  
 ‘Per’s car’  
 b. *bilen hans Per*  
 car-DEF his Per  
 ‘Per’s car’

Notice also that both types of possessive pronouns can occur independently of the possessor. In fact, they both may precede, (37a), or follow the head noun, (37b):

- (37) a. *{hans / sin} bil*  
 his / REFL car  
 ‘his car’  
 b. *bilen {sin / hans}*  
 car-DEF REFL / his  
 ‘his car’

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<sup>18</sup> Norwegian *sin* is often glossed as ‘REFL(exive)’ and *hans* as ‘his’. This distinction will become relevant in the discussion of simple possessive pronouns in the clause.



Crucially, though, the possessive pronoun and the possessor cannot be split up; that is, one component cannot “strand” the other:

- (38) a. \* *{hans / sin} bil(-en) Per*  
           his / REFL car-DEF Per  
           ‘Per’s car’
- b. \* *Per bil(-en) {sin / hans}*  
       Per car-DEF REFL / his  
       ‘Per’s car’

To be clear, the following issue arises: while multi-component possessives can appear either before or after the head noun, (36), their individual components cannot occur separately, (38).

It is not clear how the standard analysis in (9b) can capture these facts in a non-stipulative way. To account for the post-nominal PDC, proponents of the standard analysis could assume that the possessor and the possessive head are base-generated below the head noun. Note in this regard that the possessor and possessive pronouns occupy different positions with regard to each other depending on whether the PDC is pre- or post-nominal, (36). Since the possessor and the possessive head occupy different positions in the extended projection of the noun, they can move independently of each other inside the matrix noun phrase. This would explain the different distributions in (36). However, if the possessor and the possessive head can move independently of each other, they could, at least in principle, “strand” the other component, contrary to fact.

Alternatively, advocates of the standard account could suggest that the possessor and possessive head are base-generated above the head noun. Delsing (1998) has made a proposal along these lines. He proposes that PossP is between DP and NP and that the possessive pronoun is the head in Poss. Delsing (1998: 103) derives the post-nominal PDC by moving the possessor *Per* to Spec,PossP, *hans* to D and *bilen* to Spec,DP. The derivation in (39a) is slightly adapted from Delsing’s work. However, I side with Julien (2005a: 166ff) in that I cannot see how the Double Definiteness effect can straightforwardly be derived when an adjective is added as in (39b):

- (39) a. [DP *bilen*<sub>k</sub> [D' *hans*<sub>i</sub> [PossP *Per*<sub>j</sub> [Poss' t<sub>i</sub> [NP t<sub>k</sub> t<sub>j</sub> ]]]]]  
           car-DEF his Per
- b. *den gamle bilen hans Per*  
    the old car-DEF his Per  
    ‘Per’s old car’

To be clear, independent of the position of PossP, the standard analysis faces serious problems.

The current proposal in (28b) treats multi-component possessives as constituents and faces no such problems. First, possessives as a whole can surface in their low base-position, as shown in (29), but they can also move to a higher position, as depicted in (30). This explains the different positions of the PDC with respect to the noun, (36a-b). Second, the possessor and the possessive head can reorder inside FP. Given certain assumptions, this derives the facts in (36a) and (36b).

Finally and most importantly, the current analysis captures the ungrammaticality in (38) if one recalls that multi-component possessives are phrases in specifier positions. Now, it is well documented that subextraction out of this type of position is not possible. This, then, explains why possessives cannot be split up whereby one component strands the other. If so, this provides a strong argument in favor of analyzing possessives as complex constituents in specifier positions.

To sum up, having argued that possessives are phrases, I made the proposal that possessive heads take possessors as complements. Furthermore, I suggested that possessives involve extended projections and that possessors and possessive heads may move inside those projections. Finally, I provided some empirical arguments for the extended projection of possessives. I showed that unlike the new analysis, the standard account faces some serious problems.

### 3. Possessives Contain Heads

Having provided the basic derivations and some evidence, I now offer some more detailed argumentation that the possessive (= FP) contains a possessive

head (= Poss). I provide more evidence that this head is of various lexical categories, and that it is a predicate/functor that assigns case and a theta role to its possessor complement. Furthermore, I show that it mediates the establishment of Binding relations. Despite this evidence against the assumption of a possessive *pronoun*, I will continue to use the traditional terminology throughout the paper. In the last subsection, I turn to the discussion of possessive pronouns that differ in reflexivity and agreement in phi-features with the head noun in the Scandinavian languages. On the basis of that discussion, I return to the discussion of the structures.

### 3.1. *Different Lexical Categories of the Possessive Head*

In the last section, I showed that possessive heads can be adjectival and pronominal (i.e., demonstrative-like). It is well known that predicate heads can be of different lexical categories. If so, one could also expect to find possessives of other lexical categories such as prepositional phrases or nominal phrases.

The possessive head may also be a preposition. For instance, I propose that *von* ‘of’ in German possessives is not brought about by case assignment (e.g., Lindauer 1995, 1998) but is a full-fledged preposition throughout the derivation. Evidence for this claim comes from pre-nominal *von*-phrases, which precede the determiner and seem to have some focal stress. Compare (40a) to (40b). Crucially, this is not possible with English possessives, (40c):

- (40) a. *das Buch von der Mutter* (German)  
           the book of the mother  
           ‘mother’s book’  
       b. *von der Mutter* { *das / ein / ?\*dieses / \*Ø / \*ihr*<sup>19</sup> } *Buch*  
       c. \* of the mother(’s) { the / a / this / Ø / her } book

The difference between (40b) and (40c) follows immediately if German *von* is not a morphological realization of abstract case but English *of* is. Furthermore, employing the Verb-Second Constraint in German as a test for constituency of

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<sup>19</sup> The possessive pronoun seems to be possible in very colloquial German (as recently heard on the radio).

the possessive and the remainder of the noun phrase, I conclude that the pre-nominal *von*-phrase forms a constituent with the possessum nominal, (41a).<sup>20</sup> In fact, the *von*-phrase is outside the DP proper, assuming that the quantifier *alle* ‘all’ in (41b) and (41c) is higher than the DP (for more arguments, see also Roehrs 2013b):

- (41) a. [ *Von Peter das Buch* ] *habe ich gelesen*  
of Peter the book have I read  
‘I have read Peter’s book.’
- b. *von Peter {alle / ?all die} Bücher*  
of Peter all / all the books  
‘all (of) Peter’s books’
- c. ?\* *alle von Peter die Bücher*  
all of Peter the books

Note that if the *von*-phrase is outside the DP proper and recalling the typical complementary distribution of the determiner and the possessive in German, then it is not surprising to find both elements at the same time in (40b).<sup>21</sup> In fact, assuming that the *von*-phrase is base-generated outside the DP, my proposal is compatible with the presence of both a definite and an indefinite determiner.

For the sake of argument, let us assume for a moment that the *von*-phrase has undergone movement from a position inside the DP. With a definite article present, cf. (40b), this DP is definite and movement out of it should be degraded (e.g., Bowers 1988). However, the example is fully grammatical. Furthermore, movement through Spec,DP should leave a copy behind presumably triggering

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<sup>20</sup> A similar point can be made with possessives in Spec,CP of an embedded clause (data are from Fortmann 1996: 118):

- (i) a. *Was sagst du [wessen Bruder] er angerufen hat?*  
what say you whose brother he called has  
‘Whose brother do you say he has called?’
- b. *Was sagst du [von wem den Bruder] er angerufen hat?*  
what say you of whom the brother he called has

<sup>21</sup> In other words, this analysis allows us to avoid issues related to a doubly-filled DP. The only potential violation of this constraint in German is the current analysis of composite possessive pronouns involving a possessive element supported by *ein*. However, I argued above that the two underlyingly separate elements get spelled out as one. If one takes the Doubly-filled DP filter as a post-syntactic phenomenon, then this does not pose a problem.

definiteness of the DP (see section 3.3, also cf. (10) above). In the latter scenario, the possibility of the indefinite determiner would be unexpected. These problematic issues do not arise under base-generation of FP outside of the DP. Crucially now, if this is correct, then it is hard to see how *von* in (40b) can be the morphological realization of abstract case as FP is not even part of the DP proper.

Possessives can also be nominal in lexical category, (42a). More tentatively, I suggest that these possessives may, in fact, be the complement of an empty nominal possessive head, here illustrated by  $\emptyset_N$ , (42b):

- (42) a. *das Buch des Mannes* (German)  
           the book the-GEN man  
           ‘the man’s book’  
       b. *das Buch* [<sub>FP</sub>  $\emptyset_N$  [*des Mannes* ]]

With the possessive head a null element, it needs to be licensed. I propose that it is a null suffix that attaches to the head noun in the sense of Bošković & Lasnik (2003: 534-536). This assumption derives the fact that the morphologically genitive phrase must be adjacent to the head noun. Evidence for the required adjacency comes from the different behavior of prepositional and genitive possessives with regard to demonstrative reinforcers such as *da* ‘there’:

- (43) a. *das Bild da von dem Mann*  
           that picture there of the man  
           ‘that there picture of the man’  
       b. ?\* *das Bild da des Mannes*  
           that picture there the-GEN man-GEN

These facts follow from the assumption that unlike the preposition phrase in (43a), the genitive phrase in (43b) involves a null possessive head that needs to be licensed by adjacency to the head noun.<sup>22</sup>

<sup>22</sup> In fact, adjacency effects are often taken to be reflexes of morphological rather than syntactic phenomena (e.g., Lasnik 1981). This is of particular relevance here considering that the head noun undergoes partial movement as, for instance, in *die Wut<sub>i</sub> des Präsidenten t<sub>i</sub> auf sich* ‘the wrath of the President against himself’ (see in particular Vangsnes 1999, 2004;

With the discussion in section 2 in mind, one can summarize that possessive heads can be adjectival, demonstrative-like, prepositional, and nominal. In other words, possessive heads differ widely in lexical category. As such, I have provided more evidence that FP involves a head. Note that languages apparently differ with regard to what kind of possessive heads they make lexically available.

### 3.2. *Different Morphological Cases*

In section 2, I showed that possessors in the SGC and PDC have dative case. I illustrated this with Yiddish and German and I proposed that case is assigned by the possessive head Poss. Recall also that I proposed that Poss is a predicate.

It is well known that corresponding predicates may assign different cases in different languages and dialects. To illustrate this, one needs to draw on languages that have a fully functional case system. What I mean by that is that case assignment is not subject to some independent restriction. For instance, with regard to Germanic, one can state that Yiddish is quite similar in its case system to German. However, all prepositions in Yiddish assign dative case only. In other words, case assignment by prepositions in Yiddish cannot be used to help illustrate that predicates assign different cases.

As far as I know, German and Icelandic are not restricted in this (or any other relevant) way. I begin by illustrating the different case assignments with semantically similar prepositions. Consider the following two examples where the German prepositions assign different cases from their Icelandic counterparts (Icelandic data from Pétursson 1992: 124-125):<sup>23</sup>

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Julien 2002, 2005a; Roehrs 2009a: 20). If so, it is not clear how to capture this adjacency effect syntactically as the head noun and the possessive are neither in a Spec-head nor a head-complement but rather in a “head-lower phrasal position” relation. The latter should, at least in principle, allow the occurrence of an intervening phrase, contrary to the facts seen above. Given my structural assumptions, the adjacency effect follows from the assumption of a null suffix. A further consequence might be that one can now explain the well-known fact that unlike PPs, (genitive) DPs cannot be extracted (e.g., Sternefeld 2008b: 526).

<sup>23</sup> Depending on certain factors, German *zwischen* ‘between’ can also take the accusative (but not the genitive) case.

- (44) a. *zwischen den Bäumen; den Weg entlang* (German)  
 between the-DAT trees; the-ACC path along  
 ‘between the trees; along the path’
- b. *milli trjónna; meðfram veginum* (Icelandic)  
 between trees-DEF.GEN; along path-DEF.DAT

The same holds for adjectives (Icelandic is taken from Pétursson 1992: 134-135):

- (45) a. *etwas gewöhnt; die Sache los* (German)  
 something.ACC used; the-ACC thing free  
 ‘used to something; free of the matter’
- b. *vanur einhverju; laus allra mála* (Icelandic)  
 used something-DAT; free all-GEN things

To be clear, both languages have predicates, here exemplified by certain prepositions and adjectives, that have similar meanings but different case assignment properties.

Assuming possessive heads to be predicates, one expects that their complements, the possessors, may also occur in different morphological cases in different languages or dialects. This is borne out as the following pre-nominal PDC show:

- (46) a. *dem Vater sein Auto* (German)  
 the-DAT father his car  
 ‘father’s car’
- b. *für des knaben sein leben* (Early New High German)  
 for the-GEN boy his-ACC life  
 ‘for the boy’s life’  
 (Behaghel 1923 : 640)

- c. *bei den Doktor sein Haus* (Texas German)<sup>24</sup>  
 at the-ACC doctor his-ACC house  
 ‘at the doctor’s house’  
 (Eikel 1967: 94; Weiß 2008: 383)

Like the complements of prepositions and adjectives, the possessors may appear in the dative, genitive, and accusative case. Note that all these case patterns can basically be replicated by the other possessive constructions. To save space, this is not shown here (but see Roehrs 2005b: 124-125).

As far as I am aware, these different morphological cases on the possessors do not co-relate with (consistent) differences in interpretation. In other words, all examples in (46) involve the same (possessive) semantics. Also, all examples involve the same lexical category (pronominal, i.e., demonstrative-like). Recalling that possessors are proposed to be the internal arguments of possessive heads, the similarities in argument structure and case-assignment between prepositions, adjectives, and possessive pronouns follow from their similar analysis in terms of extended projections.

Besides these different case possibilities on the possessor, note also that the possessive pronoun and the possessor do not agree in case in (46). I propose that possessive pronouns involve regular “feature sharing”, that is, concord with the possessum noun. This follows from the composite analysis of the possessive pronoun discussed above. Specifically, case is assigned to the entire matrix DP and then “spreads” as part of concord to the supporting element (*ein*) of the possessive pronoun. In contrast, the PDC involves case assignment inside the FP, which excludes *ein*.

More generally, with the case on the possessor not uniform, one is led to conclude that the case assigner is not a functional head but a (semi-)lexical one (for recent discussion of non-structural case, see Woolford 2006). Unlike

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<sup>24</sup> Note that in dialects where the dative case is being replaced by the accusative, one may find the accusative or the dative on the possessor. Compare (46c) to (i):

- (i) *Er war bei dem Doktor sein Haus.* (Texas German)  
 he-NOM was at the-DAT doctor his-ACC house  
 ‘He was at the doctor’s house.’  
 (Eikel 1967: 91)

Notice that the preposition *bei* ‘at’, although also changing in its case assignment properties, takes the accusative in both (46c) and (i).



functional heads, lexical heads are lower in the structure. Above, I identified this head as Poss, which is at the bottom of FP.

### 3.3. *Possessors are Arguments*

Above, I proposed that possessive heads assign one theta-role; that is, they are mono-valent functors. I now turn to some instances that do not seem to have an “obvious” possessor. I will strengthen the proposal that all possessive heads take a possessor, be it an overt element as already documented above, or a covert one as argued for in more detail in this section. Besides some other desirable consequences, this will allow me to keep the one-to-one relation between possessive heads and possessors, both with regard to case and theta-role assignment. Interestingly, both the SGC and the PDC provide evidence for the presence of argumental possessors albeit in quite different ways.

An argument for the presence of a null possessor can be derived from “(in)definiteness spread”, according to which the possessor of the DP determines the definiteness of the entire DP by Spec-head agreement (e.g., Alexiadou 2005). Note first that the definiteness of the possessor in the SGC has the same effect in the *there*-context in (47b) as the associate noun phrase does in (47a). Turning to German, it has been argued that German does not have a Definiteness Effect (e.g., Haeberli 2002: 270ff). However, Schoorlemmer (1998: 60) points out that such an effect may emerge in fairy-tale contexts. Relevant for current purposes and abstracting away from the slight stylistic clash of the colloquial PDC in a fairy-tale context, the definiteness of the possessor also determines that of the entire DP. Observe the contrast in (47c):

- (47) a. There is {a dog / \*the dog} in the garden.  
 b. There is {a man / \*the man}’s dog in the garden.  
       (Dobrovie-Sorin 2003: 97, Jackendoff 1977)  
 c. *Es war einmal* {*einem König* / \**dem König*} *seine Tochter*.  
    it was once {a-DAT king / the-DAT king} his daughter  
    ‘Once upon a time, there was { a / \*the } king’s daughter.’

These grammaticality judgments are not surprising given that the SGC and the PDC have essentially the same structure and the same mechanism brings about the “spread” in definiteness.<sup>25</sup> Crucially, both possessive *-s* and the possessive pronoun do not seem to play a role in (47b-c).

When no possessor seems to be present as in (48a) below, the sentence becomes ungrammatical (similar facts can be found in West Flemish, see Haegeman 2003: 233ff). Note now that it is straightforward to rule out this datum. On a par with the definiteness cases in (47), I propose that there is a null element that is definite in interpretation. In particular, I suggest that this element is the definite pronominal *pro*, (48b) (see also Alexiadou, Haegeman & Stavrou 2007: 611; for null possessors, cf. also Szabolsci 1994, Longobardi 1996, and Delsing 1998: 95):

- (48) a. \* *Es war einmal seine Tochter.*  
           it was once his daughter  
           ‘Once upon a time, there was his daughter.’  
       b. [ *pro seine Tochter* ]

One might object that (48a) is bad for an independent reason. Assuming that the reference of *pro* needs to be established, one could claim that there is no antecedent in existential/presentational contexts. However, different types of coordination indicate that the absence of an antecedent is not the (only) problem in (48a). Consider the following two constructions where *ein König* ‘a king’ can function as the antecedent for the pronoun in *seine Tochter* ‘his daughter’. Importantly, coordinating the two DPs is much better than the two CPs, (49a-b). The example in (49c) shows that coordinating two CPs is not generally out:

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<sup>25</sup> This is straightforward for third-person possessives. As discussed in section 2.4, the moved possessor in Spec,FP agrees with F by Spec-head agreement percolating the definiteness feature to FP. FP in turn agrees with D by Spec-head agreement percolating the feature to DP:

(i) [DP<sup>i</sup> [FP<sup>i</sup> possessor<sub>k</sub><sup>i</sup> F<sup>i</sup> [POSSP POSS t<sub>k</sub>]]] D<sup>i</sup> [...]]

First- and second-person possessives have a different structure. With the possessive pronoun in the complement position, one needs to assume something else. For instance, unlike the agreement in phi-features, definiteness seems to be more of a semantic phenomenon. As such, one could suggest that these possessive elements move to Spec,FP at LF.

- (49) a. *Es waren einmal [ein König und seine Tochter].*  
 it were once a king and his daughter  
 ‘Once upon a time, there was a king and his daughter.’
- b. *\*? Es war einmal ein König, und es war einmal seine Tochter.*  
 it was once a king and it was once his daughter
- c. *Es war einmal ein König, und es war einmal eine Königin.*  
 it was once a king and it was once a queen  
 ‘Once upon a time, there was a king and once upon a time there was a queen.’

To explain this grammatical contrast, I will assume first conjunct agreement for (49a) (cf. Julien 2005a: 182-183). With an indefinite DP present, the example is acceptable. This analysis is not available for (49b). Furthermore, with an antecedent present, the ungrammaticality of this example must be due to something else. I suggest that the example is bad due to the proposed presence of *pro*. I argue that it is this pronoun that makes the entire DP definite.<sup>26</sup> We are now ready to show that possessors are arguments.

Returning to my main line of argument, definiteness is usually assumed to originate at the DP-level. This means that *pro* itself involves a DP. Furthermore, DPs are usually assumed to be arguments (Longobardi 1994, 2008). This definiteness effect then provides evidence that possessive heads take possessor arguments. Syntactically, I assume that *pro* is the complement of the possessive head and gets case from it. To be clear, then, possessive pronouns always involve a PDC, either with an overt or a covert possessor. As usual, I will continue using traditional terminology. Before I proceed, I point out that the discussion of *pro* is not revealing for the SGC, where *pro* cannot occur by itself:

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<sup>26</sup> A reviewer wonders if (in)definiteness spread is indeed what is involved in these cases (cf. also Sobin 2002: 608; Lyons 1999: 23 fn. 12, 25 fn. 14), considering that the indefinite DP in (ib) is degraded with a definite complement:

- (i) a. There is {a/??the} boy’s picture on the wall.  
 b. There is a picture of {a/??the} boy on the wall.

