TOWARDS DERIVING THE EPP AND ABSTRACT CASE*

Eric Haeberli (Eric.Haeberli@lettres.unige.ch)

1. INTRODUCTION

Within the generative literature, the Extended Projection Principle and the theory of abstract Case have played a prominent role for accounting for properties of the syntax of A-positions. Yet, it has never been clear what the motivation for the existence of these theoretical concepts is. Within the Government and Binding framework (GB, see e.g. Chomsky 1981, 1986), the EPP is a principle which states that every clause needs a subject and more precisely that [Spec, IP] has to be filled. However, it has remained unclear why such a requirement should exist. As for Case Theory, its main aspect within the GB framework is the Case Filter which requires that every overt NP must be assigned abstract Case (Chomsky 1981, Rouveret and Vergnaud 1980). Although the Case Filter has desirable consequences for the analysis of the distribution of overt NPs, it is simply a stipulated principle which does not seem to be derivable in any way.

The same problems that have occurred within the GB framework with respect to the EPP and Case theory reappear in a different form within the Minimalist Program (MP). Within the MP, syntactic processes are driven by the presence of features which are uninterpretable (–Interpretable) for interface interpretation and therefore have to be made invisible in the course of a derivation. Within Chomsky's (1995) version of the MP, a feature can be rendered invisible once a local configuration (head-specifier, head-adjoined head or head-adjoined feature) has been established between the element bearing the uninterpretable feature and another element bearing a feature of the same type. This process is referred to as feature checking. As the result of feature checking, uninterpretable features can be erased. Given the MP assumption that feature checking is the driving force behind syntactic processes, the EPP and abstract Case have been expressed in terms of uninterpretable features by Chomsky (1995). The effects of the EPP are obtained through an uninterpretable categorial D-feature on Infl. However, such a feature has a problematic status within a framework with minimalist goals. D on Infl does not seem to be related in any way to the two interface levels LF and PF. Hence, its sole function is to get erased in the course of a derivation. It is therefore unclear at first sight why D on Infl gets generated at all. In other words, the presence of D on Infl simply has to be stipulated within Chomsky's (1995) system. The same problem also arises with the EPP-feature proposed by Chomsky (1998, 1999). Within Chomsky's (1998, 1999) framework, the term EPP is used for an uninterpretable feature which is responsible for filling any non-thematic specifier position. But again there is no genuine motivation for the presence of this feature in a derivation and it simply seems to be generated in order to be

* Parts and earlier versions of this paper were presented at the NELS 28 poster session (University of Toronto, October 1997), the University of Geneva (November 1997), the 8th Colloquium on Generative Grammar (Palmela, April 1998), University College London (June 1998) and the Workshop on the Effects of Morphological Case (Utrecht University, August 1998). I would like to thank the audiences at these presentations for their remarks and suggestions. Special thanks go to Liliane Haegeman, Luigi Rizzi and Ian Roberts for their comments on chapter 2 of my (1999) doctoral dissertation of which this paper is a shortened version. Needless to say that all remaining errors are my own responsibility.

erased again. Note that in the remainder of this paper I will not adopt the proposals made by Chomsky (1998, 1999) and I will therefore continue using the term EPP in the traditional, more restrictive sense referring to the presence of a subject within a clause.

The problem raised by the uninterpretable categorial feature on Infl (EPP) also arises with the MP equivalent of the Case filter. Within the (1995) version of the MP, Case Theory is reinterpreted in terms of checking of abstract Case features like Nominative or Accusative which are generated on heads (Nom on T, Acc on V) and on nominal constituents. As pointed out by Chomsky (1995:278ff.), we may assume that abstract Case features are not relevant for LF and therefore have to be checked before LF. Furthermore, in languages which do not have an overt morphological case system, it seems that Case is also irrelevant at the PF interface. Hence, abstract Case features are generated on two elements (a head and a nominal constituent) although they do not play any role at all at the two interfaces. Their sole purpose is thus to get erased and one may wonder why abstract Case features get generated at all. Again, Chomsky's (1998, 1999) framework does not lead to an improvement here. It is argued that a Case feature activates a nominal element so that the nominal element can participate in some syntactic operation (Agree or Move; cf. 1998:43, 1999:4). However, it remains unclear why the presence of a Case feature should have such an effect or, in other words, why a nominal element could not simply undergo syntactic operations without bearing a Case feature. Thus, at first sight, the Minimalist versions of the EPP and Case Theory are equally unsatisfactory as their predecessors within the GB framework.

In summary, the EPP and the Case Filter seem to be underivable stipulations in the GB framework. Within the MP, the underivability of these principles reoccurs in the form of uninterpretable features for which there is no independent motivation and which therefore, by Minimalist standards, have a dubious status. Pursuing Chomsky's (1995) analysis of the EPP, I will propose in this paper that the occurrence of uninterpretable categorial features is related to the definition of categories in terms of features. The EPP and abstract Case therefore do not have to be stipulated but their effects can be derived on the basis of an independent component of the grammar, namely the theory of syntactic categories. As a consequence, the EPP and the theory of abstract Case can be eliminated as components of the grammar.

The paper is organized as follows. In section 2, the main proposal is introduced on the basis of the phenomenon of object movement. It is argued that Case checking can be replaced by categorial feature checking. This proposal is extended to EPP phenomena in section 3. Section 4 deals with some consequences and makes certain basic theoretical points more precise. On the basis of these refinements, additional issues related to the EPP and Case Theory are explored in section 5. Finally, section 6 briefly discusses an alternative model which dispenses with the concept of feature checking and is based on a model that has been used to explain chemical bonding. Section 7 concludes the paper.

2. OBJECT MOVEMENT AND CATEGORIES – TOWARDS DERIVING ABSTRACT CASE

The empirical starting point for my discussion is a well-known phenomenon which can be found in several languages (examples from Icelandic, see Diesing 1996:67, 75, 78; for similar phenomena in other languages see e.g. Diesing 1992, Enç 1991, de Hoop 1992, Laka 1993, Meinunger 1995).

(1) a. Hann las (bækurnar) *ekki* (bækurnar)
He read (books-the) not (books-the)
'He didn't read the books'

b. Hann las (?*bækur) *ekki* (bækur)
He read (books) not (books)

c. Ég las (þrjár bækur) *ekki* (þrjár bækur)
I read (three books) not (three books)

(1a) shows that a definite nominal object can either follow or precede negation in Icelandic. Given the traditional assumption that negation occurs in a VP-peripheral position, it has generally been proposed that the order object-negation is derived through object movement out of the VP to the left of the adjunct ("object shift", "scrambling"[1]). But there are certain restrictions on movement of nominal objects out of the VP (see the references cited above). In a neutral context, the bare plural object in (1b) cannot precede negation. As Diesing (1996:67f.) points out, the only way to make this order grammatical is by forcing a generic (i.e. non-existential) interpretation for the object, for example by stressing the verb ('he doesn't *read* books, he only buys them'). Thus, the ungrammatical order in (1b) concerns the existential reading of the object. The same kind of restriction is also illustrated in (1c). Although object movement in (1c) is unproblematic, movement affects the interpretation of the object. Whereas the object in a position following negation can have an existential reading, the existential reading is lost after object movement and only a specific (partitive) interpretation is possible for the object when it precedes negation in (1c).

The conclusion that has often been drawn on the basis of data like those shown in (1) is that object movement past a VP-peripheral adjunct is restricted to specific objects and that objects with an existential or non-specific interpretation cannot move out of the VP (see e.g. Cecchetto 1994, Diesing 1992, 1996, Enç 1991, Moltmann 1991, Sportiche 1996). However, Laka (1993) argues that the crucial factor determining movement in cases like (1) is not a semantic notion like specificity as such, but rather the categorial status of nominal arguments. Based on data from Basque, Laka proposes that objects remaining in their base position are NPs whereas objects which can move out of the VP are DPs. The observation that in many languages only objects with a specific interpretation can move out of the VP can then be captured under the assumption that in these grammars the semantic feature [+specific] is related to D (Laka 1993:162; see also Chomsky 1995:342 for relating specificity to D).

I will adopt Laka's distinction between NPs and DPs here and I will thus assume that object NPs remain in their VP-internal base position (see 1b and 1c with the existential interpretation) whereas DPs move out of the VP, at least at some stage in a derivation (see 1a/c). The same proposal has been made independently by Philippi (1997:68ff.) (see also Chomsky 1995, Frampton 1995 on the NP/DP distinction in expletive constructions). The question that arises then is why the distributional properties of nominal elements are closely related to their categorial NP/DP status.

Descriptively, the contrast between NPs and DPs can be expressed in a simple way: A constituent headed by a lexical head (N) stays within a projection headed by another lexical head (V) whereas a constituent headed by a functional head (D) moves to a projection headed by another functional head. This observation alone does not provide an explanation for the difference in syntactic behavior yet, but I propose that it can be derived in a principled way within a feature checking framework. For my analysis, I will follow Bobaljik (1995) in assuming that heads and their complements can enter checking relations (*contra* Chomsky 1995). Based on this assumption, I will argue that object NPs check features in their VP-internal base position whereas DPs have features which have to be checked outside the VP and that this difference with respect to feature checking accounts for the distributional contrast shown in (1).

---

[1] The term object shift has generally been used for object movement in the Scandinavian languages whereas the term scrambling has generally been used for the West Germanic languages. However, I will follow much recent work (see e.g. Bobaljik 1995, Bobaljik and Jonas 1996, Zwart 1997) in treating object movement in these two language groups in a uniform way.

To motivate this claim, I will make use of the theory of syntactic categories which goes back to Chomsky (1970) and which has been adopted in much subsequent work. Chomsky (1970:208) argues that syntactic categories should be analyzed as combinations of features rather than as theoretical primitives. This proposal is made more explicit in later work of Chomsky's (Chomsky 1974). Chomsky proposes that the main categories can be defined on the basis of the features V and N. The feature system Chomsky proposes is summarized in (2).

(2)	a.	verb:	[-N, +V]	c.	adjective:	[+N, +V]
	b.	noun:	[+N, -V]	d.	preposition:	[-N, -V]

The proposal that I will make is that feature matrices as shown in (2) are the source of categorial feature checking within the MP. Consider for example the feature matrix of a verb. A verb must be specified as being verbal and as not being nominal. We could assume now that not being nominal means that the nominal feature in the verbal feature matrix is uninterpretable and that it therefore has to be checked and erased. Thus, the central proposal of this paper will be that categorial feature matrices basically start out with positive values (e.g. [+N, +V] for lexical categories) and that the adequate feature matrices for particular categories are established through checking in the course of a derivation. A verb for example starts out with an uninterpretable N-feature that has to be checked or a noun has an uninterpretable V feature that has to be checked so that the adequate categorial status is established for the interfaces. I will represent this in the notation known from the categorial feature system in (2), i.e. in terms of +/- values. However, since the Minimalist system distinguishes between features that are visible for the interfaces and features which are not visible rather than between + and - values, the idea would be that a categorial feature matrix always starts out with the entire set of categorial features ([N, V]) and that checking then erases the uninterpretable feature (yielding for example [N, _] in the case of a noun).