I will assume here that specificity/presuppositionality is the relevant property, without reviewing the enormous literature on this topic. This does not present a problem as *pro*, unlike PRO, is specific.

(50) \* *pro*'s {car/arrival of Peter}

As already mentioned above, I assume that this has to do with the fact that *-s* is an enclitic that requires a relevant overt host. However, the SGC is still relevant for the discussion although in a different way.

As can be seen in (51a-c), the possessor cannot be an expletive, both with non-theta and theta nouns (cf. Alexiadou 2001: 60 and references cited therein):

- (51) a. \* there's car  
 b. \* there's arrival of Peter  
 c. \* I didn't expect its rain.

(Higginbotham 1983: 416 fn. 9)

This ungrammaticality follows straightforwardly if the possessive head is a mono-valent predicate that must assign a theta-role to the possessor. Crucially, theta-roles can only be assigned to non-expletive DPs. This then provides another piece of evidence that possessors are arguments of a predicate – the possessive head.

### 3.4. *Lack of Condition C Effects with DP-internal Binding*

In addition to providing more evidence that possessives involve heads, this section also documents that possessives move as constituents. As pointed out above, possessives can precede or follow the possessive noun. Specifically, besides the pre-nominal PDC, (52a), Northern Scandinavian also has a post-nominal PDC, (52b) (see Fiva 1985, Ramat 1986 and Delsing 1993: chap. 5; for other languages, see Koptjevskaja-Tamm 2003a: 665ff, Verhaar 1997: 96ff):

- (52) a. *Jon sin bil* (Norwegian)  
 Jon REFL car  
 'Jon's car  
 b. *bilen hans Jon*  
 car-DEF his Jon  
 'Jon's car'

Unlike (52a), (52b) has received less attention in comparison. However, what is interesting to note about (52b) is that it contrasts with its clausal counterpart with regard to co-reference: while the pronominal element *han* ‘he’ in (53a) cannot be co-indexed with *Per*, *hans* ‘his’ has to be in (53b):

- (53) a. *Han*<sub>\*i/k</sub> *ser* *Per*<sub>i</sub> *i* *speilet*  
 he sees *Per* in mirror-DEF  
 ‘He sees *Per* in the mirror.’  
 b. *bildet* *hans*<sub>i</sub> *Per*<sub>i/\*k</sub>  
 picture-DEF his *Per*  
 ‘*Per*’s picture’

Now, if one were to treat the clause and the noun phrase in a parallel fashion with regard to c-command, then one would also expect a Condition C violation of the Classical Binding Theory (Chomsky 1981) in (53b). However, the opposite state-of-affairs holds. This apparent problem is in dire need of an explanation. The following discussion argues that since possessive pronouns are predicate heads, they themselves do not directly participate in (syntactic) Binding relations. As such, this presents another argument that possessives contain heads. At the end of this subsection, I argue against an alternative account of (53b), which involves lack of c-command and as such, would not constitute a Condition C violation. Consider first some basic properties of the post-nominal PDC.

To begin, note that *hans* cannot be the genitive of the preproprial article *han* in cases like *han Per* ‘(he = the) Peter’. Among other things, Delsing (1998: 101-2) observes that *hans* may not only co-occur with a possessor in the dative, (54a), but also with a (true) preproprial article, (54b). As can be seen by comparing (54b) to (54c), *hans* can, in fact, be replaced by possessive *-s*. Finally, one can observe that unlike free-standing preproprial articles, *hans* can also follow the possessor, (54d):

- (54) a. *galom hans farfarom* (Västerbotten)  
 farm-DEF his grandfather-DEF.DAT  
 ‘grandfather’s farm’

- b. *bilen hans n Jon* (Norwegian/Northern Swedish)  
 car-DEF his the Jon  
 ‘Jon’s car’  
 (Holmberg & Sandström 1995: 33, Julien 2005a: 178)
- c. *bilen n Jons*  
 car-DEF the Jon’s
- d. *æ mand hans hat* (Western Jutlandic)  
 the man his hat  
 ‘the man’s hat’  
 (Delsing 1993: 153, Verhaar 1997: 97)

Another characteristic of the PDC is that *hans* and its possessor cannot be separated by “rightward” movement, (55b). Recall also in this respect the discussion from section 2.4, where I showed that possessors and possessive pronouns cannot be split up in general. Furthermore, the FP cannot follow other complements, (55c):

- (55) a. *bildet hans<sub>i</sub> Per<sub>i</sub> av Kari*  
 picture-DEF his Per of Kari  
 ‘Per’s picture of Kari’
- b. \* *bildet hans t<sub>k</sub> av Kari Per<sub>k</sub>*  
 picture-DEF his of Kari Per
- c. ?\* *bildet t<sub>k</sub> av Kari [ hans Per ]<sub>k</sub>*  
 picture-DEF of Kari his Per

Crucially, however, there is evidence from Icelandic that the post-nominal PDC can move as a constituent.

Apart from partial N-raising of *bækur* ‘books’ to the intermediate Article Phrase (ArtP) (see Vangsnes 1999, 2004; Julien 2002, 2005a; Roehrs 2009a), I assume that (56a) presents the basic word order. With this in mind, I interpret the contrast in (56b-c) such that the FP *hans Péturs* first moves out of Spec,nP

to a higher specifier position and then ArtP raises across the numeral to Spec,DP as an instance of remnant movement. This is illustrated in (56d):<sup>27</sup>

- (56) a. *þessar fjórar bækur<sub>i</sub> mínar t<sub>i</sub>* (Icelandic)  
 these four books my  
 ‘these my four books’
- b. *bækurnar fjórar hans Péturs*  
 books-DEF four his Peter-GEN  
 ‘Peter’s four books’  
 (Vangsnes 2004)
- c. \* *bækurnar hans Péturs fjórar*  
 books-DEF his Peter-GEN four
- d. [DP [ArtP *bækurnar t<sub>k</sub>* ]<sub>i</sub> D [CardP *fjórar* [FP *hans Péturs* ]<sub>k</sub> t<sub>i</sub> ]]

Interestingly, a PP-complement behaves just like the possessive FP in that it also has to vacate the phrase containing the partially raised head noun before remnant movement of that phrase takes place:

- (57) a. *frægu bækurnar fjórar um tónlist*  
 famous books-DEF four about music  
 ‘the four famous books about music’
- b. \* *frægu bækurnar um tónlist fjórar*  
 famous books-DEF about music four
- c. [DP [AgrP *frægu bækurnar t<sub>k</sub>* ]<sub>i</sub> D [CardP *fjórar* [PP *um tónlist* ]<sub>k</sub> t<sub>i</sub> ]]

This parallelism between the PP and the post-nominal PDC provides good evidence that the latter is also a constituent as it can move as a unit inside the matrix DP.<sup>28</sup>

<sup>27</sup> To complete the empirical picture, note that a *pronominal* possessive does not have to move out (Vangsnes 1999: 145):

- (i) a. *hinar þrjár frægu bækur mínar* (Icelandic)  
 the three famous books my  
 ‘my three famous books’
- b. *frægu bækurnar mínar þrjár*  
 famous books-DEF my three
- c. [DP [AgrP *frægu bækurnar mínar* ]<sub>i</sub> D [CardP *þrjár t<sub>i</sub>* ]]

In a similar vein, Koptjevskaja-Tamm (2003a: 631) reports a personal communication by Marit Julien according to which post-nominal PDC can also be coordinated:

- (58) *huset* [hass] og [hennes Maria] (Kongsvinger)  
 house-DEF his and her Maria  
 ‘Maria’s and his house’

Again, I take this as evidence that the possessive pronoun and the possessor form a constituent (see also Julien 2005a: 168ff).

To sum up these preliminary remarks, I have established that *hans* itself is not the preproprial article of *Per*, that the possessive *hans Per* cannot be separated, that this possessive can move as a constituent, and that it can be coordinated. In other words, this possessive is a PDC in post-nominal position.

In what follows, I will show that under traditional assumptions *hans* should be in an A-position as it can bind reflexives but not R-expressions. However, being in an A-position should lead to a Condition C violation with regard to *Per* inside the post-nominal PDC, contrary to the facts. This potential problem is solved if one assumes that *hans* is actually a possessive predicate that takes the possessor as its complement. First, consider the picture that emerges under traditional assumptions.

As can be seen in (59), *hans* can bind the reflexive *seg selv* ‘(him)self’ but not the R-expression *Per*. Assuming Binding to be A-binding (Chomsky 1981), I conclude that the Binder *hans* is in an A-position from where it can c-command the reflexive and the R-expressions (see also Taraldsen 1990).<sup>29</sup>

- (59) *bildet* *hans<sub>i</sub>* av {*seg selv<sub>i</sub>* / \**Per<sub>i</sub>*} (Norwegian)  
 picture-DEF his of {REFL / Per}  
 ‘his picture of himself/Per’

<sup>28</sup> There might be a potential caveat here. Sigurðsson (2006) argues for Icelandic that *hans* is not the possessive pronoun in these cases but rather a preproprial article. However, he shows that this element has a number of other special uses in Icelandic (page 227ff). It remains to be seen if these uses are also possible in the post-nominal PDC.

<sup>29</sup> I would like to thank Terje Lohndal, Kari Gade, and especially Marit Julien for help with these data. Ideally, I would have liked to test the Binding facts below with the post-nominal PDC in (54a-b) but I did not have access to the relevant speakers.



Next I add *Per* to (59), generating a post-nominal PDC. Interestingly, there are the exact same grammaticality contrasts. What is interesting here is that *hans* A-binds the reflexive *seg selv* across the R-expression *Per*. As already seen in (53b) above, *Per* itself must be coreferential with *hans*. In contrast to one's expectations, this does not result in a Condition C violation in (60) (for related facts in the German pre-nominal PDC, see Krause 1999).

- (60) *bildet hans<sub>i</sub> Per<sub>i</sub> av {seg selv<sub>i</sub> / \*Per<sub>i</sub>}*  
 picture-DEF his Per of {REFL / Per}  
 'Per's picture of himself/Per'

Similar facts hold for a complement of the matrix head noun when that complement contains a possessive of its own. Again, *hans* can bind the reflexive *sin* but not the nominal *Per*:

- (61) *bildet hans<sub>i</sub> av broren {sin<sub>i</sub> / \*til Per<sub>i</sub>}*  
 picture-DEF his of brother-DEF {REFL / of Per}  
 'his picture of his/Per's brother'

Note also that with *Per* deeply embedded inside the *av*-phrase, it cannot c-command *hans*. As such, the ungrammaticality of (61) cannot follow from a Condition B violation.

Again, the addition of *Per* does not change the Binding possibilities:

- (62) *bildet hans<sub>i</sub> Per<sub>i</sub> av broren {sin<sub>i</sub> / \*til Per<sub>i</sub>}*  
 picture-DEF his Per of brother-DEF {REFL / of Per}  
 'Per's picture of his/Per's brother'

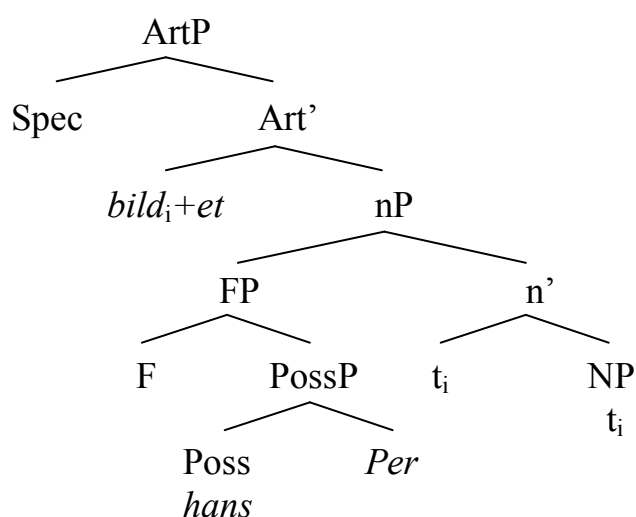
To summarize, I have shown that *hans* should be in an A-position in traditional terms c-commanding the complement of *av*. At the same time, however, this does not lead to a Condition C violation with regard to *Per* inside the post-nominal PDC.

In order to explain this paradoxical situation, recall that I base-generate the FP in the nP-shell, with the possessor complement to the right of the

possessive head (cf. (28b)). In other words, I propose that the post-nominal PDC is a possessive in situ, with the head noun *bild* ‘picture’ raised to an assumed Article Phrase (ArtP):<sup>30</sup>

- (63) a. *bildet hans Per*  
 picture-DEF his Per  
 ‘Per’s picture’

b. *Post-nominal PDC*



Also, as seen above, the possessor *Per* is, in some sense, “optional”. Above, I argued for the null possessor *pro*, if the possessive pronoun appears to be by itself:

- (64) a. *bildet hans*  
 picture-DEF his  
 ‘his picture’

b. [ *bild<sub>i</sub>-et* [ <sub>NP</sub> [ <sub>FP</sub> [ <sub>PossP</sub> *hans* [ <sub>DP</sub> *pro* ] ] ] ] ] *t<sub>i</sub>* [ <sub>NP</sub> *t<sub>i</sub>* ] ]

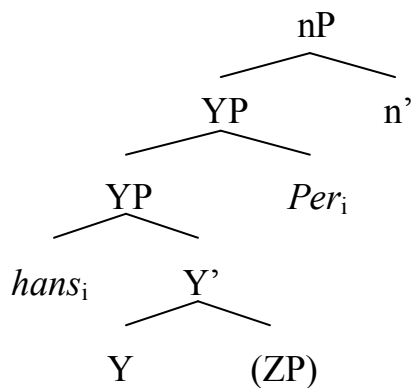
Now, considering these structures, one can observe again that the possessive pronoun is in the head position of Poss. In other words, I proposed above that it

<sup>30</sup> For a more detailed discussion of the derivation of the Scandinavian DP, see Julien (2005a) and Roehrs (2009a: Chapter 2).

is not a pronoun at all but a predicate head. This, then, explains the lack of a Condition C violation. I return to the discussion of DP-internal Binding in section 4.3. I suggest there that Binding is most likely semantic in nature where the possessive pronoun plays a mediating role.

Finally note that there is an alternative account of the post-nominal PDC, where *hans* does not c-command *Per*. If this analysis could be upheld, it would weaken the proposal that the possessive pronoun is a predicate. Specifically, assuming as above that the constituent *hans Per* is in Spec,nP, one could propose that *hans* is in Spec,YP, an A-position, and *Per* is right-adjoined to YP:

(65) *Alternative Analysis of the PDC (Incorrect)*



Taking the first branching segment (rather than node) to be the relevant characteristics of c-command, *hans* would not c-command *Per* and a Condition C violation would not be expected. Furthermore, with *Per* in an A'-position, one would not expect a Condition B violation with regard to *hans* either. Note, however, that if one defines c-command in such a way, then all the other Binding facts become mysterious as *hans* could never c-command out of YP and Spec,nP in general. Thus, an approach involving the lack of c-command of *hans* with regard to *Per* will not work to explain the lack of a Condition C violation in the post-nominal PDC.

To sum up so far, I have shown four arguments that the possessive contains a head. They were derived from different lexical categories of the possessive head, different morphological cases on the possessor, possessors as arguments, and the lack of Condition C violations with DP-internal Binding. I turn to another argument.

### 3.5. Reflexivity and Agreement in Phi-features

In section 2, I proposed that possessive pronouns like German *sein* ‘his’ consist of a possessive head *s-* and *ein*. Among others, this derived the fact that post-nominal PDC are not possible in German. As seen in the previous section, this type of possessive is possible in the Scandinavian languages. In this section, I will propose that the Scandinavian possessive pronoun *sin* ‘REFL’ is also decompositional but in a different way. Furthermore, I will argue that possessive heads move from Poss to F inside FP. In addition, this section addresses the following questions: (i) in what sense, if any, are possessive pronouns co-indexed with their possessors in the PDC, and (ii) how can one derive the different properties of *sin* and *hans* with regard to DP-external Binding, on the one hand, and with regard to agreement in phi-features with the head noun, on the other?

Recall that the possessor and the possessive pronoun have to be co-indexed in the PDC, independent of the language or the position of the PDC:

- (66) a.  $Peter_i \text{ sein}_{i/*k} \text{ Buch}$  (German)  
 Peter his book  
 ‘Peter’s book’
- b.  $Per_i \text{ sin}_{i/*k} \text{ bok}$  (Norwegian)  
 Per REFL book
- c.  $\text{boken} \text{ hans}_{i/*k} \text{ Per}_i$   
 book-DEF his Per

What makes this interesting is that co-indexations are different for “possessors” that are outside the DP; for instance, when the possessor is the subject in a clause containing the possessum DP. This is what I mean by DP-external Binding. At first glance, it seems to be a lexical property of the possessive pronoun that determines the Binding relations (but see momentarily). For instance, German *sein* ‘his’ can but does not have to be co-indexed with the subject of the clause, (67a). This is in sharp contrast to Norwegian (and some other languages, see Manzelli 1980: 79 table 12), where reflexive *sin* has to be

co-indexed with the subject and pronominal *hans* must not be (e.g., Hestvik 1992). Compare (67b) to (67c):<sup>31</sup>

- (67) a. *Peter<sub>i</sub> liest sein<sub>i/k</sub> Buch* (German)  
 Peter reads his book  
 ‘Peter reads his book.’
- b. *Per<sub>i</sub> leser sin<sub>i/\*k</sub> bok* (Norwegian)  
 Per reads REFL book
- c. *Per<sub>i</sub> leser hans<sub>\*i/k</sub> bok*  
 Per reads his book

To capture the difference between (66) and (67), recall that I proposed above that the possessive pronoun is a predicate functor that is mono-valent; that is, the possessive head obligatorily takes one complement – either an overt possessor or *pro*. For instance, in the discussion of DP-internal Binding in the last section, I proposed that certain post-nominal PDC have a *pro* possessor. To explain the DP-external Binding facts in (67), I suggest the same; namely, that *pro* is the actual possessor inside the DP. Now, with the possessive pronoun a functor (and not an argument), I assume that the possessive head does not bear an index. As such, there is no actual co-indexation between the possessor and the possessive head. In fact, I suggest in section 4.2 that both of these elements stand in an agreement constellation similar to that of subject and predicate. One arrives then at the following picture, where the possessor must be present and only that element bears an index:

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<sup>31</sup> Note that the existence of different possessive pronouns does not imply that these pronouns pattern in a complementary way in all languages. For instance, German has a second element, which behaves basically like Scandinavian *hans*:

- (i) *Peter<sub>i</sub> liest dessen<sub>\*i/k</sub> Buch.*  
 Peter reads his book  
 ‘Peter reads somebody else’s book.’

Unlike Scandinavian *sin*, though, *sein* can have both indexations in (67a).

- (68) a. *\*(pro<sub>i</sub> / Per<sub>i</sub>) sin bok*  
           Per REFL book  
           ‘his/Per’s book’
- b. *boken hans \*(Per<sub>i</sub> / pro<sub>i</sub>)*  
      book-DEF his Per

As a null element, *pro* must be formally licensed and identified where the feature specification of the null element must be recovered from its overt environment (Rizzi 1986). It is licensed as *pro* receives case from the possessive head. Before I turn to its identification and thus the actual derivations of (67) and (68), I discuss the internal structure of possessive pronouns in Scandinavian. This discussion sets up the analysis of the PDC involving *sin* and *hans*, at the end of which I return to the Binding facts.

Above, I proposed that possessive pronouns are similar to demonstratives and adjectives in that all these elements involve extended projections. Making certain assumptions, one can explain a correlation in the Scandinavian languages where a possessive pronoun agreeing with its matrix head noun in phi-features (e.g., *sin*) must be reflexive with regard to its clausal subject; in contrast, a non-agreeing possessive pronoun (e.g., *hans*) cannot be reflexive with regard to its clausal subject.

To begin, I propose that possessive pronouns in Norwegian are also composite forms. Specifically, possessive pronouns consist of a stem and an inflection. The latter are basically the same as the inflections on the indefinite article (the data are from a reviewer but with my own parsing):

- (69) a. *mi-n, mi-Ø, mi-tt, mi-ne* (Norwegian)  
           my-MASC, my-FEM, my-NEUT, my-PL
- b. *e-n, ei-Ø, e-t, -*  
           a-MASC, a-FEM, a-NEUT, -

In other words, possessive pronouns are composite forms in both German and Norwegian. They differ in that possessive pronouns and indefinite articles in Norwegian only share the same inflection (cf. Norwegian *mi-n* to German *m-ein* ‘my’).

Turning to the PDC, the third-person possessive pronoun can be parsed as in (70a). Importantly, I assume that *hans* is different. In keeping with section 3.4, I propose that the – what looks like – genitive ending *-s* has been reanalyzed as part of the stem. Hence, I assume that *hans* has no inflection, (70b):

(70)		inflection	+	stem	
	a.	<i>sin/si/sitt/sine:</i>	<i>-n/-Ø/-tt/-ne</i>	<i>si+</i>	(Norwegian)
	b.	<i>hans:</i>	-	<i>hans</i>	

Suppose that these parts are separately base-generated in the extended projection of the possessive; the inflection is under F and the stem is under Poss. Now, unlike *hans*, the stem *si+* must undergo head movement to F to pick up its inflection.<sup>32</sup> This means that *sin* winds up in F but that *hans* remains in situ. Moreover, I assume with Roehrs (2010) that the highest phrase in the extended projection is a phase in the sense of Chomsky (2001). With FP a phase, one can link the different agreement patterns of *sin* and *hans* to their different behavior with regard to reflexivity documented above.

Specifically, suppose that only elements in the edge of the relevant phase are reflexive. Note that both *sin* and *pro* are in the edge. I assume that the obligatory reflexivity follows from a long-distance Agree relation between the subject and *sin*, or rather *sin*'s complement *pro* “filling in” some underspecified N-features in the sense of Richards (1997).<sup>33</sup> In contrast, with *hans* remaining in

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<sup>32</sup> As proposed in section 2 for adjectival possessives, one may ultimately want to relabel this FP as InflP (at least in the Scandinavian languages). Returning briefly to the more elaborate structure of possessives from section 2.3, one could then also suggest that *si+* does not combine with its inflection by head movement. Rather, one could suggest that, once the possessor has moved to an intermediate specifier, the complement of Infl moves to Spec,InflP:

(i)  $[_{\text{InflP}} [_{\text{CDP}} \text{Per}_k \text{CD} [_{\sqrt{\text{P}}} \text{si}+ \text{t}_k ] ]_i -n [ \text{t}_i ] ]$

This would derive the fact that *sin*, just like pre-nominal adjectives, always has its complement to the left; that is, it would explain why *\*si+n Per bok* is ungrammatical but *hans Per bok* is possible (section 4.4).

<sup>33</sup> Note that this long-distance agreement avoids the assumption that *sin* undergoes LF-raising out of DP often suggested in earlier accounts (cf. Chomsky 1986: 175, going back to Lebeaux

situ, the latter is below the edge of the phase and cannot involve reflexivity. These assumptions, then, allow us to capture the correlation between agreement and reflexivity. Consider the actual derivations.

As already fully illustrated with (63b) in section 3.4, the post-nominal PDC in (71a) has FP in situ (i.e., in Spec,nP). The head noun *bok* raises via n to Art as in Julien (2002, 2005a) and Roehrs (2009a). This is shown again in bracketed form in (71b) (I abstract away from the structure of the noun phrase above ArtP here):

- (71) a. *boken hans (Per)*  
 book-DEF his Per  
 ‘his/Per’s book’
- b.  $[\text{ArtP } bok_i + en \text{ } [_{\text{nP}} \text{ } [_{\text{FP}} \text{ } [_{\text{PossP}} \text{ } hans \text{ } [_{\text{DP}} \text{ } pro/Per \text{ } ]]]] t_i \text{ } [_{\text{NP}} t_i \text{ } ]]]]$

To repeat, according to my assumptions, *hans* stays in situ. This follows from its non-decompositional structure. Crucially, remaining below the edge of the phase FP, it cannot bring about reflexivity.

Turning to the pre-nominal PDC in (72a), the head noun also moves to Art as above. In addition, the possessor and the possessive stem *si+* have moved inside FP and FP itself moves to Spec,DP (for an explanation of the absence of the suffixal determiner in this case, see Julien 2005b):<sup>34</sup>

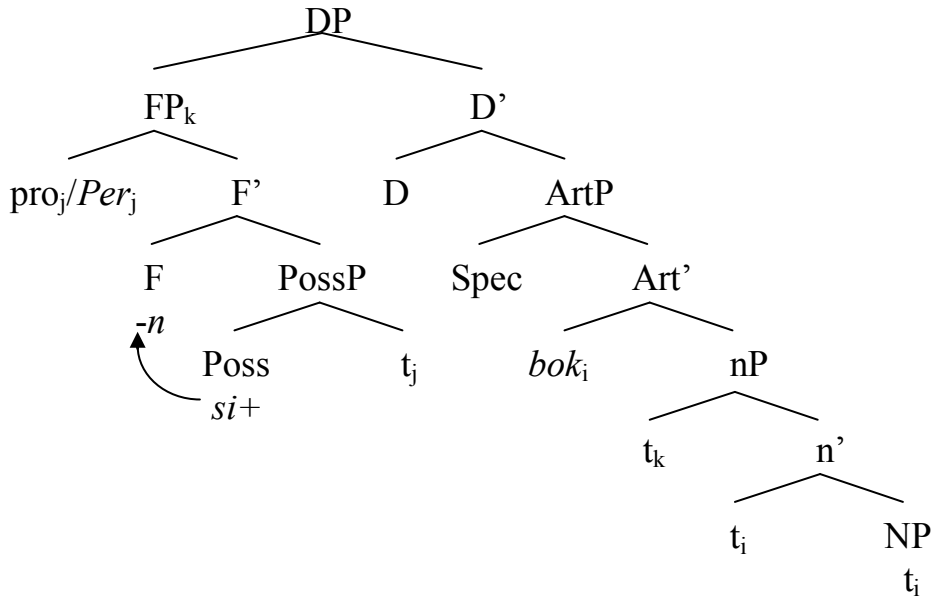
- (72) a. *(Per) sin bok*  
 Per REFL book  
 ‘his/Per’s book’

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1983, and Hestvik 1992). More generally, I assume that both agreement relations, Spec-head and Agree, exist in the grammar (see also Franck *et al* 2006).

<sup>34</sup> For German possessive pronouns such as *sein* ‘his’, one may assume that the head *s-* moves to F optionally: if *s-* moves, this will bring about a reflexive reading; if it stays in situ, this will result in a non-reflexive reading. Recall also that *s-* combines with *ein*, which is in the matrix DP. With the possessor moved to Spec,FP, adjacency with regard to *ein* will hold with either positional option of *s-* and independently of the mediating function of the possessive head with regard to Binding.



b. *Pre-nominal PDC*

To be clear, *sin* and its argument are in the FP-level, which forms the edge of the phase. As such, this possessive pronoun brings about reflexivity. Note that under my phase and decomposition account, it is no coincidence that agreeing pronouns are reflexive and non-agreeing pronouns are non-reflexive. Finally, I return to the two Binding scenarios from above, where one involves an overt possessor as the DP-internal Bindee and the other is *pro*.

If the DP-internal possessor is overt (as in the “traditional” PDC), there is no *pro*. If there is a DP-external possessor, then the relevant co-indexation results in a Condition C violation. In contrast, if the DP-internal possessor is *pro* (in this paper also analyzed as a PDC), the latter has to be identified. Specifically, Norwegian *sin* will identify the reference of *pro* linguistically and *hans* with the help of discourse-salient factors. This is in keeping with the different decompositional structures of *sin* and *hans* proposed above.

To summarize then, while the overt possessor does not have to be identified, the possessive head takes *pro* as an argument and mediates the identification of the semantic reference of *pro*. This then derives the different Binding relations in (66) and (67) that were illustrated there with different co-indexations. I now turn to a more detailed discussion of some other issues. The following section also provides evidence for the head status of certain possessive elements (albeit in a more tentative way).

#### 4. More Arguments for a Head Inside Possessives

In the next four subsections, I discuss issues, each of which will, in its own right, contribute to the main point of this paper. I will be concerned with the possessive relation and possessives as subjects, I return to DP-internal Binding, and I show that the extended projection of the possessive basically conforms to the Principle of Head Proximity.

##### 4.1. Possessive Relation

So far, I have stayed agnostic about the semantic relation between the possessive and the possessum noun. In the introduction, I labeled this relation ‘possessive relation’. I will claim that this relation actually holds between the complement of the possessive head (i.e., the possessor) and the possessum nominal. I will show that the possessive head, in a certain sense, plays a mediating role (cf. Weiß 2008). I will take this role to indicate the head status of this possessive element. The distinction between non-theta and theta nouns will turn out to be of crucial importance in this discussion.

It is well known that possessives in combination with non-theta possessum nouns can have an (almost) unlimited range of interpretations (Jackendoff 1977: 13, Williams 1982a: 283, for some restrictions, see Barker 1995: chap. 2). As Stockwell *et al.* (1973: 678ff) and Anderson (1983-84: 3) point out, it seems clear that a simple HAVE-relation is not enough to account for the variety of readings. In contrast, possessives with deverbal nouns only allow a limited set of interpretations, namely those typically assigned by their corresponding verbs (Safir 1987, cf. also Haider 1988: 54; Dimitrova-Vulchanova & Giusti 1998: 353).

To illustrate, while *Peter* in *Peter’s car* may be the owner of the car, he could also be the person who mentioned a certain car, drove or washed it, etc. Interlocutors can refer to this car as *Peter’s* in conversation and, given the right context, there is no contradiction in uttering (73a). Such readings are impossible for (73b). For instance, (73b) cannot mean that Caesar told us a different version of the story of the conquest of Gaul than perhaps Peter did. However, it could mean that there were two different campaigns, one led by Caesar and the other

by Peter. As pointed out in section 2.2, the only interpretation possible is that of an agent with regard to *Cäsars* and that of a theme with *Gallien* ‘Gall’:

- (73) a. *Peters Auto gehört seiner Mutter.* (German)  
 Peter’s car belongs to his mother  
 ‘Peter’s car belongs to his mother.’  
 b. *Cäsars Eroberung Galliens*  
 Caesar’s conquest Gaul’s  
 ‘Caesar’s conquest of Gaul’

Besides this interpretative difference, there is also a distributional one. As already illustrated above, the possessive can also be expressed by a *von*-phrase, which can follow and precede the non-theta possessum noun. Compare (74a) to (74b):

- (74) a. *Das Auto von Peter gehört seiner Mutter.*  
 the car of Peter belongs to his mother  
 ‘Peter’s car belongs to his mother.’  
 b. *Von Peter das Auto gehört seiner Mutter.*  
 of Peter the car belongs to his mother

This is different for theta nouns. Here, the preposition *von* ‘of’ can typically not be used with an agentive argument. Rather, German employs *durch* ‘by’ in these instances. Importantly, in contrast to the possessives above, the *durch*-phrase cannot precede the head noun (for similar data in Bulgarian, see Giusti 1996: 124):

- (75) a. *die langwierige Eroberung Galliens {durch/\*von} Cäsar*  
 the lengthy conquest Gaul’s by / of Caesar  
 ‘the lengthy conquest of Gaul by Caesar’  
 b. *{?\*durch/\*von} Cäsar die langwierige Eroberung Galliens*  
 by / of Caesar the lengthy conquest Gaul’s

In an intuitive sense, possessives have to be “closer” to theta nouns than to non-theta nouns. To be more precise, it seems clear that possessives in the former case must be inside the DP but possessives in the latter can be base-generated outside the DP proper. I propose that the differences in interpretation and distribution follow from the different head nouns involved and how they combine with the possessives.

Focusing on the typical cases, it seems intuitively clear that the entire possessive is a referring expression (type  $\langle e \rangle$ ). In fact, it often contains a proper name, which is also of type  $\langle e \rangle$ . Above, I argued that possessives involve possessive heads and possessors where the possessive head is a predicate taking the possessor as an argument. Now, with the possessor of type  $\langle e \rangle$ , the question arises how the entire possessive comes to be of type  $\langle e \rangle$ . Two options seem to be plausible: either the possessive head is semantically vacuous or it is a function from entities to entities (type  $\langle e, e \rangle$ ).<sup>35</sup> Below, I will show that the latter option is more promising.

Continuing with theta nouns, I assume for current purposes that they are similar to their verbal counterparts in the way they combine with their arguments (i.e., by Functional Application). Given the multi-component structure of possessives, one can represent the possessive relation for theta nouns as follows where the possessor is the semantic argument of the possessive head and the resultant combination, the possessive, is the argument of the theta noun:

(76)  $\text{noun}_{\text{theta}}(\text{possessive head}(\text{possessor}))$

It follows from these assumptions that the possessive cannot be base-generated outside of the DP and that the argument theta roles of deverbal head nouns are agent and theme.

Turning to the non-theta nouns, I pointed out above that these readings do not involve the traditional (verbal) theta roles such as agent and theme. With the possessive head a mono-valent functor, I basically follow Szabolcsi (1994: 193) and Zimmermann (1991: 41) in suggesting that the possessive head assigns an

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<sup>35</sup> Recalling the (in-)definiteness spread discussed in section 3.3, it is clear that  $\langle e, e \rangle$  cannot be the type of all possessive functions (as indefinite noun phrases are not of type  $\langle e \rangle$ ). As such, the function needs to be generalized to  $\langle \alpha, \alpha \rangle$ .

unspecified theta-role to its complement, the possessor, as a formal way to satisfy the theta criterion. As such, possessive heads are not semantically vacuous. With theta nouns, the unspecified theta-role assigned by the possessive head is specified for content by the deverbal head noun as just discussed. In contrast, with non-theta possessum nouns, it is contextually determined allowing a wide range of interpretations.<sup>36</sup> This specification of the theta-role of the possessor is what I mean by establishing a possessive relation.

Objects stand in a certain relation to the world containing them, in particular, to the human beings acting upon them. In order to capture the fairly free interpretation of the relation between the possessive and the possessum, I point out that non-theta nouns themselves do not assign theta roles (hence the name); that is, one needs to find an analysis different from (76). There are now two ways to proceed: either the possessive head takes the possessum nominal as a semantic argument, (77a), or the relation between the two elements is less tight as indicated by the dash sign in (77b):

- (77) a. possessive head(possessor, noun<sub>non-theta</sub>)
- b. possessive head(possessor) – noun<sub>non-theta</sub>

With the internal structure of possessives in mind, the former option essentially makes the possessive head a bivalent functor but the latter does not. As such, the former option would make the semantic role that the possessive head plays even

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<sup>36</sup> A reviewer wonders what the nature of an unspecified theta-role is. The current proposal could be understood in the context of Dowty (1991), who argues for thematic proto-roles. Simplified, thematic proto-roles are fuzzy, cluster concepts, defined by sets of verbal entailments, which themselves are independent of one another. Setting up an opposition between a Proto-Agent and a Proto-Patient, he suggests that arguments can differ in the degree to which they bear their respective role (which depends on the number of entailments and their relative ranking).

Building on this notion of non-discreteness, one could suggest that an unspecified theta-role is characterized by no entailment or a low-ranking one. (Barker & Dowty 1993 extend this proposal to relational nouns but, with the exception of their footnote 5, do not discuss non-relational nouns such as *book*.)

more direct.<sup>37</sup> There are at least two considerations that point in the direction of (77b).

First, recall that these possessives can be base-generated quite far from the possessum. A tight semantic relation as in (77a) would have to be “flexible” enough to accommodate that. This seems undesirable and unlikely. Second, if one were to assume a two-place possessive predicate more generally, then this might cause problems with theta-nouns. Specifically, the possessive predicate would take the non-theta nominal as one of its arguments (cf. (77a)) but the theta head noun itself would take FP as one of its arguments (cf. (76)). At the very least, one would be committed to assume that the possessive head can be both a mono- and a bivalent functor (essentially, depending on a possessive-external element - the type of possessum noun). I believe this makes the option in (77a), at best, not very elegant.

To sum up this subsection, I proposed that the possessive head assigns an unspecified theta-role to its complement, the possessor. This theta-role is then specified contextually (in case of a non-theta head noun) or linguistically (by a deverbal head noun). To avoid confusion, note that the assignment of the unspecified theta-role by the possessive head is different from the identification of *pro* mediated by the possessive head. In the former case, the unspecified theta-role is assigned to its complement, be it overt or *pro*; in the latter case, identifying the reference is only required for *pro*. To refocus the discussion, I argued that possessives involve predicative heads.

#### 4.2. Possessives as Subjects of Noun Phrases

It is often suggested that possessives in noun phrases behave like subjects in clauses (e.g., Chomsky 1970, Haegeman 2004). Above, I already pointed out that unlike sentential subjects, possessives are syntactically optional. However, this apparent optionality of the possessive subject should be restated in terms of its components. As argued above, the individual parts are not optional. This follows from the one-to-one relation between the possessive head and the possessor. If the possessive head is present, so is the possessor and *vice versa*.

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<sup>37</sup> Among others, this option has been formalized by Higginbotham (1983), who proposes that cases such as *John's cat* are interpreted as [*the x: cat(x) & R(John, x)*], where R is a “relational demonstrative” in Higginbotham’s terms.

From this perspective, possessors (not possessives) behave much in line with sentential subjects. Besides this first issue, there seems to be another potential point of contrast between the nominal and sentential domain.

One of the hallmarks of subjecthood is that subjects agree in person, number, and gender with the finite verb:<sup>38</sup>

- (78) a. Peter {goes/\*go} to school.  
 b. Peter and Tom {go/\*goes} to school.

If one makes parallel assumptions for the noun phrase, one seems to find something else. Specifically, possessors do not agree with their head nouns.<sup>39</sup> Thus, while some patterns may be more common than others, a singular possessor can combine with both a singular and plural head noun and a plural possessor can too:

- (79) a. Peter's car(s)  
 b. Peter and Tom's car(s)

Again, this is surprising if possessives are taken to be similar to subjects in the clause. However, if one interprets the possessive pronoun as the relevant head and the possessor as its subject, then one does find the relevant restriction. To be precise, the possessor has to agree in person, number, and gender with the possessive head (Krause 1999):

- (80) a. *Peter {sein / \*ihr} Auto*  
 Peter his / their car  
 'Peter's car'  
 b. *Peter {seine / \*ihre} Autos*  
 Peter his / their cars  
 'Peter's cars'

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<sup>38</sup> While agreement in gender is admittedly rarer, it reveals itself in the Russian past tense.

<sup>39</sup> This still allows the option of the entire possessive (i.e., the possessor and possessive head as a unit) agreeing with the head noun. This has been reported for Hungarian, among others.

- c. *Peter und Tom {ihr / \*sein} Auto*  
 Peter and Tom their / his car  
 ‘Peter and Tom’s car’
- d. *Peter und Tom {ihre / \*seine} Autos*  
 Peter and Tom their / his cars  
 ‘Peter and Tom’s cars’

To sum up, making the assumption that possessives involve extended projections, possessors do behave like subjects under these assumptions. As such, the agreement inside the possessive assimilates to the cases of subject-verb agreement in the clause supplying an argument for the head status of the possessive predicate. Consequently, the nominal domain, specifically possessives, are becoming more parallel to the sentential one.<sup>40</sup> I return to the discussion of DP-internal Binding from section 3.4.

#### 4.3. DP-internal Binding

Returning to Binding relations, I argued above that the possessive head, the pronoun, is neither the Binder nor Bindee. Rather, its complement, the overt or covert possessor, is involved in the Binding relations. The question that arises now is how the possessor can bind another element outside the FP if one takes c-command as a necessary requirement for Binding. This can easily be illustrated with PDC:

- (81) a. *bildet* [FP *hans Per<sub>i</sub>*] *av seg selv<sub>i</sub>*  
 picture-DEF his Per of REFL  
 ‘Per’s picture of himself’

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<sup>40</sup> It should not be surprising to find other parallelisms between the two domains. For instance, Stockwell *et al.* (1973: 714) state that (ia) and (ib) may be related:

- (i) a. yesterday’s paper  
 b. Yesterday saw the beginning of a new quarter at school.

It is also worth mentioning that Sigurðsson (2002: 720) proposes that non-nominative, that is, quirky subjects in Icelandic agree with the finite verb although not fully. With this in mind, possessive subjects are semi-quirky: they have quirky case but do agree with their head fully. Also, a reviewer points out that it might be interesting to investigate if possessors as internal arguments have unaccusative properties. The detailed investigation of these interesting points goes beyond the scope of this paper.