The approach proposed here depends on two assumptions. First, when a categorial feature matrix is inserted in the derivation, its features must get specified as to whether they are interpretable or not.[2] And secondly, the format of the clause structure must be examined at the interfaces with respect to the categorial features. In other words, there has to be an interface filter which determines whether the clause structure has been built adequately during the derivation or not. Note however that both of these assumptions could be avoided if the underlying motivation for categorial feature checking is conceived in a slightly different way. I will return to this point in section 6.

Assuming that categorial feature matrices obtain their right format in the course of a derivation, we now can account for the proposal that NPs do not move out of the VP in (1). When an NP is merged as the complement of a verb, the verb's uninterpretable N-feature is checked by the NP's interpretable N-feature (hence [-N, +V] for a verb) whereas the NP gets specified as [+N, -V] through V-feature checking by the verb. The NP's and the VP's feature matrices are therefore correctly established VP-internally. Thus, there is no trigger for object movement out of the VP past VP-peripheral elements and this movement therefore can be ruled out for reasons of economy. Hence for example the ungrammaticality of the order object-negation in (1b).

---

[2] For lexical categories, it could be argued though that the status of the categorial features does not have to be pre-specified but that it gets determined through the structural context. Thus, in a way which is reminiscent of Marantz's (1997) proposals, it could be argued that for example the nominal feature of a lexical category only gets identified as uninterpretable once a verbal functional element gets introduced within the extended projection and that therefore the categorial status of a lexical head depends on the occurrence of specific functional elements in the structure.

What about functional categories? Following Grimshaw (1991) and van Riemsdijk (1990), I will assume that functional categories are partly defined by the lexical features N and V. Thus, D is defined by a N-feature and T is defined by a V-feature. As for the functional component of a functional categorial feature matrix, I will propose, contrary to Grimshaw and van Riemsdijk, that it mirrors the lexical level in the sense that the functional part of a functional category consists of one functional feature which is verbal and another one which is nominal. More precisely, I will assume that the functional component consists of the features T and D.[3] Given this feature system, D and finite T can be defined in terms of the following feature matrices:

(3) a. D: [+D, -T; +N, -V] b. T: [-D, +T; -N, +V]

Consider now the consequences of (3) for the analysis of the contrasts with respect to object movement illustrated in (1). Once a DP is merged as the complement of a verb, the object does not only bear a V-feature that has to be checked but also a T-feature (see 3a). An object DP therefore has to move out of the VP at some point in a derivation in order to check its T-feature. Let us assume that, as proposed by Chomsky (1995:350ff.), object movement targets a specifier in a multiple Spec configuration. In Chomsky's system, this specifier is the outer [Spec, *v*P]. However, there do not seem to be any clear arguments which would identify the target of object movement as a Spec of *v*P. Instead we may assume that an object moves to TP and more precisely to the lower Spec of a multiple Spec configuration within TP given that a subject DP also has to check a T-feature (possibly before moving on to higher landing sites like AgrP or, in V2 languages, CP). Thus, in (1a/c) where an object DP precedes a VP-peripheral adjunct, the object DP has moved to the lower [Spec, TP] in order to check its T-feature.[4]

At this point, we can return to the issues raised in the initial section of this paper, namely the theoretical problems raised by the EPP and Case Theory. The discussion of object movement is relevant in this context because much recent work has related object movement past VP-peripheral adjuncts to Case Theory. A standard analysis of object movement out of the VP is that the object moves to [Spec, AgrOP] (see e.g. Chomsky 1991, Vanden Wyngaerd 1989 and much subsequent work). Furthermore, within the early Minimalist framework, AgrOP is the position where an object checks Case. Hence, in Minimalist terms, object movement past VP-peripheral elements can be viewed as a Case-driven movement. However,

[3] Alternatively, we could assume that the label for functional features is less specific, i.e. simply F as proposed by Grimshaw and van Riemsdijk. Hence, we would have two functional features FN and FV. However, for concreteness' sake, I will use the features T and D. See also section 4.4 on the status and labels of categorial features.

Another observation should be added here. Van Riemsdijk (1990) proposes that lexical categories are defined by a negatively specified functional feature (e.g. [+N, -V, -F]). However, given the analysis proposed here for the contrast in (1), we have to assume that an NP does not have to check a T-feature and that N is therefore defined simply as [+N, -V] rather than as [-D, -T; +N, -V]. Hence, I will assume here that the basic building block of a categorial feature matrix consists of the lexical features and that the functional features get added only if they contribute something to the content of the feature matrix at the interfaces, i.e. if at least one of them is interpretable.

[4] Note that an analysis of object movement in terms of T-feature checking only can be maintained if V does not already bear a T-feature when it gets inserted into the derivation. If V had a T-feature VP-internally already, the object DP could check its uninterpretable T-feature in its VP-internal base position and there would be no motivation for movement out of the VP. In other words, our analysis seems to be incompatible with Chomsky's (1993, 1995) assumption that lexical elements get inserted in the structure as fully inflected forms. Hence, I will adopt the standard pre-Minimalist assumption that lexical elements do not get merged in their fully specified forms and that therefore for example V only picks up T-features from the T-head in the course of the derivation.

the contrasts between different types of nominal elements with respect to movement does not directly follow from such an approach.

Let us assume that object movement out of the VP is indeed a Case-driven movement. If we combine this assumption with the analysis outlined above according to which object DPs move out of the VP for T-feature checking, we may conclude that abstract Case features actually are not features of the type Nominative or Accusative but rather uninterpretable verbal features (T and V) contained in the categorial feature matrices of nominal constituents (see also Emonds 1985:52ff. for interpreting abstract Case as categorial features and Pesetsky & Torrego 2000 for analyzing Case as uninterpretable T on D[5]). In terms of this analysis, abstract Case features like Nominative or Accusative can be dispensed with and, hence, also Case Theory as an independent component of the grammar. Thus, we do not have to stipulate that nominal constituents have to be assigned Case (GB) or that they have to check Case features (MP). Instead, Case phenomena can be analyzed in terms of a theory of syntactic categories which is based on the assumption that, at the beginning of a derivation, categorial feature matrices are always equipped with the entire set of categorial features (N, V for lexical categories; D, T, N, V for functional categories) and that the adequate content of a feature matrix is established through checking in the course of a derivation. Before turning to additional consequences of this reinterpretation of Case Theory, I will briefly reconsider the second issue raised in the introduction, namely the status of the EPP.

3. TOWARDS DERIVING THE EPP

Two standard examples illustrating the EPP are given under (4).

(4) a. * (There) is a cat in the office.
b. * (It) seems that they left.

Given the obligatory occurrence of semantically empty elements such as *there* and *it*, the sentences in (4) suggest that there is a purely structural constraint requiring that the subject position be filled. But the source of this constraint has remained unclear.

In terms of the proposals made in the previous section, the obligatory presence of a subject in (4) can be accounted for. Given the assumption that categorial feature matrices always start out with positive feature values, it follows that verbal elements have uninterpretable nominal features in their categorial feature matrices in the same way that nominal constituents bear verbal features which have to be checked. In particular, as suggested in (3b) above, T contains uninterpretable D- and N-features in its feature matrix. T therefore has to enter a checking relation with an element bearing nominal features (D and N). Omitting the expletives in (4) would mean that no such checking relation could be established because no element with nominal features would be in the necessary local configuration for feature checking on T. Hence, the result of the absence of expletives in (4) would be that T is specified as [+D, +T; +N, +V]. Yet, as suggested below (section 4.1), this feature matrix can be argued to define a different syntactic category but not T. Thus, a derivation without the expletive in (4) crashes when its structural output is fed to the interfaces because no category is specified as T and TP is lacking in the structure. Once expletives are inserted in (4), the categorial features for T can be specified correctly. Following basically Chomsky (1995:287),

[5] Interestingly, Pesetsky & Torrego derive their proposal from a domain of the syntax which is considerably different from the one discussed in this paper. While my analyses mainly deal with the inflectional domain, Pesetsky & Torrego focus on phenomena related to the C-domain. That the investigation of two entirely distinct empirical domains leads to very similar conclusions seems very promising and it would of course be desirable to unify the two approaches. However, I will have to leave this issue for future research.

I will assume that expletives are D categories, i.e. of the type [+D, -T; +N, -V] within the system proposed here. Hence, insertion of the expletive in [Spec, TP] allows feature checking on T and the expletive. T is therefore correctly specified as [-D, +T; -N, +V] by the time the derivation reaches the interfaces.

In summary, the categorial checking system outlined in the previous section in the context of Case Theory can easily be extended to EPP phenomena. Chomsky's (1995) proposal that the EPP is related to the presence of an uninterpretable nominal feature on an inflectional head follows within the framework proposed here from the definition of T in terms of a categorial feature matrix with negatively specified nominal features.

4. SOME GENERAL CONSEQUENCES

Given the basic assumption made so far that categorial feature matrices get modified through checking, we have obtained a system in which the EPP and Case Theory simply turn out to be different manifestations of the same underlying phenomenon. What has been referred to as abstract Case is the situation where a nominal element has to erase verbal features from its feature matrix, whereas the EPP is the effect of the opposite scenario, namely the one where a verbal element has to erase nominal features from its feature matrix. Thus, the EPP and the Theory of abstract Case are simply two sides of the same coin. From a conceptual point of view, this is a desirable result since two apparently unrelated phenomena can be related to a common underlying source. And more generally, instead of having four different independent components of the grammar, i.e. the theory of syntactic categories, checking theory, the EPP and the theory of abstract Case, we are left with two of these four components, namely the theory of syntactic categories and checking theory, plus the assumption that the two interact.

The prominent role that the theory of syntactic categories and checking theory play in this system means that several general issues related to these two theories have to be considered more closely so that the consequences of the system proposed here can be explored in more detail. In this section, I will address some of these issues.

4.1. Syntactic categories

Let us start by considering the status of some additional categories within the feature system outlined in section 2.

4.1.1. *C*

One option for defining C would be to add a feature C to the inventory of categorial features. However, a simpler possibility would be if C could be defined on the basis of the features already used for other categories. This is what I will propose here. C is a functional category and it therefore has to be defined in terms of functional features. Given (3) above, only two combinations of the two functional features T and D have been used so far, namely those where one of the two features is negatively specified. Assuming that no categories are defined by two negative functional feature values (see fn. 3), one option remains, namely [+D, +T; ...]. We therefore could assume that it is this combination of functional features which defines C. That a T-feature partly defines C is in line with proposals according to which C plays a role for temporal interpretation (see e.g. den Besten 1983, Enç 1987, Guéron and Hoekstra 1988, Stowell 1981). As for the assumption that C bears a D-feature, it ties in with the assumption that the EPP involves D-feature checking and the fact that clauses can satisfy the EPP (e.g. *That John left is surprising*; see section 5.1.1 for more details). A relation between C and D is also suggested by the fact that complementizers correspond to D-elements in several languages (see e.g. English *that*). As for the lexical features of C, I will assume that their status is parallel to the functional features and that they are therefore positively specified, too. Thus, C is defined as [+D, +T; +N, +V]. As we will see in section 5, this assumption has several desirable consequences for the analysis of phenomena related to the EPP and Case Theory.[6]

4.1.2. *P*

The status of P also has to be reconsidered within the system proposed here. The traditional definition of P in terms of [-N, -V] is problematic for two main reasons. First, it would be plausible to assume that categories must be defined in terms of something which can be interpreted at the interfaces, i.e. in terms of at least one interpretable feature. But given the proposal that negative values in feature matrices stand for uninterpretable features, [-N, -V] would be a category with a contentless feature matrix at the interfaces. A second problem that arises is that P is a category which, in traditional terms, assigns Case. Within the system proposed here, this means that P should be able to check verbal features on nominal constituents. However, as a [-N, -V] category, P would not be a likely candidate for licensing nominal constituents. In particular DPs which have to check a T-feature could not possibly be licensed by P.