- b.  $[_{FP} Per_i sitt ] bild \quad av seg selv_i$   
 Per REFL picture of REFL  
 ‘Per’s picture of himself’

Recalling the structures in (63b) and (72b), it is clear that the possessor cannot c-command out of FP. Continuing with the post-nominal PDC, (81a), there are two options now: first, one could assume that the entire FP is the Binder (for current purposes, the bearer of the index) and c-command would hold, (82a). However, it is not clear how to technically instantiate this (note, e.g., that the possessor is not in a Spec-head relation with the possessive head and it is thus not clear how the index on the possessor could wind up on FP). As such, a syntactic account of Binding based on c-command is not straightforward for these cases. As a second option, one could suggest that the possessor is the Binder after all and the possessive head has some mediating function – perhaps it forms a complex predicate with the head noun. This is illustrated in (82b):

- (82) a.  $bildet [_{FP} hans Per ]_i av seg selv_i$   
 b.  $bildet+hans [ Per ]_i av seg selv_i$

In contrast to the first option, this type of account would be more semantic in nature (see, e.g., Reinhart & Reuland 1993). In view of the above-mentioned issue with (82a), I suspect that the analysis in (82b) is on the right track (cf. Julien 2005a: 156). Note that in the latter case, it is crucial to assume that the possessive head is some type of predicate.

#### 4.4. Principle of Head Proximity

Above I left open a detailed discussion of the cross-linguistic distribution of possessives. While I cannot deal with this topic comprehensively here, I will make a few remarks that are relevant for my main point. In particular, if possessives involve heads and extended projections, it is possible to explain a number of distributions. If so, this discussion leads to another argument for the head status of possessive pronouns.

I have shown that possessives as a whole can precede and follow the head noun. Consider the pre-nominal and post-nominal PDC in (83):

- (83) a. *æ mand {sin / hans} hat* (Western Jutlandic)  
 the man REFL / his hat  
 ‘the man’s hat’  
 (Delsing 1993: 153, Julien 2005a: 222)
- b. *boken hans Per* (Norwegian)  
 book-DEF his Per  
 ‘Per’s book’

However, there are also some interesting distributional restrictions inside the extended projection of possessives. Specifically, I am not aware that any of the following possibilities exist where the possessor intervenes between the possessive pronoun and the head noun. Hence, I will mark these patterns as ungrammatical:

- (84) a. *huset (\*Per) hans*  
 house-DEF Per his  
 ‘his house’
- b. *huset (\*Per) sitt*  
 house-DEF Per REFL
- c. *sitt (\*Per) hus*  
 REFL Per house

With the above discussion in mind, (84a-b) involve FP in situ and the possessor in Spec,FP; (84c) involves FP in Spec,DP and the possessor in situ, that is, in the complement position of Poss. While I have no “deep” account for this, note that these distributions conform to the Principle of Head Proximity discussed in the typological literature (Rijkhoff 1986: 100, 2002: Chapter 9).<sup>41</sup>

<sup>41</sup> Observing the syntactic behavior of English ’s, a number of authors have suggested that the latter is similar to post-positions (see, e.g., Anderson 1983-84, Giorgi & Longobardi 1991: 99; Lyons 1999: 23, 124; Sadler & Arnold 1994: 203). This could be instantiated as in Larson & Cho (1998), who propose that ’s is the spell-out of THE+*to*, where the (incorporated) locative preposition *to* establishes the possessive relation. Some of these authors also draw a

- (85) The Head of a domain prefers to be contiguous to the Head of its superordinate domain.

As proposed above, the noun phrase embeds the possessive, that is, its extended projection. I assume then that the head of the superordinate domain is the noun and that the head of the subordinate domain is the possessive pronoun. According to this principle, both heads prefer to be close to one another. This is clearly the case in (83) but not in (84). As such, these data conform to the principle. Note now that this preference principle does not extend to the grammaticality of (86a) and is silent about the ungrammatical case in (86b).<sup>42</sup>

- (86) a. *hans Per hus* (Northern Swedish)  
his Peter house  
'Per's house'  
(Delsing 1993: 153 fn. 10, 1998: 103)
- b. *huset sitt (\*Per)*  
house-DEF REFL Per  
'his house'

I hasten to point out, though, that the distribution of (86a) is fairly rare. To speculate, then, one might suggest that the workings of this principle have, with a few exceptions, been grammaticalized.

More generally, if the Principle of Head Proximity is applicable here, then one can derive another argument for the proposal that possessive pronouns are heads of an embedded phrase. Finally, I return to the question of constituency of multi-component possessives.

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parallelism to adjectives in pre-nominal position, which are subject to the Head-Final Filter (e.g., Williams 1982b); that is, the complement must precede the head. Given my discussion of the possessive pronouns, I believe that the restrictions on the syntactic distribution of possessives are different and should include the post-nominal possessive elements.

<sup>42</sup> It seems clear that the distributions involving *sitt* are more restricted than those of *hans*. While in the former the (overt) possessor must precede the possessive head, this is not the case with the latter (for a possible account of (86b), see footnote 32). Note also that the strings in (86a-b) are not possible in German. Again, this follows from the different composite analysis of the German possessive pronouns.

## 5. Two Potential Counterarguments

As already documented in section 2.1, the possessive pronoun can be sandwiched between a determiner and a head noun in earlier varieties of German, (87a). With some restrictions, this is still possible in poetic or elevated German, (87b):<sup>43</sup>

- (87) a. *der sîner snelheite er mohte sagen danc* (Middle High Germ.)  
to.the his speed he could say thanks  
‘He could thank his speed.’  
(from *Nibelungenlied*, adventure 34, stanza 23, line 2)
- b. *Du bist die meine.*  
you are the my  
‘You are mine.’

Interestingly, although not entirely perfect, the possessor can also be expressed overtly by inserting it in front of the definite article, (88a).<sup>44</sup> On the face of it, one could interpret this datum such that the possessor and the possessive pronoun do not form a constituent (see Grohmann & Haegeman 2003: 54 for this conclusion on the basis of similar data in West Flemish, cf. also Corver & van Koppen 2010). If so, this would present a serious challenge to the current analysis. Recall now from section 2.4 that I showed that PDC cannot be split up. At first glance, then, one seems to face a paradox: some data indicate constituency and others militate against it.

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<sup>43</sup> Unlike in Middle High German, an adjective and/or noun cannot follow in Modern German, (ia). Furthermore, the definite article cannot be replaced by a demonstrative, (ib):

- (i) a. \* *Du bist die meine {Hübsche / hübsche Freundin / Freundin}.*  
you are the my beautiful / beautiful girlfriend / girlfriend  
b. \* *Du bist diese meine.*  
you are this my

Considering these stylistic and syntactic restrictions, I assume that the distributional possibility in (87b) is part of an older grammar. This also means that the possessive pronoun is not a composite element in that grammar (for the discussion of some diachronic issues, see Demske 2001, Alexiadou 2004, Wood 2007).

<sup>44</sup> There are German dialects where this type of example seems to be perfect (Weiß 2008: 392 fn. 17). Also, distributions involving *-s* or *von* ‘of’, be they before or after the possessive pronoun, are much more degraded. To save space, this is not shown here.

Note, however, that the above data also involve some other interesting restrictions. For instance, similar to the PDC, there is also a person restriction here, (88b):

- (88) a. *?(?)Das ist dem Peter die Seine.*  
           this is the-DAT Peter the his  
           ‘This is Peter’s wife.’
- b. *Das ist (\*mir) die Meine.*  
           this is me the mine  
           ‘This is my wife.’

With the above discussion in mind, I will offer an analysis that is compatible with my current assumptions.

First, recall from section 3.1 that *von*-possessives can be base-generated just above the DP and from section 2.3 that possessive elements of the first and second person are in the complement position of the possessive head. As such, they are in complementary distribution with a(nother) overt possessor or *pro* inside FP. With the possessor preceding the determiner in (88a), one can suppose then that the overt possessor is base-generated just above DP and that FP contains *pro* as a possessor when the possessive head is in the third person:

- (89) [XP *dem Peter*<sub>i</sub> [DP *die* [FP *pro*<sub>i</sub> *Seine* ] e<sub>N</sub> ]]

Let me briefly comment on this analysis. To assign a possessive interpretation to the “free” overt nominal, I assume that *dem Peter* is “reconstructed” into *pro* indicated here by subscripts (cf. the discussion of semantic reconstruction of predicates in Roehrs 2011a; see also Haegeman’s 2003 discussion of *pro* as a resumptive pronoun in West Flemish). With *pro* missing in first and second-person possessives, an external possessor cannot reconstruct explaining (88b). Furthermore, I suggest that the dative case is due to a default mechanism, which seems to be required independently for certain nominals (for the discussion of “loose” appositions in this respect, see Roehrs 2009b: 314). Moreover, considering the position and inflection of *Seine* ‘his’, I assume that this possessive element is adjectival. Finally, an analysis similar to (89) might also

offer an account for some other phenomena. Before I close this section, let me consider one such case.

Another potential argument against the current proposal might be constructed from extraction facts. To introduce the relevant data, if the entire possessive is extracted, this leads to ungrammaticality, (90a-b). Above, I proposed that PDC and SGC basically have the same structure. As such, it is not surprising that both constructions pattern in the same way. However, a clear difference in grammaticality results if just the possessor is extracted, (90c-d):

- (90) a. \* *Wem seine ist das (die) Katze?*  
 whom his is that the cat  
 ‘Whose cat is that?’
- b. \* *Wessen ist das (die) Katze?*  
 whose is that the cat
- c. ? *Wem ist das [<sub>FP</sub> pro seine ] Katze?*  
 whom is that his cat
- d. \* {*Wer / Wem / Wen*} *ist das [<sub>FP</sub> pro ’s ] Katze?*  
 who-NOM / whom-DAT / whom-ACC is that ’s cat

For (90a-b), I will basically follow Gavrusseva (2000) and Alexiadou, Haegeman & Stavrou (2007: 608ff), who propose that only very high specifiers can be extracted from the DP. Above, I proposed that the possessives underlying (90a-b) are in Spec,DP. One can suggest then that Spec,DP is not such a high position and movement of FP from there is not possible. As to the difference in (90c-d), the fairly good status of (90c) might call into question the current proposal as the possessor appears to have extracted out of FP (the latter being in Spec,DP). With section 2.4 in mind, extraction out of such a specifier position should lead to general ungrammaticality, contrary to fact.

However, recalling the discussion in (89), I assume that there is actually no extraction here at all. Rather, the possessors in (90c-d) are *pro* and the relevant question nominals are base-generated outside the DP. In order for these “free” nominals to receive a possessive interpretation, I would like to suggest that they undergo reconstruction in the sense above. The reason why (90d) is

bad is that, as already pointed out in section 3.3, *-s* cannot encliticize onto null *pro*.

To round off the picture, I pointed out above that *von*-possessives are not in Spec,DP when they occur in the left periphery; they are in a higher specifier. In a way, these types of possessives seem to be the least constrained and, indeed, dislocation to the left here is perfect (the datum is adapted from Fortmann 1996: 126):

- (91) *Von wem hat [ der Bruder ] angerufen?*  
 of whom has the brother called  
 ‘Whose brother has called?’

Assuming that possessives can be base-generated outside of the DP proper, one can assimilate (88a), (90c), and (91). More generally, one can state that both counterarguments against the constituency of the PDC are not conclusive. In fact, both may receive a similar account on current assumptions. Returning to the ungrammatical cases from the introduction, one must assume that separate base-generation of the possessor from the possessive pronoun and/or semantic reconstruction are not possible inside the DP proper. In a way to be made more precise in the future, the conditions on the licensing of elements inside the DP proper are stricter than on those outside of it.

## 6. Conclusion

In this paper, I have argued that a possessive consists of a possessive head and a possessor phrase. Together these elements make up a PossP. In fact, I have argued that a possessive involves an extended projection. Among others, arguments for this claim were derived from movement of the possessive head and the possessor inside the extended projection. It was further proposed that this complex possessive structure as a whole may move inside the matrix DP as a constituent.

Providing an alternative view to the standard account, I believe I have reached a number of interesting results. For instance, I provided numerous

arguments that possessive pronouns have head-like properties. In fact, these pronouns seem to exhibit hybrid characteristics. Without striving to be exhaustive here, they are similar to prepositions (movement of the PDC in Icelandic), to adjectives (decomposition, case and theta-role assignment), and to demonstratives (syntactic distribution). Crucially, all these elements have been independently argued to involve extended projections. I take these commonalities as strong confirmation of the main hypothesis.

Attempting to provide a homogenous account of possession, I had to gloss over a number of details. For instance, this paper did not attempt to account in detail for the differences between the individual constructions, languages, or language families. On the one hand, this was done to keep the topic manageable and to enhance readability. On the other, this had to do with certain empirical gaps and uncertainties about theoretical choices. I hope to return to some of these fascinating issues in the future.

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# On inter-individual variation and mid-distance binding in Swedish

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## Abstract

This article discusses variation in mid-distance binding in Swedish. As I will show, most Swedish speakers allow binding into a control infinitive (i.e., mid-distance binding) of a possessive reflexive pronoun, but not a simple reflexive pronoun. However, some speakers allow mid-distance binding of both possessive and simple reflexives. I argue that some speakers have reanalyzed the simple reflexive as a voice-marker, and as a voice-marker, the reflexive element cannot be bound. Crucially, not all speakers have fully reanalyzed the simple reflexive, which leads to the observed variation, which is not geographically conditioned (i.e., dialectal). The variation is best described as inter-individual (i.e., between individuals, idiolectal). I will argue that the variation does not have its source in the input, but rather by individual biases for certain linguistic rule systems

## 1 Introduction

The results from the Scandinavian dialect syntax survey (ScanDiaSyn) carried out in Scandinavia between 2005 and 2010 show that there is a lot of variation within and between the Scandinavian variants (see Lindstad et al. 2009 for information about the project and the available database). The variation is often determined by region, but not always. We often see that within the same measure point, the

informants have different intuitions about the grammaticality of one and the same sentence, and in many of these cases, the variation does not seem to be determined by other demographic factors like age, gender or even social status. When we find linguistic variation, we seek the source of the variation in external factors (mainly input), and we call it dialectal or sociolectal variation. In doing so, we presuppose that a grammar is fully determined by input/primary linguistic data, in combination with Universal Grammar and socio-cultural factors. When we find variation that is not conditioned by region or age, we are likely to view it as “noise” in the sample, or attribute it to additional hitherto unknown socio-linguistic factors. The purpose of this article is to challenge the view that linguistic variation always has its source in external factors (i.e., variation in input and socio-cultural factors). The question that I will try to answer in this article is the following: Can more than one grammar arise from the same input in the same socio-cultural context? Or put slightly differently: can language learner A and language learner B arrive at two different grammars from the same input? The answer to these questions is, I believe, Yes, but of course we cannot be 100 per cent certain, since we don’t know of any cases where two language learners are exposed to *exactly* the same input. I will argue that choice of learning strategy, or an individual bias for a certain type of linguistic rule system, can influence the grammar you end up with. Your choice of learning strategy might of course be influenced by external factors, though presumably not mainly by the linguistic input. I will in the concluding section of this paper also suggest that we cannot rule out that a certain bias for a learning strategy is partly genetically determined, following ideas in Ladd et al. (2008).

The case study of this paper is variation in so-called mid-distance binding in Swedish, i.e. binding into an infinitival clause by a main clause subject. In the literature on Swedish binding, mid-distance binding of a simplex reflexive is in

general taken to be possible, as in (1-a) and (1-b) (examples from Platzack 1998):

- (1) a. *Eva<sub>i</sub> bad honom<sub>j</sub> att PRO<sub>j</sub> kamma sig<sub>i/j</sub>.*  
*Eva asked him to PRO comb RFLX*  
 ‘Eva asked him to comb her/himself.’
- b. *Eva<sub>i</sub> bad honom<sub>j</sub> att PRO<sub>j</sub> kyssa sig<sub>i</sub>.*  
*Eva asked him to PRO kiss RFLX*  
 ‘Eva asked him to kiss her.’

However, many speakers strongly reject binding by the matrix subject in (1) (which makes (1-b) ungrammatical, since *kyssa* would take a complex reflexive when locally bound). Still, there are speakers who accept mid-distance binding in both examples above. The acceptability of mid-distance binding was investigated in the Swedish part of the ScanDiaSyn-project. In the ScanDiaSyn project, four informants (old man, old woman, young man and young woman) from a total of over 200 measure points in Scandinavia were asked to give grammaticality judgments for 100-150 sentences (see Lindstad et al. 2009 for details). The sentences were judged using a five graded scale (1-5, 1 bad, 5 good). The informants heard recorded versions of the sentences, read in by a native speaker of the dialect. At the time of writing, data is available from 26 measure points in Sweden and Finland. The following sentence was tested in Sweden and Finland:

- (2) *Hon<sub>i</sub> bad mig hjälpa sig<sub>i</sub>.*  
*she asked me help RFLX*  
 ‘She asked me to help her.’

The sentence was judged acceptable (4-5) by 21 of 102 (20.5 %) informants. The mean value was 2.3. This variation is not mainly determined by region, i.e. the 21 speakers accepting (2) are spread all over the country. It should be noted however that the sentence in general received higher scores from the older population, which

might indicate that the this type of mid-distance binding is about to disappear in Sweden. However, in several locations the sentence gets high scores from one or two of the younger informants, sometimes even when the sentence gets a low score from the older informants.<sup>1</sup> In addition to mid-distance binding of simplex reflexives, mid-distance binding of possessive reflexives was tested as well:

- (3) Hon<sub>i</sub> bad mig passa sin<sub>i</sub> katt.  
*she asked me watch RFLX.POSS cat*  
 ‘She asked me to look after her cat.’

This sentence was found acceptable for 71.5% of the informants, and has the mean value 4. The variation in judgments was not determined by region, age or gender. If we take the results from (2) and (3) at face value, we seem to have two or maybe three different mid-distance binding grammars in Sweden. I will in this talk focus on what I call Grammar A and Grammar B:

**Grammar A:** Rejecting binding of simple reflexive (2) but allowing binding of possessive reflexive (3) in infinitives by matrix subject: 55% of the informants.

**Grammar B:** Allowing binding of both simple reflexive (2) and possessive reflexive (3) in infinitives by matrix subject: 17% of the informants.

26% reject both (2) and (3). However, as was found out during field work in Norway (where only (2) was tested), some informants change their judgments from bad to good once an infinitival marker is present. This could be true for some Swedish informants as well, and in that case, it is possible that all the informants

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<sup>1</sup>It should also be noted that the sentence gets higher score from the measure points in Finland compared to the measure points in Sweden, indicating that region *is* a factor that determines the variation as well. I will return to the question why mid-distance binding is particularly bad in Sweden compared to its Scandinavian neighbors in section 4.

allow some mid-distance reflexives. However, we cannot rule out the existence of a Grammar C, where binding over an infinitival clause boundary is illicit. I will however not have anything to say about a possible Grammar C in this paper. Three informants gave higher scores for (2) than (3), but no informant gave (2) a full score, while judging (3) as completely ungrammatical (1-2). For the purpose of this article, I will simply assume that the logically possible Grammar D, where mid-distance binding of simplex reflexives but not possessive reflexives is licit, does not exist in Sweden.

The difference between Grammar A and Grammar B can not straightforwardly be analyzed as, say, a difference in size of binding domain. Rather, there seems to be a difference in binding properties between simplex reflexives and possessive reflexives. As we will see below however, mid-distance binding of simplex reflexives is possible in Grammar A as well, but only when the simplex reflexive does not immediately follow a verb. It should also be mentioned that the possessive reflexive *is* in general a local reflexive in Swedish, as can be seen from the fact that binding of *sin* in a finite complement clause is not possible. The following sentence was included in the ScanDiaSyn survey to test this:

- (4) Grannen<sub>i</sub> ville att vi skulle passa sin<sub>i</sub> katt.  
*Neighbor wanted that I should watch RFLX.POSS cat*  
 ‘The neighbor wanted that we should look after her cat’/‘She wanted me to look after her cat.’

This sentence was rejected by basically all informants (4 speakers gave it 4, no 5 and the mean value was 1.4).

The question that I will discuss in this paper is how Grammar A and Grammar B can arise in the same speech community. I will argue that in Grammar A, a simplex reflexive can only be interpreted as a de-transitivizing element when following a verb, while it can be interpreted as an argument in Grammar B in the same con-

text. I will show how both Grammar A and B could logically arise from the same core input, and I will argue that the grammar you end up with is partly determined by how the language learner analyses the input data. Grammar B will arise when the speaker analyses *sig* as the third person member of the object pronoun series. Grammar A will arise in the speakers that posit a special *sig*-rule (i.e., *sig* in the complement of a verb can only be interpreted as a de-transitivizing element).