The conclusion that the categorial status of P has to be reconsidered may not be undesirable however. Within the set of categories traditionally defined in terms of lexical features (N, V, A, P), P has always had a peculiar status because it also seems to have functional properties. Chomsky (1981:48) therefore only refers to "the first three" among N, V, A and P as *lexical* categories, thereby excluding prepositions.

But what alternative definition could be given for P? If P is not a genuine lexical category, it has to be defined in terms of functional features. But there are no additional functional feature combinations available any more. [+D, -T; ...] defines D, [-D, +T; ...] defines T, [+D, +T; ...] defines C and finally [-D, -T; ...] arguably does not occur (see fn. 3). However, the unavailability of a specific functional feature combination for P may not be surprising. As it has often been observed in the literature, C and P are closely related categories (see e.g. Dubinsky and Williams 1995 for a recent discussion). This similarity has led Emonds (1985) to propose that, in categorial terms, C and P should be treated as identical. I will adopt this proposal to a large extent by assuming that the highest category within a PP is defined like C ([+D, +T; +N, +V]) (but see section 5.2.3 for a more detailed analysis of P). Hence, by assimilating P and C, we obtain the desired result within the framework proposed here, namely that, due to the presence of interpretable verbal features, P can check "Case", i.e. uninterpretable verbal features on nominal constituents.

4.1.3. *Agr, Neg, etc.*

The last issue that I would like to discuss here briefly is the status of the numerous additional functional categories proposed in the recent literature such as Agr, Neg, Asp or Mood in the

---

[6] The feature matrix [+D, +T; +N, +V] will be relevant in particular for the analysis of the highest C-projection in embedded CPs. As for movement to CP (*wh*, negation, topicalization, focus), I will assume that it is not triggered by uninterpretable categorial features but by non-categorial features such as *Wh*, *Neg*, *Top* or *Foc*. This distinction could be a potential source for differences between checking within the A-system and the licensing configurations which are required within the A'-system (see e.g. Haegeman 1995:232f., Laenzlinger 1998:25, Rizzi 1997:282 on differences with respect to the A- and the A'-system).

clausal domain.[7] The feature system outlined so far only defines the categories N, V, A, D, T, C and P, and there do not seem to be any additional combinations of feature values which could be argued to characterize for example Agr, Neg, Asp or Mood. One way to integrate such elements into the system proposed here would be to propose that they start out as features on categories which are defined in terms of the inventory of categorial features assumed so far, i.e. for example on V or T in the case of functional categories in the clausal domain. As for the realization of specific projections, I will assume, along the lines of a proposal made by Nash and Rouveret (1997), that such projections are created through proxy categories, i.e. functional heads which have no features of their own and which are created only in the course of the syntactic derivation. Thus, the general idea would be that categorial feature matrices define the necessary "backbone" of the clause structure (e.g., as traditionally assumed, VP-IP-CP in the clausal domain) and that additional projections, realized as proxy projections, have their origin as features on these basic categories.

4.2. Checking Theory

Let us now have a closer look at checking theory. For the analysis of the EPP and abstract Case proposed here, I will assume the following main properties of checking:
(i) I will follow Chomsky (1995) in assuming that the basic role of feature checking is to make uninterpretable features invisible for the interfaces. In addition, I will follow Chomsky (1995:280) in assuming that checking can have two possible consequences. Either checking leads to deletion of an uninterpretable feature or to deletion and erasure of such a feature. Deletion makes the feature invisible for the interfaces, whereas erasure also makes it invisible for the computation. The deletion option will mainly play a role in cases of multiple attraction by the same feature (see section 5.2.7.1).
(ii) The second main assumption that I will make with respect to feature checking concerns the configurations in which feature checking can occur. As discussed in section 2 already, I will follow Bobaljik (1995) in assuming that feature checking with a feature on a head can take place in any local configuration within the head's projection: head-adjoined head, head-complement or head-specifier.

Suppose now in addition that feature specifications are identical at every level of a projection, an assumption which is in line with general Minimalist assumptions with respect to phrase structure (see Chomsky 1995:241ff.). The result is then that the structural definition of feature checking can be simplified considerably. Whereas Chomsky's (1995) system requires a fairly complicated structural definition of feature checking configurations which excludes the head-complement configuration ("checking domain", see Chomsky 1993:11f., 1995), a uniform and simple definition of checking configurations can be given within the system adopted here. Given that feature specifications are identical at every level of a given projection, head-adjoined head, head-complement and head-specifier configurations are all configurations which can be defined in terms of *immediate dominance*. Thus, we may assume that two features F_1 and F_2 can enter a checking relation if F_1 and F_2 occur on nodes which are in a configuration of immediate dominance.[8]

---

[7] As for "little V" (*v*) in Chomsky's (1995) system, I will assume that it is simply an independent V head with its own [-N, +V] matrix.

[8] Note that this proposal is similar to a proposal made by Zwart (1993:373, 1997:178f.) according to which licensing relations are sisterhood relations.

As for the notion of *dominance*, I will use it here simply in terms of nodes, i.e. every node X which is connected downwards in the tree to node Y dominates Y. The segment-category distinction will therefore not be adopted here. As for *immediate dominance*, I will assume that it stands for a dominance relationship in which no other node intervenes.

(iii) The third assumption on which my analysis will be based is that feature checking is an asymmetric process in the sense that one of the elements involved in a checking process has a feature that needs to be checked (uninterpretable) and the other one has an interpretable feature that acts as a checker. This assumption excludes an option which is assumed to be available within Chomsky's (1995) system, namely the option that an uninterpretable feature checks another uninterpretable feature and is being checked at the same time by this feature (symmetric, i.e. mutual checking). Note however that within Chomsky's system mutual checking of uninterpretable features only seems to be necessary for Case checking. And since the framework proposed here does away with abstract Case features, it also does not seem to be necessary to maintain the option of mutual feature checking. Instead, feature checking can be defined simply as a uniform process involving one checker and one checkee.

(iv) Finally let us consider the process of feature checking. Following proposals made by Chomsky (1995:297ff.), I will assume that feature checking is driven by *Attract*. In terms of asymmetric checking, this means that an uninterpretable feature attracts an interpretable one of the same type for feature checking. Due to the c-command condition on movement (see e.g. Chomsky 1995:253), attraction is assumed to operate only downwards and not upwards. Given that feature specifications are identical at every level of a given projection, the relevant structural relation for attraction can be defined as *dominance*. Thus, an uninterpretable feature F_1 attracts an interpretable feature F_2 if F_1 dominates F_2. Furthermore, I will follow Chomsky (1995) in assuming that it is the closest adequate element which gets attracted. As for closeness, I will generally assume simply that "β is closer to the target K than α if β c-commands α" (Chomsky 1995:358).

If we consider feature checking in terms of attraction in more detail, we can isolate three steps which are necessary for checking. First, once an uninterpretable feature on an element X gets introduced into a derivation, it searches for the closest interpretable feature of the same type in its domain of dominance. Let us call this process *Search*. For reasons which will become clearer in section 5, let us also assume that once an uninterpretable feature on X has identified another feature on the closest element Y as its checker, no additional *Search* process can be initiated by the same uninterpretable feature any more. The way in which we may express this formally is through co-indexation of the selected checker and the checkee. However, the use of an index here is simply a temporary marking of a checking relation that has been initiated. The index therefore gets erased again once feature checking has taken place. But before checking, the index ensures that, once an uninterpretable feature F bears an index, no additional features are considered for checking of F any more. Finally, I will assume that once *Search* has established a relation between two elements X and Y, the relation becomes mutual in the sense that the element Y whose feature F has been selected as a checker for uninterpretable F on X can then also select (and co-index) one or more interpretable features on X for checking of its own uninterpretable feature (resulting in "free riders", see Chomsky 1995:268, 282).

The second step in a feature checking process is *Attract*, i.e. the element Y bearing the interpretable feature gets attracted so that it enters a local configuration with the uninterpretable attractor on X. Given the structural relations observed earlier, *Attract* means that a relation of dominance is turned into one of immediate dominance.

And finally, as the third step, feature checking takes place between the uninterpretable feature(s) and the interpretable feature(s), i.e. between the attractor on X and the interpretable feature on Y and, if possible, between "free riders" on Y and interpretable features on X. Let us refer to this process as *Check*. As a result of *Check*, the uninterpretable feature on X and, possibly, one or more uninterpretable features on Y get deleted and, if possible, erased and co-indexations established through *Search* are also erased again. Thus, feature checking can be analyzed as a sequence of steps *Search-Attract-Check*. In section 5, I will illustrate and refine this system by reconsidering the way in which the EPP and abstract Case can be derived from categorial feature checking.

4.3. The model of grammar: The Single Output Model

Before returning to the EPP and abstract Case, a more basic issue should be raised here briefly, namely the model of grammar on which the framework proposed in this paper can be based. Within Chomsky's (1993, 1995) version of the Minimalist framework, it is assumed that syntactic structures are built derivationally and that at some point during a derivation (referred to as Spell Out) the elements which are relevant for PF get stripped away from the structure already formed. Subsequently, the derivation proceeds to yield the structural representation relevant for the LF interface. An important consequence of this system is that feature checking and hence movement can take place before Spell Out, i.e. overtly, or after Spell Out, i.e. covertly. However, such a model of the grammar seems to be problematic for the categorial feature checking system outlined here. With a Spell Out point during a derivation, it could happen that categorial feature matrices have different specifications when entering the PF component and when entering the LF component. For example, an object DP which undergoes object movement at LF would be defined in terms of an entirely positive feature matrix at Spell Out and it would obtain its adequate feature matrix only in the covert syntax. But given for example the assumption that the morphological component of the grammar is based on the Spell-Out structure (see e.g. Chomsky 1995:319), such a system would mean that the morphological component does not always have access to the adequately specified categorial feature matrix of a certain element. But categorial information is crucial for morphological processes and it therefore should have the right format when the morphological component has access to it.

Thus, a model of grammar with a Spell Out point would be problematic for the categorial feature checking approach outlined here. However, an alternative model of grammar that has been proposed in the Minimalist literature does not face the same problems. Bobaljik (1995) and Groat and O'Neil (1996) propose a model of grammar in which all syntactic processes are carried out without an intervening Spell Out point (*Single Output Model*). The derivation thus produces a single syntactic structure as its output and this structure is fed both to the PF interface and to the LF interface. A schematic representation of this model is shown in (5) (from Bobaljik 1995:349).