I will also briefly discuss Scandinavian variants where all speakers seem to end up with a grammar where the simplex reflexive and the possessive reflexive do not differ in their binding properties, most notably Icelandic and Danish, and why a grammar like Grammar A is less likely to arise there.

The structure of the paper is the following: in section 2 I will discuss the notion of idiolectal variation, and also look at what type of linguistic phenomena are more likely to give rise to inter-speaker variation rather than inter-region variation. In section 3 I will go through the basics of the binding system in Swedish and show exactly how Grammar A and Grammar B differ from each other. I will also show how two different learning routes get you to Grammar A or Grammar B. In section 4 I will briefly discuss possible reasons for the absence of Grammar A in Danish and Icelandic. Section 5 concludes the paper.

## 2 Types of variation

As mentioned above, the grammaticality of around 100-150 sentences was tested in around 200 locations in mainland and insular Scandinavia in the ScanDiaSyn-project. In total, over 800 informants were consulted. Below I will focus on the result from Norway and Sweden. Some of the test sentences show a variation in acceptability that is fully determined by location. For example, sentences that tested particle placement show a variation that is almost completely determined by the

country borders: the test sentence with a verb-particle following a direct object is rejected in Sweden, while accepted in Norway. Similarly, past tense -s-passive sentences are rejected all over Norway, but accepted all over Sweden. Sentences that tested for the non-V2 word order in subject *wh*-questions were only found acceptable in certain regions of Norway (mainly northern Norway, Trøndelag, northern parts of Western Norway and Rogaland). Similarly, the absence of a *that*-trace effect was only found in a small region of Norway (Southeastern Norway).

However, many phenomena tested show variation that is not determined by region. Many sentences are accepted by only one or two informants at a measure point, but rejected by the other informants at the same measure point. What type of phenomena show variation that is determined by region, and what type of phenomena have variation that is not is an interesting question in itself, but it is outside the scope of this article to fully investigate this issue. It is clear that factors like frequency, complexity of the grammatical rule, variation in the input and age of acquisition (which is presumably influenced or determined by aforementioned factors) influence what type of variation a certain phenomenon will show. Looking at the ScanDiaSyn results, it is striking that two phenomena show a high degree of non-regionally determined variation, or inter-speaker variation: non-local anaphora, and root phenomena in different types of embedded clauses (mainly the availability of V2 and topicalization in embedded clauses). These two phenomena have a number of shared characteristics. Most notably, they have alternative realizations that are less pragmatically marked: For non-local anaphors, a personal pronoun or a generic pronoun (*en*) can be used in most contexts where non-bound or long-distance anaphora are found. Choice of anaphora/pronoun is often determined by extremely subtle semantic or pragmatic factors, like point of view/logophoricity and topicality. When it comes to embedded V2, the same semantic and pragmatic force present in V2 subordinate clauses can be obtained in



non-V2 subordinate clauses by adjusting the stress.

One could in principle argue that the type of inter-speaker variation discussed in this paper does not really exist. For example, one could argue that some informants are better at filling in the pragmatic information that is necessary to license e.g. non-local anaphora and embedded V2, or that some speakers judge certain sentences as ungrammatical when there is a less marked alternative available. However, even when the informants get help with setting up the right pragmatic context for a sentence, the difference in judgment between informants most often persists. Further, we know that even trained linguists disagree on some judgments, even when they are speakers of the same dialect. For the purpose of this article, I will assume that the inter-individual variation found in the ScanDiaSyn results is real, and that the different judgments given by different informants correspond to differences in the internal grammars of the informants, both for variation that is determined by region/place (i.e. dialectal/inter-regional variation) and that is not determined by region/place (i.e. inter-speaker variation). Below I will look at a phenomenon that show inter-speaker variation in Swedish, mid-distance binding, and argue that this variation can arise due to differences in individual biases for a certain type of rule systems.

### **3 Case study: mid-distance anaphora in Swedish**

In this section I will go through the differences and shared traits between Grammar A and Grammar B, and give a plausible acquisitionist account of how the two grammars could arise from the same input. To remind the reader, Grammar A is the grammar that allows (5), but not (6), while Grammar B allows both (5) and (6).

- (5) a. Binding of simple anaphor (*sig*) in the complement of embedded infinitive by matrix subject:

- b. Hon<sub>i</sub> bad mig hjälpa sig<sub>i</sub>.  
*she asked me help RFLX*  
 ‘She asked me to help her.’
- (6) a. Binding of possessive anaphor (*sin*) in the complement of embedded infinitive by matrix subject:
- b. Hon<sub>i</sub> bad mig passa sin<sub>i</sub> katt  
*she asked me watch RFLX.POSS<sub>i</sub> cat*  
 ‘She asked me to look after her cat’

As already mentioned in the introduction, 55 % of the informants in the Swedish part of the ScanDyaSyn survey have Grammar A, while 17 % have Grammar B. We have further reasons to expect that Grammar A and B cover a larger part of the population than 72 % (55 + 17), since some speakers possibly require an overt infinitival marker in control infinitives. Below I will look at the shared properties of Grammar A and B. It should be noted that examples and judgments below do not originate from the ScanDiaSyn survey, but reflect my own intuitions and the intuitions from a handful of native informants.

### 3.1 Shared properties of Grammar A and Grammar B

It is highly likely that Grammar A and Grammar B only differ with respect to binding of simplex mid-distance reflexives. I will below look at three points where the two grammars converge:

1. Binding of both possessives and simplex reflexives in infinitival clauses by matrix subject is possible:
- (7) Hon<sub>i</sub> bad mig passa sin katt<sub>i</sub>.  
*she asked me watch RFLX.POSS<sub>i</sub> cat*  
 ‘She asked me to look after her cat.’

All speakers that I have consulted (of both Grammar A and B) also allow mid-distance binding of *sig* only when *sig* is in the complement of a preposition:

- (8) Hon<sub>i</sub> bad mig<sub>j</sub> PRO<sub>j</sub> stanna hos sig<sub>i</sub>/henne<sub>i,k</sub> över natten.  
*she asked me PRO stay at RFLX/her over night.DEF*  
 ‘She asked me to stay with her overnight.’

2. *Sig* can be used as a “de-transitivizing” element (as a “lexical” reflexive, see e.g. Reinhart and Reuland 1993, see also Kayne 1975, Alsina 1996 and Medová 2007 for other accounts). Here *sig* presumably does not have the status of an argument, since these predicates behave like intransitive predicates: only mono-argumental predicates can appear in existential clauses such as (9):

- (9) a. Det öppnade sig en dörr framför honom.  
*it opened RFLX a door front.for him*  
 ‘A door opened in front him.’
- b. Det satte sig en man på den andra stolen.  
*it sat RFLX a man on the other chair*  
 ‘A man sat down on the other chair.’
- c. Det tvättade sig några män nere vid stranden.  
*it washed RFLX some men down at beach.DEF*  
 ‘Some men washed (themselves) down at the beach.’

3. *Sig* can be used as an argument, which most clearly can be seen in PP-complements where *sig* easily can be conjoined with a NP:

- (10) a. Hon ordnade ett möte hemma hos sig och sin  
*she arranged a meeting home at RFLX and RFLX.POSS*

sambo.

*partner*

‘She arranged a meeting at her and her partner’s place.’

- b. Hon lade sonen i sängen mellan sig och sin  
*she put son.DEF in bed.DEF between RFLX and RFLX.POSS*  
 make.  
*husband*  
 ‘She put the son in the bed between herself and her husband.’

Further, PP’s do not become “intransitive” when they have reflexive complement:

- (11) Han ställde glaset framför sig.  
*he put glass.DEF front.for sig*  
 ‘He put the glass in front of himself.’

In (11), we see a transitive relation between a figure (*glaset*) and a ground (*sig*).

Since *sig* can be an argument, and mid-distance binding is OK for speakers of Grammars A and B, we expect both grammars to accept mid-distance binding of simplex reflexives in the complement of verbs. However, as we have seen, this is rejected by speakers with Grammar A. The three points above clearly show that the difference in between Grammar A and Grammar B cannot be stated in terms of “size of binding domains”, since both grammars allow mid-distance binding. Neither can it be described as a difference in binding properties between the simplex reflexive and the possessive reflexive, since both grammars allow mid-distance binding of both *sig* and *sin*. Rather, mid-distance binding of *sig* is only ruled out when *sig* directly follows a verb. I will claim that the speakers of Grammar A allow only a de-transitivizing *sig* in the complement of a verb, while the speakers of Grammar B also allow an argumental *sig* following a verb. The two grammars are

summarized in the table below:

	A	B
1. MID-DISTANCE BINDING	✓	✓
2. DE-TRANSITIVIZING <i>sig</i>	✓	✓
3. PRONOMINAL/ARGUMENTAL <i>sig</i>	✓	✓
4. *ARGUMENT <i>sig</i> AFTER VERB	✓	*

Grammar B is simpler than Grammar A, at least in that it contains fewer rules, but still Grammar A is more common than Grammar B. Why do most speakers add the fourth rule (“\*argument *sig* after verb”)? It should be a marked option, since no other element can be an argument of P but not V, as far I’m aware.<sup>2</sup> Below I will give a tentative explanation to why most Swedish speakers build up a grammar that does not generate a sentence like (2).

### 3.2 Arriving at Grammar A: The *sig*-specific rule

It is well known that a language often has more than one way of marking reflexivity (see Haspelmath 2008 for an overview). In many of the Germanic languages (and other languages as well) we find a difference between complex and simplex reflexive pronouns, where the complex reflexives consist of the simplex reflexives and a *self*-element (see e.g. Hellan 1988 and Reinhart and Reuland 1993 for discussion). Complex reflexives can normally only surface when the antecedent is local, while simplex reflexives sometimes can be found in long- and mid-distance contexts. Many verbs can only take a complex reflexive when the internal and external argument are co-referent (12-a), while other verbs can (or sometimes have

<sup>2</sup>It should however be noted that we don’t have a any good theory around for determining what counts as “a simpler Grammar”.

to) take a simplex reflexive (12-b):<sup>3</sup>

- (12) a. Han älskar sig \*(själv).  
*he loves RFLX self*  
 ‘He loves himself.’
- b. Han tvättade sig (själv).  
*He washed RFLX (self)*  
 ‘He washed (himself).’

As was seen in (9) above, the simplex reflexive can be used as a detransitivizing element. The complex reflexive can however not be used this way. We will thus not find any complex reflexives in existential clauses:

- (13) a. Det tvättade sig (\*själva) några män nere vid stranden.  
*it washed RFLX SELF.PL some men down at beach.DEF*  
 ‘Some men washed (themselves) down at the beach.’
- b. \*Det älskar sig själva många män nuförtiden  
*it loves RFLX SELF many men nowadays*  
 Int. ‘Many men love themselves nowadays.’

The simplex reflexive has a different distribution compared to regular complex reflexives, pronouns and other nominal elements. Most notably this can be seen in

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<sup>3</sup>It is not obvious that the optional *self*-part in the reflexive following a verb like *tvätta* (‘wash’) should be analyzed on par with the *self*-part in the reflexive in the complement of *älska* (‘love’). *Sig själv* in the complement of *älska* is clearly a constituent, as can be seen in the fact that you cannot split *sig* and *själv*, while this is possible for *tvätta*:

- (i) a. \*Han älskade sig inte själv.  
*He loved RFLX not self*  
 int. ‘He didn’t love himself.’
- b. Han tvättade sig inte själv.  
*he washed RFLX not self*  
 ‘He didn’t wash himself.’

It is possible that *self* following a verb like *tvätta* always is an emphatic marker, though this I will in this article assume that *sig själv* following a verb like *tvätta* at least sometimes is a true complex reflexive.

verb-particle constructions, where simplex reflexives sometimes have to precede a verb-particle, as shown in (14) and (15) below:<sup>4</sup>

- (14) a. Han kastade sig ner på golvet.  
*he threw RFLX down on floor.DEF*  
 ‘He threw himself down on the floor.’
- b. Han kastade ner honom på golvet.  
*he threw down him on floor.DEF*  
 ‘He threw him down on the floor.’
- (15) a. Han la sig ner i sängen.  
*he lay.PAST RFLX down in bed.DEF*  
 ‘He laid down in the bed.’
- b. Han la ner henne i sängen.  
*he lay.PAST down her in bed.DEF*  
 ‘He laid her down in the bed.’

My proposal is simply that speakers of Grammar A always treat the simplex reflexive in the complement of a verb as a de-transitivizing, verbal element rather than a direct object. It is admittedly hard to prove this point. First, not all verbs with simplex reflexives can occur in existential constructions.<sup>5</sup> However, this is true for regular intransitive verbs as well. In general, verbs that denote actions/events that are easily observable, or that have results that are easily observable, are more suitable in existential constructions than verbs that denote “internal” events, like thinking and feeling. As shown below, verbs of cognition/psych-verbs are odd in existential construction, both when they are reflexive marked or unmarked:

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<sup>4</sup>Even though non-reflexive direct objects in general always follow a verb-particle in Swedish, there are exceptions. Most notably, when the particle is followed by a directional PP, the particle can follow the direct object. In (14b), the object can thus either follow or precede the particle. When the object follows the particle, the particle is presumably a part of the following PP, and can should probably not be analyzed as a proper verb particle.

<sup>5</sup>Some speakers even find an existential construction with *tvätta sig* (‘wash’) marked. Speakers simply seem to differ in to what extent they allow clearly agentive verbs to occur in existential constructions.

- (16) a. ??Det oroadde sig många efter katastrofen.  
*it worried RFLX many after catastrophe.DEF*  
 Int. ‘Many people worried after the catastrophe.’
- b. ??Det sörjde många efter katastrofen.  
*it mourn.DEF many after catastrophe.DEF*  
 Int. ‘Many people mourned after the catastrophe.’

Secondly, not all simplex reflexives can precede verb particles, and for some verb-particle construction, the reflexive can either precede or follow the particle, giving rise to different interpretations:

- (17) a. Han tog ut sig.  
*he took out RFLX*  
 ‘He exhausted himself.’
- b. Han tog sig ut.  
*he took RFLX out*  
 ‘He got (himself) out.’

However, as shown in (18), a verb with a simplex reflexive following a particle can still occur in an existential construction, which indicates that a verb phrase of the shape verb-particle-reflexive still can be interpreted as an intransitive predicate. Note that the complex reflexive is not licit here (even though this verb allows both a simplex and a complex reflexive in its complement).

- (18) Det har låst in sig (\*själv)/ någon på toaletten.  
*it has locked in RFLX (self)/ someone on bathroom*  
 ‘Someone has locked himself in the bathroom.’

The language learner will thus have evidence from existential clauses and particle constructions that the simplex reflexive does not have the status of a direct object, and that the simplex reflexive is different from both pronouns and complex reflexives. There are other pieces of evidence for this as well. First, simplex re-



flexives cannot be topicalized, at least not for speakers of Grammar A, as opposed to complex reflexives and pronouns (as will be mentioned below, there seems to be a split within Grammar A with respect to the acceptability of topicalized *sig*):

- (19) Honom/sig själv/\*sig skulle han däremot aldrig låsa in.  
*Him/RFLX self/RFLX would he on.other.hand never lock in*  
 ‘Him/himself, he would on the other hand never lock up.’

Secondly, simplex reflexives can undergo what is sometimes called “long object shift” that is, it can precede the subject. This is only (if ever) allowed for pronouns under very special contexts (and complex reflexives do not undergo object shift at all):<sup>6</sup>

- (20) Därefter tvättade sig/??hennes mannen noggrant.  
*there.after washed RFLX/her man.DEF carefully*  
 ‘Afterwards, the man carefully washed himself/her.’

The only type of input that would clearly show that a simplex reflexive following a verb is a true argument would come from mid-distance (and long-distance) binding. A mid-distance reflexive clearly could not be a de-transitivizing element, since the reflexive marked predicate in this context clearly is not intransitive. The embedded verb-phrase in (21-a) is clearly transitive, and so is the verb-phrase in (21-b) when the reflexive is not interpreted as a local reflexive:

- (21) a. Eva<sub>i</sub> bad honom<sub>j</sub> att PRO<sub>j</sub> kyssa sig<sub>i</sub>.  
*Eva asked him to PRO kiss RFLX*  
 ‘Eva asked him to kiss her.’

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<sup>6</sup>There is a some dialectal or inter-individual variation with respect to which extent long object shift is accepted. Many speakers only accept long object shift of simple reflexives, while others also easily can do long object shift with pronominal indirect objects and experiencer object. Still, some speakers allow long object shift of direct object pronouns of regular transitive verbs, as in 20.

- b. Eva<sub>i</sub> bad honom<sub>j</sub> att PRO<sub>j</sub> kamma sig<sub>i/j</sub>.  
*Eva asked him to PRO comb RFLX*  
 ‘Eva asked him to comb her/himself.’

However, this type of mid-distance reflexive is presumably very rare. Even if the language learner gets plenty of input from both speakers of Grammar A and B, it is not obvious that sentences like the ones in (21) will ever appear in the input. As has been shown by Jakubowicz 1994 for Danish, adult speakers who always accept and correctly interpret sentences with mid-distance reflexives, almost never produce them, but choose to use a non-reflexive pronoun or a full NP instead of the simplex reflexive. As I will argue in the next subsection, a language learner may arrive at Grammar B even in the absence of sentences like (21-a) and (21-b) in the input. I will hypothesize that the language learner that arrives at Grammar A at some point posits the following rule, based on the input:

- (22) The *sig*-specific rule: a simplex reflexive in the complement of a verb is a de-transitivizing element.

Since there is plenty of evidence in the input that *sig* is a de-transitivizing element when following a verb, and possibly no evidence that it is not, the *sig*-specific rule should arise naturally. One important trigger for this rule is presumably the opposition between *sig* and *sig själv*, where *sig själv* is clearly an argument.<sup>7</sup>

As has been shown by Jakubowicz (1994), Danish children learn very early the simplex–complex distinction. At 3.6 years, children seem to know that some verbs

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<sup>7</sup>A separate question is why complex anaphors in general do not allow mid-distance binding. Since mid-distance binding is allowed in Swedish, and *sig själv* always is an argument, we will expect mid-distance binding of *sig själv*. We will just have to state that *själv* has different binding properties than *sig* and *sin*. It could be related to the adjectival status of *själv*, or simply the fact that *själv* shows Gender and Number agreement with its antecedent, just like other adjectives. As far as I am aware, there are no long- or mid-distance adjectives in Swedish. There is always a strictly local relation between the an adjective and its subject.

take a simple reflexive while others take a complex reflexive. It is presumably safe to assume that Swedish language learners acquire this difference early as well. Let us assume that children simply learn that some verbs require a full reflexive argument (i.e., *sig själv*) in order to get a reflexive interpretation, while it is possible to just insert an element that alters the thematic structure (i.e., *sig*) for other verbs. I will not here discuss why certain verbs require full reflexive argument, while other suffice with a valency changing *sig*, or what the exact structure of verbs with simplex reflexives is.

However, the size of the binding domain is something that the children learn extremely late. More specifically, children take a long time to acquire non-local anaphora, as has been shown by Jakubowicz (1994) for mid-distance binding in Danish, and Sigurjónsdóttir and Hyams (1992) for long-distance binding in Icelandic. In comprehension studies carried out by Jakubowicz (1994), children of the age 7-8 years only managed to interpret mid-distance anaphors correctly at 35-59 % per cent of the time (depending on experiment). Not until the age of 10 have the children approached a target like grammar, getting it right in 70-78 % of the times). Let us assume that mid-distance binding is acquired equally late in Swedish, i.e., mid-distance binding of a possessive reflexive (Grammar A and B), a reflexive in the complement of a preposition (Grammar A and B) and a reflexive following a verb (Grammar A) is acquired very late, much later than the so-called *sig*-specific rule is learned (for Grammar A).

In other words, you first learn the rule (1) that simple reflexives have a de-transitivizing function when they follow a verb, (and in these cases, co-reference with nearest subject is always required). When you later learn the right size of the binding domain (including control/raising infinitive), rule 1 is already deeply entrenched in your grammar. You do not “unlearn” the rule that *sig* in the complement of a verb is a de-transitivizing element. A simplex reflexive in a control

infinitive can thus only be interpreted as a de-transitivizing element, even though it is within the binding domain of the matrix subject.

The question that remains to be answered is thus why not all speakers end up with Grammar A, and also why speakers of both Danish and Icelandic end up with a grammar that looks more like Grammar B. There are at least two possible answers to this question: either, (1) speakers of Grammar B never posit a *sig*-specific rule, or (2) they posit a *sig*-specific rule which they later overwrite. I will argue that the first answer is the correct one, and show why a language learner might have good reasons not to posit a *sig*-specific rule.

### 3.3 Arriving at Grammar B: *sig* as an object pronoun

Instead of positing a *sig*-specific rule, as the speakers of Grammar A, I will argue below that some speakers arrive at Grammar B by positing a more general rule, applying to a whole series of object pronoun, namely the following:

- (23) A locally bound simplex object pronoun can only have a valency changing function when following a verb.<sup>8</sup>

The learner should presumably notice that *sig* is a part of the paradigm of object pronouns, including first person singular (*mig* ‘me’) and plural (*oss* ‘us’) pronouns, and second person singular (*dig* ‘you’), and plural *er* ‘you’) (and excluding *honom* ‘him’, *henne* ‘her’, *den/det* ‘it’ and *dem* ‘them’). I will call this class of object

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<sup>8</sup>There might be speakers of Grammar A who have a different version of this rule, stating only that locally bound simplex object pronouns *can* have a valency changing function, but still allowing a locally bound simplex pronoun to be interpreted as a true argument when following a verb. These speakers are predicted to allow e.g. topicalization of locally bound simplex object pronouns. For these speakers, the difference between post-verbal *sig* and *sig själv* must be of a different nature than for the other speakers. See Kiparsky (2002) for alternative ways of stating the difference between simplex and complex reflexives (and note that nothing in my account explains the choice of reflexive in other contexts than after a verb, for example after prepositions).

pronoun “bound object pronouns”, since they either get their reference determined by a clause-mate NP or pronoun, or a speech act participant (speaker or hearer). They all have special possessive forms, that unlike NP’s and other pronouns agree with the head noun in gender and number, like modifying adjectives, and lack the typical possessive *-s*:

- (24) a. *min*<sub>1st,sg,common</sub> – *mitt*<sub>1st,sg,neuter</sub> – *mina*<sub>1st,plural</sub>  
 b. *sin*<sub>3rd,sg,common</sub> – *sitt*<sub>3rd,sg,neuter</sub> – *sina*<sub>3rd,plural</sub>

The first and second person object pronouns, just like third person *sig* have a de-transitivizing function when they are locally bound, as can be seen in (25), where a first person singular object pronoun precedes a verb-particle:

- (25) Jag kastade mig ner på golvet.  
*he threw RFLX down on floor.DEF*  
 ‘I threw myself down on the floor.’

The first and second person object pronouns can however not appear in existential constructions, since their antecedents necessarily are definite (it could only be a first or second person subject pronoun), and there is a definiteness restriction on the subject in existential constructions. It is however obvious that simplex first and second person pronouns create predicates that are clearly intransitive in meaning, like (26):

- (26) Jag ändrade mig – han ändrade sig  
*I changed me – he changed RFLX*  
 ‘I changed (my mind) – he changed (his mind)’

Just like *sig*, the first and second person bound pronouns have complex forms, that have to be used in cases of co-reference between subject and object:

- (27) Jag älskar mig ??(själv)  
*I love me (self)*  
 ‘I love myself’

The simplex locally bound first and second person pronouns cannot really be topicalized, and instead the complex version has to be used:<sup>9</sup>

- (28) Mig själv/??mig skulle jag däremot aldrig låsa in.  
*My self/me would he on.other.hand never lock in*  
 ‘Me/myself, I would on the other hand never lock up’

In short, the first and second person bound object pronouns have the same quirks as *sig*.<sup>1011</sup> However, as soon as the first and second person bound object pronouns

<sup>9</sup>The simplex form is alright in a context where the subject and the anaphor clearly are not co-referent, as in the following context: ‘If I were you, I might lock up John, but ME I would on the other hand not lock up’. Note that this effect is not seen if the simplex first person object pronoun is not topicalized, or when the complex first person is topicalized. As mentioned above, there might be a sub-group of Grammar A speakers who allow argumental locally bound simplex object pronouns, for whom topicalization would be felicitous without a forced disjoint interpretation.

<sup>10</sup>There are some differences that are worth pointing out. First, the third person *sig* lacks number marking, as opposed to the other pronouns. Even though linguists have emphasized the importance of the underspecification of third person reflexives, I am not convinced that the singular-plural syncretism makes *sig* different from other pronouns. Syncretism in number and case in pronoun paradigms is extremely common, and I doubt that the number syncretism of *sig* is any more special than e.g. the number (and case) syncretism of English *you*. Another difference is that we never see long object shift of a co-referent first or second locally bound pronoun, but this is only due to the fact that the antecedent of a first or second person locally bound object pronoun is a pronoun, and we never see long object shift over a pronoun, not even in the third person.

<sup>11</sup>Another obvious similarity between first and second and person bound object pronouns and *sig* can be interpreted as bound variables, as e.g. can be seen in the fact that you can get sloppy readings under ellipsis. This is true for both simplex and complex anaphors, and I think that a sloppy interpretation is obligatory for all simplex anaphors bound by the nearest subject, and also complex anaphors in most contexts:

- (i) a. Jag ändrade mig. – Det gjorde jag också.  
*I changed me – It did I too*  
 ‘I changed my mind – So did I’  
 b. Jag hatar mig själv – Det gör jag också.  
*I hate me self – It do I too*  
 ‘I hate myself – so do I’

are not bound by the closest subject, they have a distribution similar to the non-bound pronouns *honom* ('him') or *henne* ('her'). Most importantly, they can of course appear in the complement of a verb in their simple forms, without changing the valency of the predicate:

- (29) a. Hon älskar dig (\*själv).  
*she love.PRES you (self)*  
 'She loves you(\*rself)'
- b. Hon tvättade mig (\*själv).  
*she wash.PAST me (self)*  
 'She washed me/(\*myself)'

Further, non-locally bound first and second object pronouns have the same distribution as regular pronominal arguments. They follow verb-particles (30-a) and can be topicalized (30-b):

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Sloppy readings are expected either if the object pronoun is a bound variable or if it is a valency changing verbal element. There are some contexts where complex anaphors seem to allow strict interpretations, probably only in contexts where the missing VP is not replaced by a pronoun (*det* 'it'). Below I give an example with a first person subject, but the effect would be the same with a third person subject.

- (ii) Jag tvättar mig (själv) noggrannare än vad du gör.  
*I wash me (self) careful.COMP than what you do*  
 'I wash myself more careful than what you do.'

The strict reading is only available when *själv* is present.

When a first or second person object pronoun is bound by a possessor inside a subject, both strict and sloppy readings are available, as in (iii-b):

- (iii) a. A: Min bror hjälper mig med allting  
 Speaker A: my brother helps me with everything
- b. Det gör min bror också  
 Speaker B: So does my brother.

In short we can conclude that only a 'sloppy' reading is available when the anaphor is a de-transitivizer, whereas a strict reading can be obtained in other contexts.

- (30) a. Han slängde ner mig på golvet.  
*he throw.PAST down me on floor.DEF*  
 ‘He threw me down on the floor’
- b. Mig skulle han aldrig låsa in.  
*me would he never lock up*  
 ‘He would never lock me up.’

The language learner simply needs to learn that the bound pronouns have different distribution when they are bound by the nearest subject compared to when it is bound by either a speech act participant or a non-local antecedent. This is of course true for both speakers of Grammar A and Grammar B. However, if we assume that the learners that end up with Grammar B only focus on the shared characteristics of all the members of the paradigm, they would never postulate a special rule for third person reflexive *sig*. *Sig* in the complement of a verb, just like all the other pronouns have a special distribution when bound by the local subject. The difference between *sig* and the first and second person bound pronouns is that *sig* will basically always be bound by the nearest subject when following a verb (and in other cases too), while first and second person bound pronoun very often have are “free” (or only bound by the speaker or hearer).

As soon as the learner of Grammar B knows that the binding domain includes control and ECM infinitives, third person *sig* in the complement of an embedded infinitival verb will be generated/accepted by their grammar. Even if the sentences of the type (2) are absent in the input, they will still be as natural as a sentence with a mid-distance bound first or second person object pronoun:<sup>12</sup>

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<sup>12</sup>If the embedded verb is a particle verb, the anaphor will follow the particle, i.e., it will have the syntax of a non-locally bound pronoun:

- (i) Jag bad honom att slänga ut mig genom fönstret  
*I asked him to throw.INF out me through window.DEF*  
 ‘I asked him to throw me out the window.’



- (31) Jag bad honom hjälpa mig.  
*I asked him help.INF me*  
 ‘I asked him to help me.’

Summarizing Grammar B: the learner will assume that *sig* has the same properties as the first and second person members of the “bound” object pronouns. That is, when the bound object pronoun directly follows the verb and is co-referent with the nearest subject, it is only interpreted as a de-transitivizing element, though when it is bound by something else (i.e, a speech act participant, or a non-local subject), it behaves like an argument. *Sig* can of course not be bound by a speech act participant, since a third person referent is not a speaker or a hearer, so *sig* will basically only surface when it is bound by the local subject, and possibly by a non-local subject in control and ECM contexts, though this may not be in the input for the learner.

The best way to capture the difference between learners that end up with Grammar A and learners that end up with Grammar B is the following: learners of Grammar A pay attention to the fact that *sig* in contrast to the first and second person object pronoun *always* has a de-transitivizing function when following a verb. In the Grammar they end up with *sig* following a verb can only be a valency changing element. The learners of Grammar B ignore the fact that *sig* following a verb always has a de-transitivizing function. Instead they focus on the properties of the whole paradigm, and will not bother to postulate a *sig*-specific rule. The variation can thus be said to have its sole origin in the choice of learning strategy of the

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For speakers of Grammar B, a mid-distance *sig* would also follow the particle. The following sentence would thus have different interpretation depending on the placement of *sig* with respect to the pronoun:

- (ii) Han<sub>i</sub> bad henne<sub>j</sub> att slänga {sig<sub>j</sub>} ut {sig<sub>i</sub>} genom fönstret.  
*he asked her to throw RFLX out RFLX through window.DEF*  
 ‘He asked her to throw him out the window’ or ‘He asked her to throw herself out the window’

learner: children focusing on individual lexical items will end up with Grammar A, while children paying attention to whole paradigms end up with Grammar B.

## 4 A note on cross-linguistic variation

I have argued above that Grammar A and Grammar B can arise side by side in the same speech community. We thus see variation that is not determined by region (or location). However, within Scandinavia we seem to find places where a grammar looking more like Grammar B is the only one available, i.e. a grammar where simple reflexives can follow a verb without de-transitivizing the verb (or put slightly differently, where possessive reflexives and simple, post-verbal, reflexives both appear in Control or ECM infinitives). Below, I will briefly discuss why Grammar B is more pervasive in Icelandic and Danish than in Swedish.

First, in Icelandic, there seems to be no difference between the binding properties of simple reflexives following a verb and possessive reflexives.<sup>13</sup> There are three strong reasons why a Grammar A would not arise in Iceland:

1. The strong case-paradigm: the language learner will see that the simple third person reflexive not only has a possessive paradigm that is identical to the first and second person bound object pronoun (agreeing with the head noun), but also dative and genitive forms matching the first and second person paradigm.
2. The logophoric *sig*: Binding into finite subjunctive clauses is possible in Icelandic. In these cases, the anaphor finds its antecedent in the “Author” of the sub-ordinate clause, i.e. a speech act participant. This of course strengthens

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<sup>13</sup>Not all Icelanders accept binding into control infinitives though. as reported by Sigurjónsdóttir and Hyams 1992, only 50 % of the adult informants allowed mid-distance binding, while 90 % allowed long-distance binding into a finite subjunctive clause.

the ties between *sig* and its first and second person cousins, and presumably it also gives rise to a lot of input that contains *sig* that is not co-referent with the closest subject.

3. No *sig*-specific syntax: There is no special syntax associated with “de-transitivizing” anaphors in Icelandic, which possibly may suggest that anaphors in Icelandic never have a valency changing function (as argued by Jónsson 2011). There are no real tests for transitivity in Icelandic, since transitive sentences can occur in existential clauses as well as intransitive clauses. Further, not only “de-transitivizing” anaphors but all object pronouns precede verb particles in Icelandic. Finally, as emphasized by Jónsson 2011, in verb-anaphor combinations that are semantically “intransitive”, the anaphor can carry quirky case (i.e. dative or genitive), and if we assume that a verb only can assign quirky case to an argument, we have to conclude that “de-transitivizing” anaphors in Icelandic really are arguments.

From the three points above, we can conclude that the Icelandic language learner has no reasons to postulate a *sig*-specific rule. It is possible that *sig* following a verb always is a true argument in Icelandic, even for so-called inherently reflexive verbs (i.e., verbs that can only take an anaphor as its complement), as argued by Jónsson (2011), but it is outside the scope of this article to verify or refute this claim.

In Danish, all speakers seem to accept an anaphor in the complement of an infinitival to be mid-distance bound.<sup>14</sup> Danish does not have logophoric reflexives (with the possible exception of the Western Jutland dialect, see Strahan 2011 for discussion), and there are no strong case-paradigms either. All arguments precede

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<sup>14</sup>At least as far as I am aware, though we do not have data from this in the Nordic Dialect Database. All of the adults in the test group used in the acquisition test on binding in Danish in Jakubowicz (1994) accepted mid-distance binding of a simple reflexive in the complement of a verb.

verb-particles in Danish, so there is no input indicating that local anaphors have a special placement with respect to particles. *Sig* can however appear in existential clauses, and there *is* a strict restriction on transitive expletive constructions. We thus have to conclude that locally bound *sig* can have a valency changing function in Danish just like in Swedish. It is thus slightly surprising that Grammar A is absent in Danish (unless we believe that it is the order between the particle and *sig* in Swedish that is solely responsible for the *sig*-specific rule of Grammar A in Swedish). I will however propose that the mid-distance simplex reflexives are licit in Danish due to the structural size of Control and ECM-infinitives in Danish. More specifically, it is likely that Control and ECM infinitives lack a structural subject in Danish. The proposal is based on the fact that most speakers accept a pronominal form of a possessive inside the object of a control infinitive to be co-referent with the “PRO” subject. In the Danish part of the Survey, 42 of 55 informants found the following sentence fully acceptable (and note that the corresponding Swedish sentence would be marked or ungrammatical for, I think, all Swedish speakers):

- (32) Hun bad ham<sub>i</sub> hente hans<sub>i</sub> barn.  
*she asked him fetch.INF his child*  
 ‘She asked him to pick up his child.’

The acceptance rate for (32) is similar to that of a sentence with co-reference between an object and a pronominal possessor inside a PP, as in (33) (which is acceptable all over Scandinavia):

- (33) Vi så ham<sub>i</sub> i hans<sub>i</sub> have.  
 ‘we saw him in his garden’

Let us assume that (33) does not give rise to a principle B-violation due to fact that the object is not a subject of the PP (or the clause). The absence of a Principle B

violation in (32) and (33) presumably has the same explanation, i.e. the absence of a subject (in the PP in (33) and in the VP in (32)). If the “Control infinitive” in (32) really lacks a structural subject (and thus not being a control infinitive), we may have an explanation of the general acceptance of sentences like (2) in Danish. Valency changing anaphors may simply be illicit in contexts where no subject is present. As discussed in Lundquist (2011), valency changing anaphors are not licensed in certain contexts that seem to lack a structural subject, such as nominalizations and certain participial phrases in Swedish. This is presumably true in other languages as well, at least in languages where the valency changing anaphor agrees in person with the structural subject. Let us just assume that (32) and (33) have the same structure (the only difference being the label of the complement of the main verb):<sup>15</sup>

- (34) a. (33): Hun bad ham [<sub>VP</sub> hente [<sub>DP</sub> hans barn]]  
 b. (34): Vi så ham [<sub>PP</sub> i [<sub>DP</sub> hans have]]

Let us assume that a valency changing anaphor is only licensed in a verb phrase containing an external argument, or, let’s say, a Voice head, following Kratzer (1996). An infinitival verb without an external argument will in all relevant aspects behave like a preposition, and an anaphor bound by the subject will be licensed in both contexts (and a valency changing anaphor will not). Thus it is important to note that Danish is not really like either Grammar A or Grammar B in Swedish.<sup>16</sup> Binding of an anaphor in an infinitival clause in Swedish involves mid-distance binding, i.e. binding by a non-local subject. In a Danish sentence like (35) (from

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<sup>15</sup>We have to assume however that the complement of control verbs can be of a larger size, since sentences like (1-a) are ambiguous for Danish speakers, i.e. the anaphor can be bound by either the main clause subject or the object/embedded subject.

<sup>16</sup>It is possible that some Danish language learners also posit also posit a *sig*-specific rule like the following: *sig* inside a VoiceP is always a de-transitivizing element.

Vikner 1985) the anaphor is still bound by the nearest subject:

- (35) Peter<sub>i</sub> hørte Anne omtale sig<sub>i</sub>.  
*Peter hear.PAST Anne mention.INF RFLX*  
 ‘Peter<sub>i</sub> heard Anne mention him<sub>i</sub>.’

It is possible that mid-distance binding is not allowed at all in Danish, and that all anaphors are bound by the nearest subject. The difference between Swedish and Danish would thus only be in the size of the infinitival complement of a Control or ECM verb: Swedish Control and ECM infinitives are always at least VoiceP’s (but presumably they are even bigger), while Danish Control and ECM infinitives can be as small as VP’s.<sup>17</sup> The question that remains to be answered is why the Swedish Control/ECM infinitives have to be structurally “big” while Danish infinitival complements can be small. It is however outside the scope of this paper to discuss this issue, but let us for now assume that there are enough cues in the Danish input that will lead the language learner to assume that infinitives can be structurally small in Danish.<sup>18</sup>

## 5 Conclusion: variation and the third factor

I have argued that Grammar A and Grammar B can both arise from the same input. Grammar A arises in speakers who are more likely to focus on quirks on individual

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<sup>17</sup>I refer the reader to Vikner (1985) for a more thorough description of the Danish binding system.

<sup>18</sup>One noticeable property of Swedish is that small verbal structures have some striking morphosyntactic properties that big verbal structures lack. Most notably, as argued in Lundquist (2008) verb-particles always have to incorporate/prefix to small verbal structures in Swedish, as most clearly seen in nominalizations and participle phrases. Infinitives never allow incorporated particles in Swedish, and the absence of infinitives with incorporated particles in the input may be enough for the language learner to assume that infinitives always are structurally big. In Danish however, this does not happen in general, making big verbal structures and small verbal structures look virtually identical. See also the discussion in Wurmbrand (2001) on structurally small VP’s in German.

lexical items, while Grammar B arises in speakers who focus on general patterns shared by all members of a paradigm. The variation does thus not arise from differences in the input, but by choice of learning strategy, or individual biases for certain rule systems.

Following Chomsky (2005) and Yang (2010), we can isolate three factors in language acquisition and/or language design:

1. Genetic endowment, "which interprets part of the environment as linguistic experience . . . and which determines the general course of the development of the language faculty"
2. Experience, "which leads to variation, within a fairly narrow range, as in the case of other subsystems of the human capacity and the organism generally".
3. Principles not specific to the faculty of language: "(a) principles of data analysis that might be used in language acquisition and other domains; (b) principles of structural architecture and developmental constraints. . . including principles of efficient computation"

In the list above, variation is taken to be triggered solely by the second factor, i.e. Experience, which in this context is equal to linguistic input. What I have argued for above is that the variation discussed in this paper does not have its root in the second factor, but rather the third factor, that is "principles of data analysis ... principles of structural architecture and developmental constraints." More specifically, there can be variation in how different people analyze linguistic input. Of course, this variation may have its root in experience, but presumably not linguistic experience.

I would like to end the paper with opening up the idea that variation like the Grammar A/Grammar B split we see in Swedish could be partly genetically determined, or more specifically, that an individual bias for a certain rule system may

be genetically determined, as has been already proposed by Ladd et al. (2008). We know that people are different: some are introvert, some are extrovert, some are good at math, some are good at remembering names, some people focus on details and some people see “the whole picture”. We also know that our personality is shaped both by our environment and our genes (see e.g. Pinker (2002) for reports on studies on identical twins separated at birth and raised in different environments). It wouldn’t be surprising if some language learners paid more attention to regularities of paradigms (giving rise to Grammar B), while other pay extra attention to specific words (giving rise to Grammar A). Whether you end up being a “paradigm person” (“a chunker”) or an “individual item person” (“a splitter”) might very well be partly genetically determined. Given enough input though, the grammars will presumably end up the same, and only if the relevant input is scarce and/or contradictory, will more than one grammar arise. As has been argued in this article, at least in a language like Icelandic, the input is clear enough not to give rise to two different grammars (at least not for the phenomenon discussed in this paper).