(5) *Single Output Model*

LEXICON
↓ **Syntax**
Phonology/Phonetics ← Morphology ← OUTPUT → Logical Form
←-------------------------------------- no more syntax ---------→

The main consequence of (5) for our purposes is that the LF and the PF component both only have access to categorial feature matrices which cannot be modified through subsequent checking any more and which therefore have been entirely specified. Hence, the problems raised by Spell Out do not arise within a Single Output Model.

As for the distinction between overt and non-overt movement within such a framework, it will not play an important role for the type of movement we are concerned with here, i.e. for movement for categorial feature checking. I will basically follow Chomsky (1995:232) and assume that categorial features always trigger overt movement. Contrary to Chomsky however, I will include here all categorial features, not just those on non-substantive categories. Thus, an uninterpretable N-feature on V (a "substantive" category) also can give rise to overt movement (see section 5.2.5).

Finally, with respect to the timing of movements, the Minimalist concept of Procrastinate (cf. Chomsky 1993, 1995) cannot play any role within a Single Output Model because, if only one structural representation is created, there does not seem to be any motivation for delaying movement. I therefore propose that feature checking simply takes place whenever some need for checking arises during a derivation. Uninterpretable features are elements which have to be erased and it therefore seems natural to assume that, whenever an element which requires checking gets inserted into the syntactic structure, it immediately attempts to attract a feature checker.[9] If a checker is available and this checker can get attracted, feature checking takes place immediately. Otherwise, one of the following two scenarios will arise. First, if a feature checker would be available but it cannot get attracted, the derivation proceeds and feature checking has to take place later through additional syntactic processes (see e.g. sections 5.1 and 5.2.4). As we will see, this option means that an element which gets attracted to a higher position can check features on its way to this position and hence that non-cyclic feature checking is legitimate. The second possibility is that no adequate element for checking is available in the domain of attraction. Checking then has to take place either through merging an adequate checker or through an additional syntactic process which allows feature checking of "free riders". However, both of these options are only used if necessary, i.e. if immediate checking is not possible.

In this context, an additional issue should be raised briefly. In the previous paragraph I have been focusing on feature checking and I have assumed that feature checking takes place as soon as possible during a derivation. However, we may formulate this assumption in more general terms. Consider for example "base generation" of arguments in their argument position. Although the system outlined here allows feature checking when an argument is merged in its base position (cf. V- and N-feature checking with object NPs in section 2), we will see that merging an argument does not always go together with feature checking. Nevertheless, it would not be desirable to let Merge operate randomly during a derivation. I therefore would like to propose that the "as-soon-as-possible" condition does not only apply to checking but also to Merge which does not involve checking. Thus, an item is merged as soon as there is a possibility for it to be inserted in the structure. For example, as soon as a theta-role assigner is merged and a theta position therefore becomes available, the relevant argument is merged, too. Hence, syntactic operations in general occur as soon as possible during a derivation.

A final question remains to be addressed now. If syntactic operations in general occur as soon as possible, which of the two types of operation, Move or Merge, takes precedence if they both could achieve the same result (i.e. feature checking)? The discussion above already suggests what the line is that I will pursue here. I proposed that an uninterpretable feature tries to determine a feature checker as soon as it has been inserted into the syntactic structure. But given the way a feature checker is determined in the system proposed here (*Search*, cf. section 4.3 above), we are led to conclude that the uninterpretable feature starts by searching for a feature checker in the structure already built. Once a feature checker has been found within this structure, it gets attracted and feature checking takes place. Hence, Move is the default

[9] This assumption is reminiscent of Pesetsky's (1989) Earliness principle. See also Bobaljik (1995:350, fn. 6) for concluding that processes within a Single Output Model proceed in a way which corresponds basically to Pesetsky's Earliness principle.

option and Merge only takes place if no feature checker has been identified yet. Hence, Move precedes Merge within the system outlined here.[10]

4.4. Interpretability of categorial features

To conclude this section, let us briefly consider an additional issue that arises within the framework proposed here. The analysis of categorial feature checking that I have outlined so far is based on the assumption that some categorial features are uninterpretable and some others are interpretable. Uninterpretable categorial features have to be erased through checking and they therefore trigger syntactic processes. However, one may wonder what it means for a categorial feature to be interpretable. The concept "+Interpretable" has generally been used for elements which are interpreted at LF and Chomsky (1995:277) includes categorial features among such LF interpretable elements. But if a feature is interpreted at LF, we would expect it to have semantic import. In terms of the feature system proposed here such a conclusion might be problematic. Whereas it may be conceivable to give some semantic interpretation to different features like N, V or T in isolation, it is more difficult to see what kind of interpretation could be given to a matrix which contains all of these features at the same time, as for example the matrices of C or P proposed in section 4.1.

However, there may be a fairly simple solution to this problem. As Déchaine and Tremblay (1998) point out, the correspondence between concepts and categories is variable crosslinguistically and sometimes within a language. Given this variation and given that the locus of variation within Minimalism is morphology, Déchaine and Tremblay conclude that categorial features must be purely morphological. They argue that such a view of categorial features has two main advantages. First of all, it is simpler in the sense that it eliminates an aspect which is not necessary. As Déchaine and Tremblay point out, categories are basically morphosyntactic classes. Hence, "while morphosyntactic definitions of categorial features are inescapable, semantic ones are not" (1998:26). And the second advantage is that the system is more economical because it is only one component of the grammar which computes categorial features, namely spell-out (i.e. the PF wing).

If we adopt Déchaine and Tremblay's basic proposal, the problem discussed in the first paragraph does not arise. In Déchaine and Tremblay's terms, "categorial features are purely morphosyntactic, so the question of interpretability never arises" (1998:26; where interpretability is understood as LF interpretability). So if we assume that what I have been calling interpretable categorial features so far are not LF interpretable features, I propose that they must be features which are merely interpreted by the PF wing and more precisely by the morphological component. Hence, the requirement on categorial feature matrices would be that they must be correctly specified before they get fed to the morphological/PF component.

---

[10] This is in contrast to Chomsky's (1995, 1998, 1999) assumptions. In these frameworks, Merge preempts Move. However, the evidence for this claim is very scant. It mainly concerns expletive constructions, but, as I argue in Haeberli (1999:chapter 6), expletive constructions can be analyzed without giving priority to Merge over Move. In addition, the "Merge preempts Move" hypothesis leads to the problem that Move nevertheless seems to take place sometimes even if there is an expletive present in a numeration which could be merged. It is in this context that Chomsky introduces the notion of "phase" (cf. 1998:19f.). If Move precedes Merge however, the same type of problem does not arise and, at least for the analysis of the data discussed here, the concept of "phase" therefore does not have to be added to our inventory of theoretical devices.

Finally, as for the theoretical motivation that Chomsky gives for "Merge preempts Move" (Merge being a more economical operation), it does not apply to the system proposed here. As pointed out in the text, within the system proposed here, the *Search* space for an uninterpretable feature is the structure already built. Hence, if an adequate, structurally lower element is present in the syntactic structure, it is this element which is designated as a checker. Merge is simply not an option as long as *Search* has not established that no adequate element is contained within the structure already built, and economy considerations therefore do not play a role.

Given the Single Output Model discussed in section 4.3 (see example 5), these proposals do not change anything with respect to the way in which the categorial feature checking system outlined so far works. In terms of (5), the syntax only derives a single representation. This representation then provides the relevant information for both the LF and the PF component. Hence, even if categorial features are not relevant for LF, categorial features still have to get correctly specified in the course of the derivation because categorial distinctions have to be made in the PF component. Thus, I propose that categorial features are simply treated as regular +/-Interpretable features throughout the derivation. But at the end of the derivation, i.e. at the Output point in the Single Output Model, the categorial features which have not been erased are only fed to the PF component, but not to the LF component. By analogy to Chomsky's (1995) assumption that phonological features can get stripped away from a structure at Spell Out, we could therefore assume that information which is only relevant for the morphological component is also fed only to the PF component.

The analysis of categorial features outlined before has the consequence that the actual labels used for categorial features become less important. Thus, as pointed out in footnote 3 already, for example the functional categorial features could simply be labelled in terms of a functional feature F specified for each of the lexical features. For example T could be defined as in (3b') below rather than as (3b).

(3) b. T: [-D, +T; -N, +V] b'. T: [-F(N), +F(V); -N, +V]

The definition in (3b') would be similar to the traditional Infl in the sense that it is a categorial label without any semantic connotation which then gets associated to different more specific and potentially LF-interpretable features such as [+past] etc. Thus, the idea would be that there is a pool of four categorial features (two lexical features and two corresponding functional ones) which get combined in feature matrices in such a way that they define the basic cornerstones of the clause structure (CP-IP-VP and PP-DP-NP). Then, each of these feature matrices can get associated to more specific features (e.g. wh, Foc, Top for C, Agr or temporal features for Infl etc.). Thus, the categorial feature matrices are the anchoring points for other features. Whether we adopt a notation like (3b') or like (3b) is not crucial for the way the system proposed here works. I will therefore simply continue using the notation introduced in the previous sections, i.e. I will define categories on the basis of the features N, V, D and T.

5. MORE ON THE EPP AND ABSTRACT CASE

Having discussed some basic theoretical assumptions in sections 4.1 to 4.4, let us now return to some specific consequences of these assumptions for the categorial feature checking framework outlined in sections 2 and 3.

5.1. The EPP

5.1.1. *The EPP and CPs*

Consider first subject CPs as in (6).

(6) [$_{CP}$ That Michael scored] is not surprising.

On the basis of CP-initial sentences like (6), we have to conclude that CPs can satisfy the EPP. This result follows from the definition of C as a [+D, +T; +N, +V] category (cf. section 4), i.e. as a category which can check the D- and N-features on T.

However, (6) is interesting for another reason. It has been shown (see e.g. Emonds 1976:127ff., Koster 1978, Stowell 1981:152ff.) that clause-initial CPs as in (6) actually do not occupy the canonical subject position but that they occur in a topic position. The topicalization analysis is based on the observation that subject CPs do not have the distribution of nominal subjects but rather the distribution of topics. For example, subject CPs (contrary to nominal subjects) cannot occur in preverbal position in clauses in which topicalization is impossible (7a/b; Stowell 1981:153). Similarly, subject CPs, just like topics, cannot occupy the post-auxiliary position in contexts of subject-auxiliary inversion (7c/d; Emonds 1976:131).

(7) a. * [Although [with his sister]$_i$ John was reluctant to travel t_i] ....
b. * [Although [that the house is empty] may depress you] ...
c. * Did [the Geography course]$_i$ Bill really want to take t_i?
d. * Why did [that Mary liked old records] irritate him?

The data in (7) suggest that clause-initial subject CPs do not behave like nominal subjects but like topics, and that therefore a clause-initial subject CP occurs in a topic position. Hence, what triggers fronting of a subject CP is not the EPP but rather topicalization and the EPP simply seems to be met as a side effect of topicalization of the CP. This is an unexpected observation. If CPs are constituents which can satisfy the EPP, we would expect that they can move to [Spec, TP] for satisfying the EPP and that no additional trigger would be necessary which moves the subject CP beyond TP.

In order to account for this unexpected restriction on the distribution of clausal subjects, Stowell (1981) argues that the non-occurrence of clauses in the canonical subject position is due to the *Case Resistance Principle* (CRP) which states that Case may not be assigned to a category bearing a Case-assigning feature. Yet, Stowell's analysis is problematic for several reasons. For example, there are cases which suggest that a Case assigner actually can occur in a position where Case is assigned (e.g. PPs as complements of the Case assigners P or V: *The baby crawled from under the table* or *The campaigners planned until Christmas in detail*; Jaworska 1986:356). In addition, since I have argued in section 1 that the concept of abstract Case as such already has a problematic status due to its stipulative nature, it would be equally problematic to use a potential "resistance" against Case to account for certain syntactic effects. Finally, even if one adopted Case Theory, it would be unclear why the ability to assign Case should be incompatible with the ability to receive Case.

The framework proposed here provides the basis for a simple alternative analysis of the syntax of subject CPs. Consider the derivational steps that occur in the context shown in (6) when finite T is merged. Finite T has two uninterpretable features (D and N) and T therefore searches for an element in its domain of dominance which has interpretable D- and N-features (*Search*). Assuming that the subject CP has been merged lower in the structure (i.e. in its Theta-position), the result of *Search* is that the CP is selected as the feature checker for finite T and that therefore the nominal features on T and on C get co-indexed (see section 4.2.iv). This seems to be the right result given that, although the CP does not occur in the subject position in (6), it nevertheless must be the element which checks the nominal features of T.

The next step in the feature checking process would be *Attract*. However, if attraction was possible, we would have to conclude that fronting of a subject CP is possible independently of topicalization, contrary to what the observations made above suggest. Let us assume that T actually cannot attract the subject CP. But why should DPs get attracted by T and not CPs? The obvious option for dealing with this contrast within the framework proposed here is that it is related to the categorial feature content of the two categories. CP and DP differ in one crucial respect. C is defined entirely in terms of positive categorial feature values, whereas D contains negative values, i.e. features that require checking. I therefore propose that it is this contrast which determines the movement properties for categorial feature checking. DPs have categorial features that require checking and they therefore have to be accessible to movement for pure categorial feature checking. CPs however have a categorial feature matrix which does not require any interaction with other categorial features and CPs are therefore inert for the purposes of categorial feature checking. This conclusion is reminiscent of Chomsky's (1993) principle of Greed and it would directly follow from such a principle. However, as it may not be desirable to adopt Greed as a general principle (see Chomsky 1995), I propose a more specific constraint here, along the lines of Stowell's Case Resistance Principle (cf. also section 6 below).

(8) *Attraction Resistance*
Categorial feature matrices which only contain positive values resist attraction for categorial feature checking.

Let us now consider the continuation of the derivation of (6). Given (8), the subject CP cannot get attracted to TP for categorial feature checking. Hence, the nominal features on T do not get checked but they remain co-indexed with the nominal features on C since T has selected the nominal features on C as feature checkers. The derivation then proceeds. Suppose that, as pointed out above, (6) involves topicalization. Let us assume furthermore that topicalization involves movement of a topic to a topic projection in the CP domain (see e.g. Müller and Sternefeld 1993, Rizzi 1997, Zwart 1993). Thus, in (6), a matrix C marked [+Top] triggers movement of the embedded [+Top] subject CP so that the relevant licensing requirement for a topic can be met. I therefore propose now that as a side effect of this movement to C, the nominal features on T can be checked by the subject CP. More precisely, [Spec, TP] gets created as an intermediate landing site of the subject CP on its way to the topic [Spec, CP]. Hence, although T is unable to attract the CP on its own, its features can be checked by CP once a higher attractor triggers CP movement. In more general terms, this proposal means that attraction by a certain feature can lead to feature checking of lower features which occur in the domain between the base position of the moved element and the target of movement, i.e. to non-cyclic checking.[11]

5.1.2. *The EPP and PPs*

As discussed in section 4.1.2, there seems to be a parallelism between C and P with respect to their categorial status (see e.g. Emonds 1985). Given this parallelism, I have proposed that the highest category within a PP is defined like C, i.e. as a [+D, +T; +N, +V] category. What we would expect then is that PPs also can satisfy the EPP and, furthermore, that they generally can only satisfy it if they get attracted beyond TP. As it has often been pointed out, these expectations both seem to be borne out.

The construction which is relevant in this context is the locative inversion construction as illustrated in (9).

(9) a. Into the room walked John.
b. On the table was put a valuable book.

[11] A similar kind of analysis could also be argued to hold for example for participle agreement in the Romance languages (Luigi Rizzi, p.c.; cf. e.g. Kayne 1989 for discussion). Participle agreement in these languages is generally a side effect of another syntactic phenomenon (e.g. wh-movement or cliticization of the object) and it could therefore be argued that movement to a participle agreement projection depends on an independent, structurally higher attractor.

Given that the nominal argument in (9) occurs in a post-verbal position, it cannot check the nominal features of T. Nevertheless, the EPP is not violated in (9). Since the kind of structure shown in (9) is typically found with preposed locatives, it seems that EPP violations can be avoided through preposing a locative or, in other words, that the locative constituent in (9) actually satisfies the EPP by moving to or at least through [Spec, TP]. In support of such an analysis, various types of evidence (e.g. raising, that-trace effects) have been discussed in the literature (see Stowell 1981, Bresnan 1994).

In terms of Chomsky's (1995) system where the EPP is related to a D-feature on T, the conclusion that locatives can satisfy the EPP is surprising at first sight since it is not clear how a PP could check a D-feature. Within the framework proposed here however, this problem does not arise. P is defined as a [+D, +T; +N, +V] category and it therefore has the relevant interpretable features (N/D) for checking the nominal features on T.

However, given the feature matrix [+D, +T; +N, +V] for P, a locative PP is subject to condition (8), i.e. it should be inert for attraction to TP due to its entirely positive feature matrix. EPP checking by locative PPs should therefore depend on PP-movement beyond T. This is indeed what we find. As pointed out for example by Stowell (1981:271f.) or Bresnan (1994:106ff.), locative inversion cannot occur in contexts where topicalization is impossible. Thus, locative PPs cannot occur in preverbal position in certain types of embedded clauses (10a) and in the context of auxiliary movement to C (10b) (10a from Stowell 1981:272; 10b from Bresnan 1994:108).

(10) a. * I don't believe John's claim [that in the chair was sitting my older brother]
b. * Did on the wall hang a Mexican serape?

If locative PPs could be attracted to T simply for EPP checking, then the sentences in (10) would be expected to be grammatical. Thus, PP fronting in the locative inversion construction cannot be related to the EPP but it must be triggered independently. Given that the examples in (10) both illustrate contexts which do not allow topicalization (see 7 above), we may conclude that the actual trigger for locative PP fronting is topicalization and hence movement to a position in the CP domain. Thus, we have obtained the same result for PPs as for CPs.

Some further remarks are necessary however with respect to the syntax of PPs. First of all, we may wonder how locative inversion as shown in (9) is related to the non-inverted order in (11).

(11) a. John walked into the room.
b. A valuable book was put on the table.

The minimal assumption is that both word orders are derived from the same underlying structure. Suppose that, as suggested for example by Bresnan (1994:80ff.), the locative argument is ranked lower in the thematic hierarchy than the theme argument. If we assume that this property is represented structurally in the way that arguments are generated within the VP, we get a structure where the locative PP is the complement of V and the theme argument is the specifier of the VP (see also Collins 1997:27 for this assumption). In terms of such a structure, the derivation of (11) is straightforward. Once T gets merged, *Search* looks for a feature checker for the nominal features on T. The nominal argument in [Spec, VP] gets identified as the checker for T because it is the closest element which contains interpretable nominal features. Hence, the nominal argument gets attracted to T and checks the nominal features on T.

But how can the inverted order in (9) be derived on the basis of the same underlying structure? There may be two approaches to deal with this issue. First, Collins (1997:27) proposes that the two options in (9) and (11) are both legitimate because the two arguments are within the minimal domain of the same head (see Chomsky 1993:11f. for the definition of a minimal domain). Thus, assuming that the nominal argument and the locative argument are the specifier and the complement of the same V-head and since they therefore occur in the same minimal domain, they can be argued to be equally close for attraction. The drawback of such an analysis is that closeness, which we have defined simply in terms of c-command so far, must be related to the fairly complex concept of minimal domain. However, as Chomsky (1995:359) points out, it would be desirable if such complications could be avoided.

Instead of introducing the notion of minimal domain, we can relate the word order option in (9) to another factor, namely its discourse properties. As it has often been pointed out, the postverbal nominal argument in the locative inversion construction has a discourse function which can roughly be characterized as focus (see Rochemont 1986:110ff., Bresnan 1994:85ff.). We could argue then that the nominal argument in (9) does not occupy its base position any more but that it has been moved to a focus position, i.e. a VP-peripheral (possibly right-branching) A'-position where focalization of the the nominal argument is licensed. The assumption we can make then is that once the nominal argument occupies this focus position, it becomes inaccessible for selection for categorial feature checking. Thus, when T searches for a feature checker for its nominal features, the nominal argument cannot be selected as a feature checker and T therefore identifies the locative PP as its feature checker. The PP then checks the nominal features on T as a side effect of attraction to CP for topicalization.

What remains to be explained is why focalization has the effect described in the previous paragraph, i.e. why the nominal argument in a focus position cannot be selected as a feature checker by T. I propose that this effect can be related to a more general property of selection of checkers by T. So far I have only been considering argumental PPs and CPs. But of course, PPs and CPs can also be adjuncts. Thus, we have to consider the consequences of having [+D, +T; +N, +V] categories in the syntactic structure which are adjuncts and which therefore generally do not qualify as EPP checkers. But remember now the discussion of object movement in section 2. The assumption there was that the presence or absence of object movement to TP can be determined on the basis of the placement of an object with respect to VP-peripheral adjuncts. In the examples in (1) in section 2, the VP-peripheral element is negation but other adjuncts could also be used to obtain the same contrasts, for example adjunct PPs. However, the presence of an adjunct PP at the VP periphery raises a potential problem. Finite T has uninterpretable N- and D-features to check and it therefore searches for the closest adequate feature checker (*Search*). But if we assume that all arguments are generated VP-internally, we would obtain the result that, when an adjunct PP occurs in a VP-peripheral position, *Search* selects the PP as the feature checker of T rather than the subject. The proposal made in (8) (*Attraction Resistance*) would prevent the PP from actually moving to [Spec, TP], but this ban on movement would not solve the problem. The assumption in sections 4.2 and 5.1.1 has been that even if *Search* identifies an inert element as the feature checker, no alternative checker gets identified. Hence, if a VP-peripheral adjunct PP (or an adjunct clause) could count as a feature checker for D and N on T, the subject could not get attracted to TP. We therefore have to find a way to exclude that an adjunct can interfere with argument attraction.