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# The *Apropos*-Topic, the *Concerning*-Topic and the syntax-pragmatics interface<sup>1</sup>

Verner Egerland

## Abstract

A structure introduced by “topic markers” such as *apropos* or *concerning* is not identifiable with any of the construction types that alter the information structure of the clause involving the left periphery. That is to say, *apropos* and *concerning* do not introduce a topicalization, nor a dislocation, nor a “hanging topic”, given some commonly assumed criteria. Instead, it is argued here that *apropos* and *concerning* introduce three-place predicates relating the speaker with the discourse topic and the propositional content of the following matrix. The two expressions differ with respect to the topic argument: while *concerning* imposes aboutness continuity on the following proposition, the *apropos* topic is subject to a givenness requirement, as it must refer to an element in the preceding discourse. The argumentation is based on Swedish data.

## 1 Introduction

While topicalization and dislocation have attracted much attention in the literature on generative grammar, less has been written about such lexical expressions that are used to explicitly mark a topical element and which usually occur in sentence initial position. Well-studied Germanic and Romance languages have a rather considerable repertory of such expressions, as for instance English *with respect to x*, *with regard to x*, *apropos x*, *concerning x*, *as for x*, *speaking of x*, *regarding x*, *as far as x is concerned*, just to mention a few. In traditional treatments, there has been a tendency to list such topic markers as one homogeneous class, because they fall “within the same general area of

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meaning” (Quirk et al. 1985: 706). It is clear, however, that different subclasses can and should be recognized within this category. The interest of these expressions lies in the fact that they do not straightforwardly correspond to those topicalization and dislocation structures that have been identified and analyzed in the syntactic literature. Neither are their information structure properties very well understood. Such topic markers, in fact, offer interesting evidence concerning the relation between syntactic form and pragmatic function. The overarching question is to what extent the syntax-pragmatics interface is “uniform” in the sense of Culicover & Jackendoff (2006: 132). In the following, I will argue that there are cases in which syntactic displacement can apply without any obvious interpretive effect, that is, without any clear pragmatic or other interpretable feature triggering movement. This observation poses an interesting problem for the hypothesis that movement to the left periphery targets designated positions with a precise feature specification, as in much work following the seminal study of Rizzi (1997) (e.g. Benincà & Poletto 2004, Frascarelli & Hinterhölzl 2007). Moreover, there are important distinctions to be made within the class of topic marking expressions at the level of information structure. These distinctions appear to have little or no consequence for syntax, a fact which suggests that syntax can be entirely opaque to information structure. This observation, in turn, is interestingly problematic for approaches that propose to derive syntactic structure from pragmatic features (e.g. Erteschik-Shir 2006).

In this paper, I discuss such claims on the basis of Swedish data. From a purely intuitive viewpoint, which remains to be spelled out in detail, the Swedish word *apropå* introduces a topicalization of sorts in (1).

(1) *Apropå Johan, jag träffade honom igår.*

APROPOS John I met him yesterday

‘Speaking of John, I met him yesterday’

The word *apropå* is a 18<sup>th</sup> century borrowing from French *à propos*, which has equivalents in other Romance languages, such as Italian *a proposito* and Spanish *a propósito*, as well as being integrated in the lexicon of several Germanic languages, cf. Danish, English, German, and Norwegian *apropos*. Clearly, some basic properties of such expression are consistent across the languages where the word is attested. Nevertheless, these languages may differ with respect to some patterns; these however go beyond present aims. I concentrate on the analysis of Swedish, leaving a cross-linguistic survey to future research. From now on and throughout this paper, I refer to the fronted constituent introduced by *apropå* in (1) as the APROPOS TOPIC (APT). To begin with, I take the APT to be representative for topic marking expressions such as those listed above. As we proceed, however, it will become obvious that, among such markers, different subclasses must be recognized.

The paper is organized as follows: in section 2, I briefly present the three major construction types identified in the literature, which alter the information structure of the clause involving the left periphery. In 3, it is shown that the APT does not pattern with any of these construction types.<sup>2</sup> In section 4, turning to pragmatics, I argue that there are systematic interpretive differences between the APT and a different class of marking expressions that I term *concerning*-topics. Section 5 deals with the categorial and syntactic status of the expressions in question, while section 6 contains some cross-linguistic comparative remarks.

## **2 The syntactic properties of topicalization, dislocation, and hanging topics**

Following fairly common assumptions (Ross 1967, Cinque 1990, van Riemsdijk 1997, Alexiadou 2006, among many others), I assume that there are three major

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<sup>2</sup> The term “construction” will be used throughout in a purely descriptive fashion, without implications as for the theoretical status of the concept of construction.

construction types altering the information structure of an assertive sentence by involving the periphery: topicalization, dislocation, and hanging topics. Their respective properties are briefly illustrated with Swedish data:

**2.1** The syntactic topicalization structure is analyzed as an A'-dependency holding between the topicalized element in sentence initial position, [Spec, C] according to the standard analysis (Platzack 1986), and its trace, licensed as a variable. In a V2 language such as Swedish, topicalization obligatorily triggers subject inversion. In Swedish, the structure is associated with contrastive focus:

(2) Johan<sub>i</sub> träffar jag t<sub>i</sub> imorgon.

John<sub>i</sub> meet I t<sub>i</sub> tomorrow.

'John, I will meet tomorrow'

**2.2** The dislocation structure does not involve the nuclear clause; for instance, it has been analyzed as base generation in the left periphery (Cinque 1990) or as displacement at PF (Erteschik-Shir 2006). The dislocated element is repeated by a resumptive pronoun internal to the clause. The following matrix clause has the canonical subject-verb word order:

(3) Johan, jag träffar honom imorgon.

John I see him tomorrow

'John I will meet him tomorrow'

**2.3** The hanging topic is placed in the left periphery but, unlike dislocation, does not need to be syntactically connected with the matrix (e.g. Alexiadou 2006). That is to say, in an example such as (4), the hanging topic is not

introduced by a preposition despite the fact that it refers to an oblique argument in the matrix.<sup>3</sup>

- (4) (Ja) den där restaurangen (ja), dit går jag gärna tillbaka.  
 (yes)that there restaurant.the (yes)there go I willingly back  
 ‘Well, that restaurant, I’d like to go back there’

In the following section, I will go through the criteria in turn, showing that the *apropå*-construction does not unambiguously correspond to any of these three constructions.

### 3 The syntactic properties of the *apropå*-construction

To begin with, consider that the APT in Swedish is compatible with two different word order patterns. In (5), the introducing APT is followed by straight word order (subject-verb) in the matrix. In (6), on the other hand, we see a case of subject inversion triggered by the APT.<sup>4</sup>

- (5) *Apropå* Johan, jag träffar honom imorgon.  
 APROPOS John I see him tomorrow

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<sup>3</sup> The hanging topic in Swedish is often introduced by some marker such as *ja* ‘yes’ which can appear on either side of the topic as is shown in (4) (cf. English *well* in the gloss of (4)). With no such introducer, the hanging topic is sometimes quite marginal in the author’s opinion.

<sup>4</sup> Some speakers prefer inserting the adverbial element *så* between the APT and the finite verb in an example such as (6), though not in (5). This is a matter of rather idiosyncratic variation which has no bearing on the following discussion. It should be noticed that the element in question frequently attaches to the finite verb when the sentence-initial position is occupied by elements other than the subject (Egerland & Falk 2010, Eide 2011).

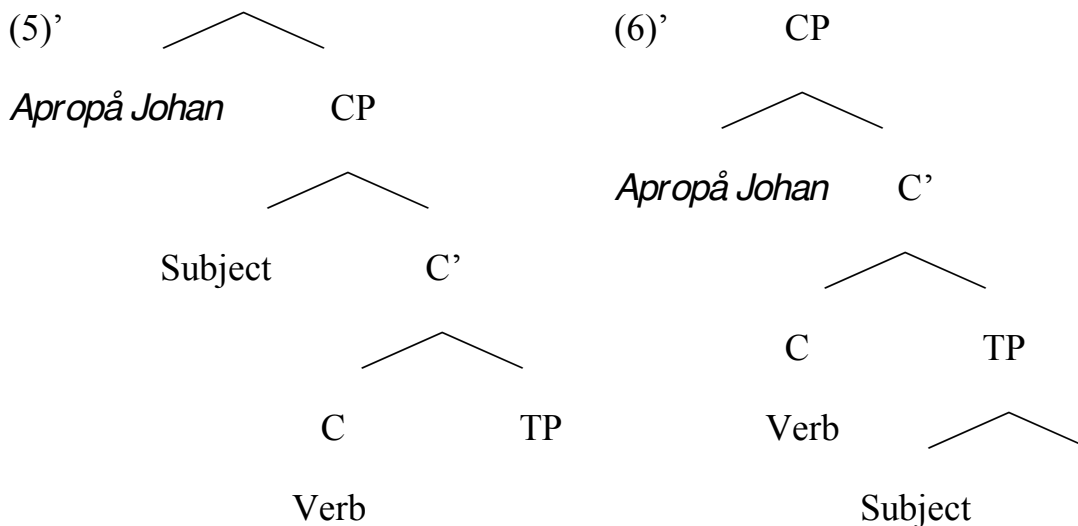


(6) *Apropå Johan träffar jag honom imorgon.*

APROPOS John see I him tomorrow

‘Speaking of John, I’ll see him tomorrow’ = (5), (6)

There are two surface differences between (5) and (6): the word order and the intonation. In (5), there is a prosodic break between the APT and the following matrix, typical of that of a left dislocation or a hanging topic structure. In the example (6), on the other hand, there is no such break, but the intonation contour of a topicalization. Consider the two structures in (5)’ and (6)’:



I assume that, in (5)’, the APT is situated in a left peripheral position. For concreteness, suppose this is a Topic Phrase external to the nuclear clause (Rizzi 1997), though the following discussion does not crucially rely on this assumption. In (6)’, given that Swedish is a V2 language, the subject inversion is an indication that the APT is in [Spec, C] following the standard analysis of Swedish sentence structure (Platzack 1986, Holmberg & Platzack 1995).

Interestingly, however, there are no other syntactic or interpretive differences between (5) and (6). In all examples that follow, the two are entirely interchangeable. That is to say, there is no independently motivated feature in the derivation that can be assumed to account for the difference between the structures in (5)’ and (6)’, and the choice between them, therefore, could be advanced as a case of syntactic optionality. In the vein of Chomsky (2008), it

may be assumed that movement to [Spec, C] in (6) is triggered by an edge feature, but such a solution is essentially ad hoc.<sup>5</sup>

Another possibility is to assume that pragmatic features are assigned pre-syntactically as part of the lexical array, as in Erteschik-Shir (2006). The assignment of such pragmatic features yields a representation projected in syntax and then valued in relation to the context. Whereas the pre-syntactic assignment of pragmatic features is optional, the syntactic evaluation of the features is not. In such a model, the APT would enter the derivation carrying the feature “Topic” which would trigger movement to [Spec, C]. The structure in (5)', then, would be the result of post-syntactic displacement of the APT, at PF. But the achievement of such an analysis would only be to push optionality from the syntax to PF. Furthermore, it is clear that, in (5)', [Spec, C] is free for a different element such as the subject, a fact that is left unexplained. I will not further discuss the theoretical implications of the apparently open choice between (5)' and (6)'.

Superficially then, the APT of (5) looks like a left dislocation and that of (6) like topicalization. However, neither of these analyses can be defended as I will show in **3.1-3.3**.

**3.1** Despite its similarity with topicalization, it is very clear that the APT does not undergo A'-movement even when it targets [Spec, C]: Firstly, the APT does not leave behind a trace analyzed as a variable:

(7) \*Apropå Johan<sub>i</sub> träffade jag *t<sub>i</sub>* igår.

APROPOS John<sub>i</sub> met I *t<sub>i</sub>* yesterday

Secondly, the APT does not give rise to weak crossover effects (Postal 1971). Consider the difference between the topicalization in (8) and the APT in (9):

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<sup>5</sup> In their analysis of scrambling in Dutch, Neeleman & de Koot (2008: 142) argue that the introduction of edge features can be seen as a return to the move- $\alpha$  strategy of Government and Binding Theory. Be that as it may, the assumption of an edge feature in (6)' will not have any particular consequences for the issues that lie at heart of this article.

(8) \*Dickens<sub>i</sub> gjorde hans<sub>i</sub> roman om Pickwick t<sub>i</sub> berömd.

Dickens<sub>i</sub> made his<sub>i</sub> novel about Pickwick t<sub>i</sub> famous

(9) Apropå D.<sub>i</sub> gjorde hans<sub>i</sub> roman om Pickwick honom<sub>i</sub> berömd.

APROPOS D.<sub>i</sub> made his<sub>i</sub> novel about Pickwick him<sub>i</sub> famous

‘Apropos Dickens, his novel about Pickwick made him famous’

Thirdly, the APT does not license parasitic gaps:

(10) \*<sup>2</sup>Apropå brevet skrev han det utan att skicka \_.

APROPOS letter.the wrote he it without to send \_

Hence, the APT in (6) is not a topicalization structure.

**3.2** As we have seen, the APT in (5) is superficially similar to left dislocation, but this analysis can be excluded as well. To begin with, consider that Swedish, trivially, does not allow for multiple APTs unlike Romance left dislocation. The example (11) is from Cinque (1990: 58).

(11) Di vestiti, a me, Gianni, in quel negozio, non mi ce ne

clothes to me John in that shop not-to-me-there-of-them

ha mai comprati.

has ever bought

- (12) \*Apropå Johan, apropå den där restaurangen,  
 APROPOS John APROPOS that there restaurant.the  
 jag går gärna dit med honom igen.  
 I go gladly there with him again

This restriction could have an independent source, perhaps related to the fact that Swedish is a V2 language and, hence, has a restricted left periphery as compared to Italian or French. However, note that, when the APT appears in the left peripheral position, some element of the clause can be topicalized: an argument coreferent with the topic (13), a different element of the clause (14), or some element designated for the [Spec, C] position such as a *wh*-expression (15):

- (13) Apropå Johan, honom träffade jag igår.  
 APROPOS John him met I yesterday
- (14) Apropå Johan, igår träffade jag honom.  
 APROPOS John yesterday met I him
- (15) Apropå Johan, vem träffade honom igår?  
 APROPOS John who met him yesterday

Hence, Swedish can indeed have two elements preceding the verb in the matrix, one in [Spec, C] the other in an external, peripheral position; it is specifically the co-occurrence of two APTs that is barred, as in (12).

Furthermore, the APT does not need to be syntactically connected with the following matrix. Consider the examples in (16)-(19):

(16) Apropå Johan, jag är trött påatt låna honom pengar.

APROPOS John I am tired ofto lend him money

‘Apropos John, I’m tired of lending him money’

(17) Apropå Maria, jag kom påatt jag måste köpahenne enpresent.

APROPOS Mary I came onthat I must buy her a gift

‘Apropos Mary, it came to my mind that I have to buy her a gift’

(18) ??Apropå till Johan, jag är trött påattlåna honom pengar.

APROPOS to John I am tired ofto lend him money

(19) ??Apropå till Maria, jag kom på att jag måste köpahenne en present.

APROPOS to Mary I came on that I must buy her a gift

The APTs in (16)-(17) are not introduced by prepositions although the corresponding elements in the nuclear clause are PPs. Still, PPs such as those of (18)-(19) are not totally excluded provided a particular kind of context, namely one in which the prepositional expression is in some way retrieved from the preceding discourse. The prepositional APT in the dialogue of (20) is slightly marginal but not unacceptable in my opinion:

(20) A: I går ringde jag till Maria.

yesterday called I to Mary

B: Apropå till Maria, jag måste köpahenne enpresent.

APROPOS to Mary I must buy her a gift

However, (20) is not a case of syntactic connectivity. Rather, the APT in (20) has the flavor of an echo, and its acceptability is dependent on the preceding discourse. A similar consideration holds for the occurrence of anaphors in the

APT. An example such as (21) is (marginally) acceptable provided that the anaphoric possessive can be retrieved from preceding discourse:

- (21) A: När jag var i London  
 when I was in London  
 lät Maria<sub>i</sub> mig bo i sin<sub>i</sub> egen lägenhet.  
 let Mary me stay in *poss*<sub>[anaph.]i</sub> own apartment
- B: Apropå sin<sub>i</sub> egen lägenhet,  
 APROPOS *poss*<sub>[anaph.]i</sub> own apartment  
 jag hörde att Maria<sub>i</sub> ska sälja den.  
 I heard that Mary<sub>i</sub> will sell it

Arguably, the example (21) is a misleading sign of syntactic connectivity. If the discourse antecedent is different from the following grammatical subject *Mary*, the anaphoric expression cannot be bound by the grammatical subject:

- (22) A: När jag var i London  
 when I was in London  
 lät Johan<sub>j</sub> mig bo i sin<sub>j</sub> egen lägenhet.  
 let John<sub>j</sub> me stay in *poss*<sub>[anaph.]j</sub> own apartment
- B: \*Apropå sin<sub>i</sub> egen lägenhet,  
 APROPOS *poss*<sub>[anaph.]i</sub> own apartment  
 jag hörde att Maria<sub>i</sub> ska sälja den.  
 I heard that Mary<sub>i</sub> will sell it

That is to say, if the anaphoric possessive in A's utterance of (22) refers to John, that of B's utterance cannot be disjoint in reference.

**3.3** Having excluded that the APT is a case of topicalization or dislocation, the remaining alternative is that of a hanging topic. But such an analysis, too, faces problems when confronted with the data. First of all, hanging topics in Swedish never trigger subject inversion:

- (23) \*(Ja)lägenhet (ja) har hon hittat en i centrum.  
 (yes)apartment (yes) has she found one in town centre

Secondly, hanging topics are known to occur in root environments (e.g. Alexiadou 2006: 672). Consider the hanging topic in (24) and the APT in (25):

- (24) (Ja) lägenhet (ja), hon har hittat en i centrum.  
 yes apartment yes she has found one in town centre

- (25) Apropå lägenhet, hon har hittat en i centrum.  
 APROPOS apartment she has found one in town centre

Whereas the hanging topic cannot successfully be inserted in a subordinate (26), there is no such restriction on the APT (27):

- (26) \*Hon sa att hon, lägenhet, hade hittat en i centrum.  
 She said that she apartment had found one in town centre

- (27) Hon sa att hon apropå lägenhet hade hittat en i centrum.  
 She said that she apropos apartment had found one in town centre

Furthermore, the APT can actually introduce a relative clause, as in (28):

(28) Igår läste jag en intressant artikel i tidningen,  
 yesterday read I an interesting article in newspaper.the  
 apropå vilket jag inte har kommit ihåg  
 APROPOS which I not have remembered  
 att förlänga prenumerationen.  
 to renew subscription.the

‘Yesterday I read an interesting article in the paper, speaking of which I have forgotten to renew my subscription’

The relative pronoun *vilket* ‘which’ refers to the propositional content of the matrix. The example can be paraphrased: *The fact that I read an article yesterday makes me realize that I have forgotten* etc. The clause introduced by APT in (28) is undoubtedly subordinate as is obvious from word order: the finite verb stays in the lower portion of the sentence structure and, hence, appears to the right of negation, as is common in Swedish subordinates (Holmberg & Platzack 1995). The main clause word order, where the finite verb is raised higher than the negation, is not acceptable:<sup>6</sup>

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<sup>6</sup> Crucially, there is no intonation break after the APT in (29). If there is, the example is equally acceptable, but analyzable in a different way:

(i) ... apropå vilket, jag har inte kommit ihåg att förlänga prenumerationen.  
 ... APROPOS which I have not remembered to renew subscription.the

The example in (i) is paraphrasable as ... *speaking of which: I have forgot to renew my subscription.*



- (29) \*...apropå vilket jag har inte kommit ihåg  
 ... APROPOS which I have not remembered  
 att förlänga prenumerationen.  
 to renew subscription.the

In this sense, the APT is clearly distinct from hanging topics.

Lastly, hanging topics are subject to a restriction of ordering in the sense that they only appear in the sentence initial position (30), never in sentence final position (31), as discussed by e.g. Benincà (1988).