What seems to be needed here is the traditional A/A'-distinction because only elements in A-positions seem to get attracted to TP. The question then is how the A/A' distinction could be expressed within the framework proposed here or, more specifically, how we can distinguish the [Spec, TP] position and the thematic positions ([Spec, VP], complement of V) from other positions which could intervene between T and the arguments. My proposal is based on the observation that [Spec, TP], [Spec, VP] and complement of V are all positions which would allow categorial feature checking. [Spec, TP] is a categorial feature checking position for T, whereas [Spec, VP] and the complement position of V are potential categorial checking positions for V. Thus, A-positions can be defined as potential categorial feature checking positions. On the other hand, A'-positions are positions which get created for non-categorial licensing such as the licensing of focus or adjunct licensing in general.[12]

Given this distinction, we can propose now that there is a restriction which allows only elements in potential categorial feature checking positions to be selected by an attractor for categorial feature checking. We thus get the following restriction:

(12) For the purposes of checking, categorial features are only made accessible by elements which occur in potential categorial feature checking positions.

Thus, the idea would be that once an element occurs in a position which could be a categorial feature checking position its categorial features are made accessible for checking. However, an element occurring in a different type of position, i.e. in a position like focus in which categorial feature checking is not at stake, does not make its categorial features accessible for a potential categorial attractor.

Let us now consider the consequences of (12) for the analysis of locative inversion, I have proposed that the postverbal nominal argument occupies a position at the VP-periphery which gets created for focus licensing and which is therefore not a position where categorial features get checked. As a consequence of (12), the categorial features of the nominal argument are inaccessible for attraction by T. Assuming that only heads of chains can get selected for feature checking (see also Chomsky 1995:304), T has to select the locative PP as its feature checker.

Thus, the restriction on categorial feature checking proposed in (12) allows us to account for two issues that arise with respect to the syntax of PPs. First, in combination with a focus analysis of postverbal nominal arguments in locative inversion, it explains how a locative PP can be selected as a feature checker by T. And secondly, (12) accounts for the fact that VP-peripheral adjuncts do not interfere with attraction to T. Note finally that (12) may even have a more general consequence. As often discussed in the literature, there seems to be a ban on movement from an A-position to an A'-position and back to an A-position ("improper movement"). This restriction would also follow from (12) if, as suggested above, A-positions can be reinterpreted as categorial feature checking positions within the framework proposed here.

Having considered some issues that arise if we derive the EPP from the interaction of the theory of syntactic categories and feature checking, let us now turn to the question how abstract Case can be reanalyzed in terms of categorial feature checking.

5.2. Abstract case as categorial feature checking

The central aim of Case Theory within the GB and the Minimalist framework is to account for the distribution of nominal constituents within the clause. A list of phenomena in English that have generally been related to Case Theory is given in (13). The relevant nominal element in these examples is the DP in bold print.

---

[12] The assumption that adjuncts occur in specific licensing positions would be in line with proposals made by Alexiadou (1997), Cinque (1999) or Laenzlinger (1998). Given the proposals made in section 4.1.3, licensing positions for focus or adjuncts could be argued to be specifier positions of what Nash and Rouveret (1997) call proxy categories.

(13) a. **Michael** likes Liverpool.
b. They can't imagine Liverpool without **Michael**.
c. * The manager is proud **Michael**.
d. * The description **Michael** was inadequate.
e. * **Michael** to leave Liverpool would be terrible.
f. They expected **Michael** to score again.
g. * They tried **Michael** to stay in Liverpool.
h. **Michael** was seen by the reporters.
i. **Michael** seems to be the best player.
j. The fans like **Michael**.

In the following sections, I will show how the phenomena in (13) can be accounted for in terms of the categorial feature checking framework proposed here.

5.2.1. *Subject of a finite clause (13a)*

Within GB, (13a) has been accounted for under the assumption that finite I assigns Nominative and that I and the subject in its specifier are in the right configuration (government) for Case assignment. Hence, the subject DP satisfies the Case Filter in (13a). The Minimalist version of this approach is that the subject DP moves to [Spec, TP] where it checks its Nominative feature. The result is that Nominative on T and the DP gets erased and no uninterpretable Case features remain at the interfaces.

In terms of the approach proposed here, (13a) is derived as follows. First, V and the object DP get merged. Then this structure merges with the subject DP, i.e. the subject DP occurs in [Spec, VP].[13] Finally T and the VP get merged. At this point, the uninterpretable features on T (D/N) try to initiate a checking process by searching for the closest adequate feature checker (*Search*) in its dominance domain. The closest consituent which meets the checking requirements of T is the subject DP and it therefore gets selected as a feature checker. At the same time, the subject DP selects T and V on T as feature checkers for its uninterpretable verbal features. The subject DP then gets attracted to [Spec, TP] and the nominal features on T get checked in a configuration of immediate dominance. At the same time the verbal features (T/V) on the subject DP get checked as "free riders". The feature matrices of the TP and of the subject DP are therefore correctly specified for the PF interface.

5.2.2. *P and Case (13b)*

Within the GB framework, prepositions like *without* in (13b) have the same status as verbs in the sense that they allow their complements to satisfy the Case Filter. Prepositions have not been dealt with in detail within the Minimalist literature, but we may assume that the complement of a preposition bears an Accusative Case feature and that this feature can be checked (possibly covertly) against the Accusative feature of P in an AgrO projection dominating the PP.

In section 4.1, I argued, following Emonds (1985), that P and C should be analyzed as related categories. I therefore proposed that the top projection within a PP is defined like C, i.e. as a [+D, +T; +N, +V] category. But consider now the structure that we would obtain

[13] For simplicity's sake, I do not distinguish different VP-shells for the two arguments here. But see fn. 7 above and the derivation in section 5.2.7.1 below.

under this assumption by merging the preposition *without* and the DP *Michael* in (13c) (interpretable features bold, uninterpretable features italics).

(14)
[+**D**, +**T**; +**N**, +**V**]
3
[+**D**, +**T**; +**N**, +**V**] [+**D**, +*T*; +**N**, +*V*]
6

In terms of the proposals made in section 4.2. (iv), the configuration in (14) cannot lead to feature checking on the DP because I proposed there, in order to capture the c-command condition on movement, that checking relations have to be initiated by a dominating uninterpretable feature. In (14), P only has interpretable features and it thus cannot initiate a checking relation with its DP complement. The uninterpretable features on the DP thus cannot enter a checking relation and the categorial features of the DP would not be specified adequately at the end of the derivation.

Given the problem raised by (14), I propose that P is a complex category consisting of more than one head (see also Koopman 1997, van Riemsdijk 1990, Starke 1993). More precisely, I will assume that there is a second P-head which shares the (C-type) functional features of the higher P-head but which has the function of triggering feature checking with a nominal complement. In order to initiate a checking relation with a nominal element, the lower P-head has to have an uninterpretable nominal feature. We therefore get the feature specification [+D, +T; -N, +V] for the lower P head. Due to its uninterpretable N-feature, the lower P-head selects its DP or NP complement as a feature checker and a checking relation is therefore established. The N-feature on the lower P-head gets checked and the verbal features of a DP (T/V) or of an NP (V) can be checked at the same time as "free riders".

The assumption that P consists of two heads can be motivated as follows. The main argument that has led van Riemsdijk (1990) to propose that P is a complex category is the fact that in some languages we can find circumpositions. Thus, in German examples like those shown in (15), the PP seems to consist of two heads, one prepositional head and one postpositional head (van Riemsdijk 1990:233).

(15) auf mich zu (*German*)
on me to
'towards me'

In terms of an analysis of P as a complex category, the cases in (15) can simply be analyzed as an overt manifestation of the two heads which prepositions consist of.[14]

Similar evidence can be found in English. In English there are complex elements like *because of* or *instead of* which function as prepositions. These elements also can be argued to be overt manifestations of the double-headed P-structure. *Because* or *instead* occupy the higher head whereas *of* is the lower head which triggers feature checking (see also Starke 1993 for such phenomena in French and Italian). The licensing property of *of* will also turn out to be relevant for the analysis of (13c/d) in the next section.

---

[14] As for the exact structure of examples like (15), we could assume, following van Riemsdijk (1990), that the lower projection is head-initial and the higher one is head-final. Alternatively, in terms of a purely head-initial structure (see Kayne 1994), the lower projection would have to move to the specifier of the higher one. However, it would not be entirely clear what the trigger for this movement would be.

5.2.3. *A and N do not assign structural Case (13c/d)*

A basic assumption made within the GB theory of abstract Case is that structural Case can only be assigned by [-N] categories (see e.g. Stowell 1981:23). This proposal accounts for the fact that in English nominal elements cannot be licensed by the [+N] categories A ([+N, +V]) and N ([+N, -V]), as shown in (13c/d). However, since abstract Case is an independent property which is not related to categorial features, the restriction of structural Case assignment to [-N] categories seems accidental within the GB framework. In other words, there is no clear reason why [+N] categories should not have the capacity to assign structural Case. The Minimalist version of Case Theory does not lead to any improvement here. It remains unclear why A or N could not bear a structural Accusative feature against which the Case feature of a nominal constituent could be checked.

Within the framework proposed here, the fact that examples like (13c) or (13d) are ungrammatical follows from the categorial feature matrices of A and N. These two categories simply do not have the adequate feature matrices for initiating a categorial feature checking relation with nominal complements and hence for allowing nominal complements to check their uninterpretable categorial features. Consider first the simple case of an adjective taking an NP complement (interpretable features bold, uninterpretable features italics):

(16) [+**N**, +**V**]
3
[+**N**, +**V**] [+**N**, +*V*]
6

The situation in (16) is as in (14) above in the sense that we have a dominating feature matrix consisting only of interpretable features. Since the features of A are interpretable, the features of A do not search for a feature checker and they therefore do not initiate a feature checking process (see the discussion in section 4.2.(iv)). Furthermore, since the nominal complement does not dominate A, it also cannot establish a feature checking relation with the V-feature on A. Hence, the V-feature on the NP complement of A cannot get checked and the NP complement would be fed to the interfaces with an uninterpretable feature in its feature matrix. The same conclusion would also hold for a DP complement as shown in (13c) since its V-feature would also remain unaffected by the presence of A.

As for the fact that nouns do not license the occurrence of other nominal elements as shown in (13d), the explanation within the framework proposed here is even simpler. Given the proposal made in section 4.2 that feature checking is always asymmetric (uninterpretable features are checked against interpretable features), it follows that an NP or a DP is not able to check its uninterpretable verbal features within another nominal constituent because this other nominal constituent also has uninterpretable rather than the required interpretable verbal features.

The device that saves sentences like those shown in (13c) and (13d) is *of*-insertion.

(17) a. The coach is proud **of** Michael.
b. The description **of** Michael was inadequate.

Within the GB framework, the examples in (17) are analyzed as involving inherent Case assignment. In addition to the structural requirement of government, the concept of inherent Case also makes reference to Theta role assignment. Thus, A or N assigns inherent Case under government to the nominal complement to which it assigns a Theta role. *Of* is then the overt manifestation of inherent Case. As for the reference to Theta role assignment, it is motivated by the fact that *of*-insertion is not an unrestricted device for licensing Case-less nominal constituents.

(18) * The coach is proud [$_{CP}$ **of** Michael to have scored again]

The adjective in (18) would be a potential inherent Case assigner but in (18) the DP *Michael* gets its Theta role from the verb *score* and not from the adjective. Hence, inherent Case assignment is not possible in (18).

An analysis along these lines can be maintained within the framework proposed here. Suppose that the categories A and N, which take complements but which cannot license them if they are nominal, have the capacity of attributing a dummy licenser to their complements. More precisely, this capacity could be related to the [+N] feature. The dummy licenser gets inserted if necessary and it is spelt out as *of*. Following the suggestion made in the previous section, we assume that *of* is a [+D, +T; -N, +V] head given that it also can be found as the lower head of prepositions. Due to the presence of this head, the nominal elements in (17) can check their verbal features and the structures are therefore grammatical. As for the ungrammaticality of (18), it can be related to the fact that, once *of* gets added to the complement of A, the nominal feature of *of* selects the infinitival clause (CP, i.e. [+D, +T; +N, +V]) as its checker and the presence of *of* would not have any effect on the subject of the infinitival clause.

In summary, I showed that the approach proposed here allows a principled explanation for the GB observation that A and N (i.e. [+N] categories) generally do not license the occurrence of nominal complements wheras [-N] categories do so. In this respect, categorial feature checking does not just produce the same results as the traditional Case Theory but it is superior to the latter because the relevant phenomena can be accounted for in a less stipulative way. Only [-N] categories license nominal complements because only these categories initiate categorial feature checking relations with nominal elements and thereby also allow the nominal elements to check their uninterpretable verbal features as "free riders".

5.2.4. *No overt subjects in infinitival clauses (13e)*

In the context shown in (13e), an overt subject cannot be licensed within an infinitival clause. The standard analysis of (13e) within the GB framework is that non-finite inflection is not able to assign abstract Case and that therefore subjects of infinitival clauses violate the Case filter. More recent proposals suggest that non-finite inflection assigns a special kind of Case, namely null Case (see e.g. Chomsky and Lasnik 1993), but that this kind of Case is not sufficient to license overt nominal constituents.

Both of these analyses depend on particular stipulations concerning the status of non-finite inflection. The proposal that I will make here may also be stipulative to some extent, but it simply makes use of one of the options which are available within the system outlined here. I propose that finite and non-finite T do not differ with respect to Case assignment but rather with respect to their lexical categorial features. More precisely, non-finite inflection is a category of the type [-D, +T; -N, -V].

Let us consider what this proposal means for the analysis of the syntax of infinitival clauses. As suggested in section 4.2, feature checking can be defined as a three-step process. First, an element with the adequate features for checking is selected. Then, the feature checker gets attracted, and finally the feature checking relation is established. So when non-finite T gets merged with a VP it searches for an element with interpretable D, N and V features for checking since it must have negatively specified D, N and V features. However, in (13e), there is no constituent in the structure of the infinitival clause which could meet these requirements of T. The V-feature of non-finite T has to select the VP as its feature checker, because the VP is the only element with verbal features in the dominance domain of T. As for the nominal features on T, they have to select the nominal features on the subject DP as their feature checkers since the subject DP is the closest element with D- and N-features. Hence, the result of *Search* for non-finite T is inconclusive. Different features on T require attraction of different elements. If we assume that attraction always attempts to attract a single element, we may conclude that in such a situation of ambiguity, i.e. in a situation where *Search* cannot clearly designate a single element for attraction, the checking process gets interrupted. Given the proposal made in section 4.2 that *Search* co-indexes matching features, the only result of the checking process initiated by non-finite T at this point is that uninterpretable D and N on T are co-indexed with the nominal features of the subject and uninterpretable V on T is coindexed with V of the VP.

The derivation then proceeds and the C-head of the non-finite clause gets merged with the non-finite TP. But since C is defined as [+D, +T; +N, +V], it does not initiate any feature checking processes. Hence, the derivation produces a non-finite clause which contains several unchecked uninterpretable features, in particular on non-finite T and on the subject DP. A derivation containing an overt subject in the type of infinitival clause shown in (13e) therefore leads to a structure that crashes at the interfaces due to unchecked uninterpretable categorial features.

5.2.5. *Exceptional Case Marking (13f-13g)*

As is well-known, infinitival clauses do occur with overt subjects in certain contexts, as for example when they are complements of verbs like *expect*. The traditional analysis for cases like (13f) is that certain verbs allow Case assignment to the subject of their infinitival complement clauses (exceptional Case marking, ECM). It has been proposed that the particular property of these verbs is that they take infinitival complements which lack a CP level in their structure and that the lack of CP makes infinitival clauses transparent for Case assignment. I will adopt the first assumption here, namely the assumption that ECM verbs select infinitival clauses without a CP.

Let us consider the relevant steps for the derivation of (13f). Up to the point where non-finite T selects feature checkers, the derivation proceeds as described above in section 5.2.4. *Search* cannot identify an adequate checker for T and the features on T and the subject DP remain unchecked for the moment. However, co-indexation indicates which features would match (i.e. D/N on T with D/N on DP, V on T with V). The next step in the derivation is that, since ECM complements lack CP, the matrix V and non-finite TP merge. V has an uninterpretable N-feature. Hence, a potential N-feature checker has to be selected. The closest candidate for attraction is the subject DP of the subordinate clause. Thus, the uninterpretable N-feature on the matrix V attracts the subject DP. This result has several desirable side effects. Non-finite T has marked D and N on the subject DP as its checkers for nominal features. However, attraction of the DP was impossible due to conflicting checking requirements of T. But now that the DP gets attracted independently, the DP can move to non-finite TP on its way to matrix V. Once the DP is in TP, D and N on T get checked and the DP's T-feature can get checked as a "free rider". Non-finite T is therefore left with only one uninterpretable feature, namely V which then can get checked by the VP-complement of T.

The subject DP then moves to [Spec, VP] of the matrix clause and the result of this movement is that the N-feature of V and the V-feature of the subject DP get checked.[15]

The question that arises now is why ECM is restricted to certain verbs and why other verbs such as *try* in (13g) do not allow overt subjects in their infinitival complements. As mentioned earlier, I adopt the traditional GB proposal according to which the contrast between ECM and non-ECM verbs is related to the absence or presence of CP in the non-finite clause. ECM verbs take infinitival complements without a CP, whereas non-ECM verbs take non-finite complements which have a CP-level. This assumption provides the basis for accounting for the ungrammaticality of (13g). The derivation for the infinitival CP proceeds as described in section 5.2.4. Then matrix V and the non-finite CP are merged. V has an uninterpretable N-feature and it therefore starts a feature checking process, and more precisely its first step *Search*. The result is that since C is defined as [+D, +T; +N, +V] and since the CP is the closest element containing an N-feature, the non-finite CP gets selected as the feature checker for matrix V. The subject of the embedded clause therefore cannot get attracted by matrix V for N-feature checking. The consequence is that several uninterpretable features remain unchecked within the embedded infinitival clause at the end of the derivation, as it was also the case for (13e). Overt subjects are therefore ruled out within infinitival complements of non-ECM verbs due to the presence of a CP.[16]

5.2.6. *NP movement (13h-13i)*

The next issue that has to be addressed is the phenomenon referred to as "NP-movement" within the GB framework as found in passives (13h) and in raising constructions (13i). Again Case theory has played a prominent role for the analysis of these phenomena. The claim that has generally been made is that passive verb forms, raising verbs like *seem* and other ergative verbs are not able to assign Case and that therefore the constituents occurring in subject position in (13h/i) have moved there in order to be assigned Case. However, the lack of Accusative Case assignment by certain verbs is not a necessary consequence of Case theory but simply an additional assumption as to how abstract Case functions. In particular, it is not clear for example why the Case assigning capacity of a verb should get lost through passivization.

Here, I will adopt an alternative analysis of "NP-movement" which has been proposed in the literature (see e.g. Goodall 1996, Kural 1998, Marantz 1992), namely an analysis according to which "NP-movement" is triggered simply by the requirements of the EPP (i.e. D/N on T). Thus, the assumption is that although a nominal argument may have checked all its features in lower positions, it still gets attracted to finite TP for EPP checking and this attraction is the source of "NP-movement".

---

15 This analysis has two immediate consequences. First, constructions like (13f) involve movement of the embedded subject into the matrix domain as originally proposed by Postal (1974). In addition, since the matrix verb precedes the subject of the embedded clause, we have to assume that main verbs in English undergo short movement (see also e.g. Johnson 1991, Koizumi 1993).

16 The question that arises at this point is how non-overt subjects in infinitival clauses are licensed (cf. e.g. *Michael tried to leave*). One possibility would be to assume, following Hornstein (1999), that the subject of the matrix clause is generated in the infinitival clause and then gets attracted into the matrix domain. The categorial features of the infinitival clause then are checked as a side effect of attraction into the matrix domain in the same way as in ECM cases. Alternatively and in more traditional terms, the subject of the non-finite clause is a non-overt DP, i.e. PRO. Assuming that non-overt elements have to satisfy certain structural licensing requirements (cf. e.g. Rizzi 1986), it could be argued that the licenser of PRO is non-finite C and that in order to establish a licensing relation C attracts PRO. The result is then again that the categorial features within the infinitival clause can be checked as a side effect (cf. Haeberli 1999:68f. for a more detailed discussion of an option along these lines; cf. also Rizzi 1997:305 for relating PRO licensing to C).

Another issue that has sometimes been related to abstract Case is the absence of raising out of finite clauses as illustrated in (19).

(19) * $John_i$ seems [$_{CP}$ that t_i is intelligent].

Within the GB approach, NP-movement is Case-driven. Since *John* already can get Case in the subordinate clause in (19), there is no trigger for NP-movement any more. Within the Minimalist Program (see Chomsky 1995:284), the analysis of (19) takes a different form but it is still related to abstract Case. The DP *John* starts out with a Nominative feature. This feature gets checked by the Nominative feature of the embedded finite T after attraction by the EPP feature of T. Hence, the subject DP does not bear a Nominative feature any more. Subsequently, the subject DP gets attracted by the EPP-feature of the matrix clause. However, since the DP does not bear an abstract Case feature any more, the Nominative feature of the matrix finite T cannot get checked and an uninterpretable feature therefore remains unchecked at the end of the derivation.

In terms of the system proposed here, the reason why (19) is ungrammatical is simple. The subject of an embedded finite clause cannot get attracted by the nominal features of finite T because C is defined as [+D, +T; +N, +V] and because C is closer to matrix T than the embedded subject. Thus, when matrix T searches for a feature checker, the closest element which meets its checking requirement is the embedded CP. Hence, the embedded subject is simply not a possible candidate for attraction by matrix T and (19) cannot be derived.

Superraising is another instantiation of the same phenomenon.

(20) * $John_i$ seems [$_{CP}$ that it is likely [$_{IP}$ t_i to leave]].

Again matrix T selects the highest CP as its feature checker and the DP *John* therefore cannot get attracted from the lower embedded clause.

5.2.7. *Licensing of objects (13j)*

To conclude this section, I will reconsider the phenomenon with which I have started this paper, namely the phenomenon of object movement out of the VP.

5.2.7.1. Overt object movement

The main claim made in section 2 was that object DPs move out of the VP because they have to check a T-feature in TP. However, although the underlying motivation for object movement may be related to checking requirements of the object, the movement has to be triggered differently within a system based on attraction. Feature checking through attraction, as outlined in section 4.2. (iv), means that a higher feature has to attract a feature that is lower in the structure. Hence, an object DP can only move to TP if it is attracted by a higher (dominating) feature.