- (30) Den där restaurangen, jag går gärna tillbakadit.  
 that there restaurant.the I go willingly back there
- (31) \*Jag går gärna tillbakadit, den där restaurangen.  
 I go willingly back there that thererestaurant.the

On the contrary, the APT can appear not only to the left but also to the right of the matrix, as in (32):

- (32) Jag går gärna tillbakadit, apropå den där restaurangen.  
 I go willingly back there APROPOS that thererestaurant.the

**3.4** To summarize so far, the *apropå*-construction cannot unambiguously be identified with any of the three syntactic dependencies taken into consideration. The APT is neither topicalized through A'-movement, nor is it left dislocated, nor is it a hanging topic. These conclusions hold regardless of the word order of

the matrix, which is always open for the two options illustrated in (5) and (6). I now turn to the pragmatic properties of the construction.

#### 4. The pragmatic properties of *apropos*-topics and *concerning*-topics

First and foremost, there are no interpretive differences what so ever associated with the two word order patterns illustrated in (5)-(6) above. Whether the APT appears in a peripheral position where it is followed by the canonical subject verb order (5), or is placed in [Spec, C] triggering subject inversion (6), has no consequence for the information structure of the expression. In the following examples, as well as in the preceding ones, the two are entirely interchangeable.

In order to understand the pragmatic properties of the APT, we need to compare the APT with another group of expressions belonging to the same general area of meaning and with an apparently similar discourse function: the Swedish expression *beträffande* ‘concerning’ introduces a topic of sorts in a fashion superficially similar to the APT. It allows for the same two word order patterns that we have seen previously:

(33) *Beträffande* Johan, jag träffar honom imorgon.

CONCERNING John I see him tomorrow

(34) *Beträffande* Johan träffar jag honom imorgon.

CONCERNING John see I him tomorrow

‘Concerning John, I’ll see him tomorrow’ = (33), (34)

Despite the superficial similarity to the APT, the expression illustrated in (33)-(34) shows systematic pragmatic differences with respect to the APT in a way that justifies a distinction between two different classes of topic markers. If we

have chosen to call the former *apropos*-topic (APT), let us term the second the *concerning*-topic (CNT). These two classes are perfectly alike with respect to the syntactic criteria considered in section 3, but differ with respect to information structure, as is discussed in 4.1-4.3.

**4.1** The first difference between APTs and CNTs resides in the fact that CNTs can introduce a new element, a kind of subtopic, into the discourse, whereas APTs do not have any such property. Consider the following two examples in relation to the context:

[*Context*: We had a lovely week in Greece. The weather was beautiful and the food was good, and ...]

(35) ...*beträffande* hotellet var det utmärkt.

CONCERNING hotel.the was it excellent

‘... and as for the hotel, it was excellent’

(36) \*... *apropå* hotellet var det utmärkt.

APROPOS hotel.the was it excellent

‘... and apropos the hotel, it was excellent’

In the context of (35)-(36), the hotel has not actually been mentioned. It is a discourse-new element, at most inferred from the general description and could perhaps count as “old information” by virtue of predictability (e.g. Prince 1981: 226): in this context, some information about the hotel may be expected and, say, given by association. However, this associative link to the context is not sufficient to introduce the *hotel* as an APT. It seems that the *apropå*-construction actually requires explicit mention of the topic in the preceding discourse. This in turn means that, by these two expressions, the APT and the CNT, a distinction is lexicalized between topics that are “old” because explicitly mentioned, and those that are merely inferred, such as *hotel* in (35)-(36).

**4.2** The second difference between APTs and CNTs has to do with the topic of the following matrix. In examples such as (37)-(38), the APT presents a Topic, *John*, which must have been previously mentioned but has a purely associative link with the content of the matrix.

(37) *Apropå Johan träffade jag Maria igår.*

APROPOS John met I Mary yesterday

‘Speaking of John, yesterday I met Mary.’

(38) *Apropå Johan, nu regnar det igen.*

APROPOS John now rains it again

‘Speaking of John, now it’s raining again.’

The example (37) implies that I associate John with Mary, while (38) suggests that I for some reason associate John with poor weather. In other words, the following matrix does not need to be “about” the argument introduced as an APT. In other words, there is no requirement on aboutness continuity with respect to the matrix (Prince 1998, Frascarelli & Hinterhölzl 2007). Importantly, such a radical shift is not acceptable with the CNT, as is clear from (39)-(40):

(39) <sup>??</sup>*Beträffande Johan träffade jag Maria igår.*

CONCERNING John met I Mary yesterday

‘Concerning John, yesterday I met Mary.’

(40) <sup>??</sup>*Beträffande Johan, nu regnar det igen.*

CONCERNING John now rains it again

‘Concerning John, now it’s raining again’

This means that the CNT imposes aboutness continuity on the matrix (Reinhart 1981: 63). In simple terms, if I start out by saying *beträffande Johan* ‘concerning John’, whatever follows has to be about John.

It appears, then, that one of the constructions is the mirror image of the other: The APT must have been mentioned in the previous discourse; it may or may not be the topic of the following matrix. The CNT may or may not have been previously mentioned; it must be the topic of the following matrix. The generalization can be formally expressed as in (41)-(42):

(41)  $x_i \dots [\text{APT TOPIC}_i [\text{CP} \dots (x_i) \dots]]$

(42)  $(x_i) \dots [\text{CNT TOPIC}_i [\text{CP} \dots x_i \dots]]$

The structures in (41)-(42) capture the intuition that the CNT imposes aboutness continuity forwards, on the matrix, while the APT requires aboutness continuity backwards, in the preceding discourse. A further conclusion derives from the generalization in (41)-(42): topic tests building on the substitution of the topic by expressions such as *as for x*, or embedding of the utterance in *about*-sentences (Reinhart 1981: 64-65), are not applicable to all sorts of topics, but only to topics of a certain kind, and must therefore be used with caution. The CNT can be substituted by *as for x*, but the APT cannot. Moreover, an utterance such as *apropos John, she said that it is raining again* cannot felicitously be paraphrased as <sup>#</sup>*she said about John that it is raining again*.

**4.3** The third difference between the two classes of topics concerns their relation with focus and can presumably be derived from the generalization stated in (41)-(42). To begin with, CNTs are not readily compatible with a coreferent focused argument in the matrix (43), whereas a non-coreferent argument is perfectly acceptable (44):

(43) <sup>?</sup>\*Beträffande Johan såg jag HONOM i affären igår.

CONCERNING John saw I HIM in shop.the yesterday

‘As for John, I saw HIM in the shop yesterday.’

(44) Beträffande Johan såg jag honom i AFFÄREN igår.

CONCERNING John saw I him in SHOP.THE yesterday.

‘As for John, I saw him in THE SHOP yesterday.’

The unacceptability of (43) is expected given the structure in (42). In (43), the CNT establishes *John* as the topic of the clause. If intonation then signals John as the focus, we get a mismatch of pragmatic interpretations, i.e. a violation of the focus restriction of Molnár (1998).

In the case of APTs, things are more complicated. Clearly, the status of a sentence such as (45), when uttered out of the blue, is doubtful.

(45) <sup>??</sup>Apropå Johan såg jag HONOM i affären igår.

APROPOS John saw I HIM in shop.the yesterday.

‘Speaking of John, I saw HIM in the shop yesterday’

The reason for this is that, in a decontextualized example such as (45), I expect John to be the sentence topic. However, a focused reading can be acceptable under the appropriate circumstances. Suppose that somebody has been telling me about a problem of his/hers and asks me for advice. I cannot give any, after which the conversation continues on some other topic until incidentally John is mentioned. In such a discourse, I can actually say something like (46) or (47):

(46) *Apropå Johan, HAN kanske vet lösningen.*

APROPOS John HE maybe knows solution.the

‘Speaking of John, HE might have the solution.’

(47) *Apropå Johan, det är med HONOM du måste tala.*

APROPOS John it is with HIM you must speak

‘Speaking of John, it’s with HIM you should speak.’

In (46)-(47), the APT is placed in a peripheral position and, hence, followed by canonical subject-verb word order. If, instead, the APT appears in [Spec, C], nothing changes as for the interpretation, as in (48)-(49):

(48) *Apropå Johan kanske HAN har lösningen.*

APROPOS John maybe HE has solution.the

(49) *Apropå Johan är det med HONOM du måste tala.*

APROPOS John is it with HIM you must speak

This is so because the APT retrieves John as the topic from the immediately preceding discourse, but does not impose any restriction on the status of John in the matrix. The structure in (41) is in fact silent on the topic-hood of John in the matrix. Rather, the APT in (46)-(49) brings us back to a point of the preceding discourse in which John was not the topic.

**4.4** I conclude from this that it is possible to identify two classes of topic expressions which consistently give rise to distinct information structures. It should be noticed that the different readings have no syntactic reflex. In particular, both the APT and the CNT are compatible with the same two word order patterns that have been illustrated in (5)-(6) and (33)-(34) above. I now

turn to the last issue that concerns the categorial and syntactic status of the expression in question.

## 5. The categorial status of APROPOS and CONCERNING

In traditional Swedish grammar, expressions such as APROPOS and CONCERNING have been understood as prepositional in nature (e.g. Teleman et al. 1999: 715). A similar tendency is found, for instance, in the English grammatical tradition (e.g. Quirk et al. 1985: 670). In this section, I will outline an alternative view which I believe to be theoretically preferable and more consistent with the empirical facts.

One reason behind the traditional idea of identifying such expressions with prepositions may be related to morphological case. In fact, the pronominal argument of APT invariably carries objective case:

(50) Apropå mig, ... / Beträffande mig ...

APROPÅ me<sub>[obj.]</sub> / CONCERNING me<sub>[obj.]</sub>

(51) \*Apropå jag, ... / \*Beträffande jag ...

APROPÅ I<sub>[nom.]</sub> / CONCERNING I<sub>[nom.]</sub>

Consider, to begin with, that it can be excluded that accusative in (50) is an instance of default case assignment given that default case in Swedish is unambiguously nominative. Only nominative is acceptable in the contexts suggested as criteria for default case assignment in Schütze (2001: 210-216), as for instance in left dislocation (52), “Mad magazine” sentences (53), and ellipsis (54):



(52) Jag, jag vaknar alltid klockan sex.  
 I<sub>[nom]</sub> I wake always clock six

‘Me, I always wake up at six o’clock’

(53) Jag? Vakna klockan sex?  
 I<sub>[nom]</sub> wake clock six

‘Me? Waking up at six o’clock?’

(54) Vem vaknar klockan sex? - Inte jag.  
 Who wakes clock six - Not I<sub>[nom]</sub>

‘Who is waking up at six o’clock? - Not me.’

Having established that the objective case in (50) is not a default case, consider that there is no compelling reason to assume that objective case in (50) is assigned by prepositions. Note that *apropå* and *beträffande* would be atypical prepositions. They are never selected; there is no expression in the language that obligatorily subcategorizes for any of them. Presumably as a result of this, extraction out of the alleged PP is straightforwardly ungrammatical. Compare (55)-(56) with (57)-(58):

(55) Vi sa beträffande Johan

we said CONCERNING John

att det är dags att kontakta honom igen.

that it is time to contact him again

(56) Vi sa apropå Johan att det är dags att kontakta honom igen.

we said APROPOS John that it is time to contact him again

(57) \*Johan<sub>i</sub>sa vi beträffande t<sub>i</sub>  
 John<sub>i</sub> said we CONCERNING t<sub>i</sub>  
 att det är dags attkontakta honom igen.  
 that it is time to contact him again

(58) \*Johan<sub>i</sub> sa vi apropå t<sub>i</sub>  
 John<sub>i</sub> said we APROPOS t<sub>i</sub>  
 att det är dags attkontakta honom igen.  
 that it is time to contact him again

Hence, preposition stranding is not acceptable with any of these expressions. Given a prepositional analysis of *apropå* and *beträffande*, the traditional taxonomy assumes, not unexpectedly, that a very large number of words belong to the class of prepositions. Some of these are borrowings, such as *apropå*, while others are derived from other word classes, notably verbs such as *beträffande*, present participle of the verb *beträffa* (which in turn is borrowed from German). Note, then, that the traditional approach makes prepositions become an “open” word class. Arguably, such a move has the effect of complicating the theory of prepositions, considerably and unnecessarily.

Rejecting the prepositional analysis, I assume that accusative case in these constructions is to be understood as structural case and I will pursue a rather different intuition about these elements. As has become clear from the previous discussion, both APTs and CNTs have similarities with hanging topics, however with the important difference that APTs and CNTs can occur in subordinate clauses. When they do, they are subject to so-called logophoric shift (e.g. Reuland 2006). In (59)-(60), the APT and the CNT introducing the matrix clauses are speaker oriented: trivially, they relate the content of the matrix to the speaker’s previous discourse. On the other hand, in (61)-(62), where they are embedded in the complement of the verb *say*, the salient reading is that in which

they relate to the grammatical subject's previous discourse (though it is not entirely excluded that they still relate to the speaker):<sup>7</sup>

(59) Beträffande Johan träffade hon honom igår. (speaker orientation)  
 CONCERNING John met she him yesterday.

(60) Apropå Johan träffade hon honom igår. (speaker orientation)  
 APROPOS John met she him yesterday.

(61) Hon sa att hon beträffande Johan  
 she said that she CONCERNING John  
 hade träffat honom dagen innan. (subject/'speaker orientation)  
 had met him day.the before.

(62) Hon sa att hon apropå Johan  
 she said that she APROPOS John  
 hade träffat honom dagen innan. (subject/'speaker orientation)  
 had met him day.the before.

When CNTs and APTs appear in clauses selected by other predicates than verbs of saying, things change. If, as in (63)-(64), the predicate of the main clause is / *did not believe*, for instance, the logophoric shift is blocked.

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<sup>7</sup> As I mentioned already in f.n. 3, the examples of (59)-(60) should not be confused with those cases in which a clear intonation break signals the beginning of a new main clause: *She said that, concerning John: she met him yesterday*. Such a structure, too, is acceptable in Swedish but irrelevant for the present discussion.

(63) <sup>?</sup>Jag trodde inte på att han beträffande Johan

I believed not on that he CONCERNING John

hade träffat honom dagen innan.

had met him day.the before.

(64) <sup>?</sup>Jag trodde inte på att han apropå Johan

I believed not on that he APROPOS John

hade träffat honom dagen innan.

had met him day.the before.

That is to say, the topic introducers of (63)-(64) relate to the speaker, not to the embedded subject, to the extent such a reference can at all be established: the acceptability of both (63) and (64) is downgraded in my opinion.

Suppose, then, that APTs and CNTs actually introduce logophoric predication, elaborating on the proposal of Speas & Tenny (2003). More precisely, I assume that they are to be understood as three-place predicates, taking as their arguments (a) the *speaker*, (b) the *topic*, and (c) the propositional content of the following matrix:<sup>8</sup>

(65) CONCERNING(*speaker*, *topic*, *proposition*)

(66) APROPOS(*speaker*, *topic*, *proposition*)

The role of the *speaker* in (65)-(66) can be shifted to the grammatical subject (the embedded speaker) when APTs and CNTs appear in subordinate environments. This analysis is intended to capture the intuition that *apropå* and

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<sup>8</sup> According to (65)-(66), the internal argument is taken to be the matrix proposition, rather than the actual CP. This has to be the case, given that both CNTs and APTs can appear lower in the structure than the complementizer.

*beträffande* are structurally similar in the sense that they lexicalize the relation between a proposition, its topic, and its “logophoric centre” in Bianchi’s (2003) sense. The syntactic projections of the two predications in (65) and (66) are structurally identical. The difference between them lies only in the nature of the topic argument which imposes aboutness continuity forwards, in the following proposition, in the case of CNTs, and backwards, with an element in the preceding discourse, in the case of APTs, as stated in (41) and (42). Since preceding and following topics can easily coincide, and often do, CNTs and APTs can look superficially identical in a number of cases. It is presumably because of this circumstance that CNTs and APTs have been understood to belong to the same class of words in much of the traditional literature on topicalization.

## 6. Comparative remarks and further speculations

Throughout the discussion, I have refrained from comparative remarks. However, some cross-linguistic comments may be called for at this point, though they will be kept at a minimum.

To begin with, note that Swedish word order facts are not generally attested among V2 languages. In German, for instance, subject inversion as in (68) is not acceptable:

(67) Apropos Johan, ich treffe ihn morgen.

APROPOS John I see him tomorrow

(68) \*Apropos Johan treffe ich ihn morgen.

APROPOS John see I him tomorrow

German word order facts, then, indicate that the German APT has to be in a peripheral position. The comparison of Swedish and German suggests that not only is the form-function mapping not uniform, it is also subject to language specific variations. The question is whether such a state of affairs justifies the claim of Prince (1998) the relation between syntax and discourse is arbitrary quite as much as “the relation between phonological form and lexical meaning”. Though this limited set of data cannot provide any conclusive results, it appears that the basic distinction between APTs and CNTs is indeed found in a variety of Germanic and Romance languages and, hence, could reflect a universal property of language. As the reader may have noticed, some assumptions lie implicit already in the choice of wording in the English glosses. It seems to me that Swedish *apropå x* most naturally translates into English *speaking of x* or *apropos x*, while *beträffande x* looks more similar to *as for x* or *concerning x*. Moreover, the APT in Romance seems to be equivalent to French *à propos de x* or Italian *a proposito de x*, not unexpectedly, while the CNT rather seems to correspond to French *en ce qui concerne x* and Italian *per quanto riguarda x*. The validity of these impressionistic remarks remains to be explored. Note, however, that some distinctions similar to those discussed for Swedish are indeed encountered in Italian. My consultants report a contrast between (69) and (70), in the by now familiar context:

[*Context*: We had a lovely week in Greece. The weather was beautiful and the food was good, and ...]

(69) ...per quanto riguarda l' albergo, era eccellente.

FOR WHAT CONCERNS the hotel (it)was excellent

‘... and as for the hotel, it was excellent’

(70) \*... a proposito dell' albergo era eccellente.

APROPOS of.the hotel (it)was excellent

Likewise, the same difference is attested between (71) and (72), as we found in Swedish (37) and (39).

(71) \*Per quanto riguarda Gianni, ieri ho incontrato Maria.  
 FOR WHAT CONCERNS John yesterday (I)have met Mary  
 ‘Concerning John, yesterday I met Mary.’

(72) A proposito di Gianni, ieri ho incontrato Maria.  
 APROPOS of John yesterday (I)have met Mary  
 ‘Speaking of John, yesterday I met Mary.’

Lastly, it is clearly possible that we can identify not only two but more subclasses among such topic markers with consistently different properties with respect to pragmatic criteria that have not been discussed in this paper. One example may suffice: consider the English expression *as far as x is concerned*, and its Swedish equivalent *vad anbelangar* ‘what concerns’, in the following examples:

(73) As far as the table is concerned, we bought it at the flea market.

(74) Vad bordet anbelangar, vi köpte det på loppmarknaden.  
 whattable.the concerns we bought it at flea market.the

(75) ??As far as the table is concerned, prices are low at the flea market.

(76) ??Vad bordet anbelangar, priserna är låga på loppmarknaden.  
 what table.the concerns prices are low at flea market.the

Such a topic marking is acceptable in (73)-(74) but awkward in (75)-(76), apparently because of the lack of aboutness continuity with respect to the

matrix. However, the aboutness condition is relaxed in a context such as that of (77)-(78), where the topic is a sentient entity:

[Context: She would like to go to Hawaii on their vacation but ...]

(77) ... as far as John is concerned they could just as well stay at home.

(78) ... vad Johan anbelangar kan de lika gärna stanna hemma

whatJohn concerns can they like well stay home

In the case of (77)-(78), a further complication seems to be introduced. Here, *as far as John is concerned* relates not only to the speaker's view point, but expresses John's attitude towards the proposition. The example comes to mean more or less *in John's opinion* or *if the decision is left to John*. This kind of reading sets (77)-(78) aside from the CNTs and the APTs discussed in the previous sections. Consequently, *as far as x is concerned* seems to represent a third subclass of topic markers.

## 6. Conclusion

The survey of topic marking expressions in Swedish has been essentially limited to two classes of expressions, defined as *apropos*-topics and *concerning*-topics. The former are subject to a condition on aboutness continuity "backwards" - they have to continue an explicit topic from the preceding discourse - while the latter impose continuity "forwards" - with respect to the following matrix. Neither of these topic marking expressions can successfully be analyzed as any of the constructions in the syntactic literature: topicalization, dislocation, or hanging topics. Syntax and pragmatics, hence, must be recognized as separate and autonomous, though correlating, modules of the theory. Lastly, it is not a priori obvious that even closely related languages should have the same



repertory of such expressions, and cross-linguistic as well as idiosyncratic variation is far from unexpected. Still, some general observations on topic marking expressions in Swedish indeed seem to carry over to other Germanic and Romance languages.

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