To obtain this result, I will adopt an analysis proposed by Richards (1997). Richards (1997:90ff.) argues that object movement out of the VP is the result of multiple attraction by a single attractor which creates a multiple Spec configuration. Thus, I will assume that the D-feature on T can attract more than once and that this property of T allows object DPs to move out of the VP. Or in terms of Chomsky's (1995:280/286) analysis of multiple specifier constructions, we could say that D on T only gets deleted but not erased, i.e. that the uninterpretable D-feature still remains accessible to the computation. However, I will assume that multiple attraction of D is not freely available but that D has to be associated to a secondary attractor (i.e. N) in order to attract additional nominal elements to TP. In other words, the option of deletion without erasure is only available as long as there is a secondary attractor in T. If there is no such attractor any more, D on T gets erased.[17]

Given these main assumptions, reconsider example (1a), repeated here in (21):

(21) Hann las bækurnar *ekki* (*Icelandic*)
He read books-the not

The derivation of (21) looks as follows:
(i) Merge V_1 and object DP; uninterpretable N on V_1 selects N on DP as a feature checker. Let us assume now that in functional feature matrices, the functional features take priority over lexical features in the sense that lexical features only become accessible for checking once the functional features have been checked (see also points viii and ix below). Thus, the lexical feature on the DP does not enter a checking relation with N on V_1 before T on D has been checked. Hence, attraction is not possible at this point, but selection leads to co-indexation of N on V_1 and N on DP. At the same time, uninterpretable V on the DP can select V on V_1 as its feature checker.
(ii) Merge V_2 (i.e. little *v*; see fn. 7 above) with VP_1, move V_1 to V_2.[18]
(iii) N on V_2 selects N on object DP as feature checker. However, for the same reason as in (i) (interfering functional features), no checking relation is established. Co-indexation of N on V_2 and N on DP.
(iv) Merge subject DP in [Spec, VP_2].
(v) Merge proxy head for negation and VP_2 (see section 4.2.). Move V_2/V_1 to Neg.
(vi) Merge negation in [Spec, NegP].
(vii) Merge finite T and NegP, move Neg/V_2/V_1 to T.
(viii) Uninterpretable D/N on T select D and N on subject DP as feature checkers; D/N on T attract the subject DP; D/N on T get checked; N gets erased but D is only deleted because, due to the impossibility of lexical feature checking within VP (see (i) above) there is an additional N-feature in T. T/V on subject DP get erased as "free riders".
(ix) Deleted D on T, together with N on V_1 and V_2 contained within the complex T head, attracts the remaining D-feature checker, i.e. the DO DP. As for the landing site of the object DP, there are two possibilities: The outer [Spec, TP] or the inner [Spec, TP]. As Richards (1997) argues, the latter option can be argued to be the optimal one in terms of Shortest Move (see also Mulders 1997 for an analysis of multiple specifiers along these lines). To move to the outer [Spec, TP] would mean that the specifier position occupied by the subject has to be crossed. Movement to the inner [Spec, TP] is shorter because it does not involve movement past the Spec occupied by the subject. Hence, movement of the object DP to the inner [Spec, TP] has to be chosen for economy reasons. In terms of this analysis, Richards derives the observation that has often been made that A-movement of several arguments out of the VP does not seem to change the order of arguments, i.e. that A-movement out of the VP leads to

---

[17] As discussed below, such a restriction may account for what has been referred to as Holmberg's generalization. In addition, this restriction ensures that D cannot attract an unlimited number of arguments. If D had this capacity, it would also be able to attract for example DP complements of adjectives, thereby licensing such complements productively. However, a language like Dutch licenses object DP movement out of the VP but DP complements of adjectives are not licensed productively. In terms of the restriction formulated in the text, this contrast follows because it is only with object movement out of the VP that a secondary attractor is available under T.

[18] Note that, contrary to what is sometimes assumed within the Minimalist framework, V-movement cannot be triggered by categorial feature checking within the framework proposed here since verbal heads do not have an uninterpretable categorial feature which could be checked by a verb. I will therefore assume that V-movement is triggered by an independent feature.

crossing paths rather than to nesting (see Chomsky 1993, Collins and Thráinsson 1996, Haegeman 1993). As the result of object attraction to T, the deleted D-feature can get checked, and at the same time N on V_1/V_2 and V/T on the object DP. All these features get erased, in particular also D on T because there is no additional categorial attractor under T.

The analysis proposed here also accounts for what has been referred to as "Holmberg's Generalization", i.e. the observation that overt object movement generally goes together with verb movement. If, as suggested earlier, checking and deletion of D on T without erasure is restricted and depends on the presence of a lexical feature which has been selected for feature checking with the object, then the N-features on V_1/V_2 have to move to T to license deletion without erasure of D on T. Object movement therefore goes together with verb movement.

(x) Finally, in an example like (21) where the subject is in initial position: move $T/Neg/V_2/V_1$ to a higher head (C or proxy AgrS) and subject DP to [Spec, CP] or [Spec, AgrSP], depending on the analysis adopted for subject initial V2 clauses.

In terms of this derivation, all the uninterpretable categorial features have been checked and the derivation converges. The main assumption that has to be made then to obtain overt object movement is that D on T can act as a multiple attractor.

5.2.7.2. Non-overt object movement

As for objects as in (13j), the GB Case theory relates their occurrence to Accusative Case assignment under government by V. According to the Minimalist approach, the occurrence of the object DP is legitimate because V has an Accusative Case feature which allows checking of the Accusative Case feature on the object DP. Within the standard analyses, checking in AgrOP takes place covertly in English. Non-overt object movement also has been proposed for other languages such as the Mainland Scandinavian languages. This is illustrated in (22) (example from Vikner 1994:502).

(22) Hvorfor læste studenterne (*artiklen) *ikke* (artiklen)? (*Danish*)
Why read students-the (article-the) not (article-the)
'Why didn't the students read the article?"

In (22), the object DP obligatorily follows negation and we may therefore conclude that object DPs cannot move to TP overtly. The grammatical word order in (22) is also found in Icelandic, as shown in (1a) above.

The occurrence of non-overt DP movement suggests that D on T does not always function as a multiple attractor. In languages like Icelandic, D on T is only optionally a multiple attractor whereas in languages where object DP movement is never overt, D on T simply can never function as a multiple attractor. The question that arises then is how object DPs can check their T-feature when D on T does not trigger multiple attraction.

The proposal that I will make here is based on an observation concerning pronouns in languages which generally do not allow overt object movement.

(23) Hvorfor læste studenterne (den) *ikke* (*den) (*Danish*)
Why read the-students it not (it)
'Why didn't the students read it?'

As the contrast between (22) and (23) shows, in a language like Danish object movement of full nominals is never possible whereas pronominal objects obligatorily move in V-movement contexts. On the basis of (22), we concluded that multiple attraction by D on T is not possible in Danish because otherwise full DPs should be able to undergo overt movement as in

Icelandic. Hence, pronoun movement as shown in (23) must be triggered differently, i.e. by a feature which only attracts pronouns but not full nominal constituents (see also e.g. Bobaljik and Jonas 1996, Holmberg 1986, Josefsson 1992, Thráinsson 1996 for analyzing pronominal object movement differently from full DP movement). What may be crucial here is the syntactic status of the two types of elements. Suppose that, as suggested for example by Abney (1987:281ff.), weak pronouns are analyzed as simple D elements which do not contain an NP-complement. Thus, we could assume that pronominal object movement is the result of a process which only allows a D-head to move to TP for T-feature checking but not entire DPs. More precisely, the pronominal D-head gets attracted by a feature on T, allowing the D-head to move to T and to check its T-feature.

I have to leave it open here what the precise nature of this feature on T is. However, the same analysis now can be used for non-overt categorial feature checking by *in situ* full DP objects. I propose that the D-head of a DP object also can get attracted to T for T-feature checking. Yet, due possibly to morphological constraints which prevent the D-head from moving away overtly from its DP, this D-movement is non-overt. But the effect is that T on D gets checked and that therefore the object DP can be licensed even if it does not get attracted to TP as a whole through multiple attraction by D on T.

Let me conclude this section by pointing out that the analysis of non-overt object movement proposed here gets some support from a phenomenon that can be found outside the Germanic language group. Given the proposals made above, non-overt movement is represented in terms of a chain which has a head as its head and which has a full DP as its lower member. Such a structural configuration is reminiscent of clitic doubling configurations as found in Romance or Greek:

(24) Ton idha ton Petro (*Greek*)
Him-ACC I-saw the Peter-ACC
'I saw Peter'

In (24), we have a clitic which is attached to the verb and a coreferential DP which follows the verb. Thus, we get the same kind of structure as in covert object DP movement: a head in a higher position and a full DP in a lower position. One way to interpret this parallelism would be to assume that the clitic is simply a phonological (postsyntactic) realization of the non-overt D-head which has been moved to T non-overtly (see also Alexiadou and Anagnostopoulou 1997, Fanselow 1995 for conclusions along these lines). Thus, the D-head of the object would get moved as outlined above but in clitic doubling languages this D-head can be spelt out as a clitic at PF.

This proposal has an interesting consequence. Within the framework proposed here, non-overt object movement only occurs with object DPs. As for object NPs, their categorial feature checking takes place VP-internally. Hence, object NPs do not move out of the VP, neither overtly (see 1b/c) nor covertly. Suppose that, as suggested above, clitic doubling configurations basically correspond to non-overt object movement configurations. What we would expect then is that clitic doubling should be restricted along similar lines as shown in (1) for Icelandic object movement.

This expectation indeed seems to be borne out (cf. Alexiadou and Anagnostopoulou 1997, Dobrovie-Sorin 1990, Suñer 1988). Like object movement out of the VP (see example 1), clitic doubling also seems to be sensitive to referential properties of the nominal element. For example, in the Greek example in (25), only the definite nominal argument can occur in a clitic doubling construction, but not the indefinite argument (example from Alexiadou and Anagnostopoulou 1997:149).

(25) To diavasa (to vivlio/*kapjo vivlio) me prosohi (*Greek*)
it-ACC I-read (the book-ACC/some book-ACC) carefully
'I read the book carefully.'

The contrast in (25) can be explained if we assume that, as in languages like Icelandic, the referential properties of nominal arguments in Greek are related to the presence or absence of a D-head. The indefinite object in (25) has the status of an NP, whereas the definite object is a DP. Thus, only the definite object has to enter a checking relation in the TP domain and it is therefore only with the definite object that the occurrence of the object clitic is licensed. With an indefinite object however, all checking requirements related to the object are satisfied VP-internally and an object clitic in T is not licensed.

6. AN ALTERNATIVE TO CATEGORIAL FEATURE CHECKING: COVALENT BONDING

Before concluding this paper, I would like to show briefly that the system outlined so far may not depend on the notion of feature checking but that it can be formulated in an alternative way. The central point of the system proposed here has been that categorial feature matrices come equipped with an entire set of positive features and that the adequate feature matrices are established in the course of the derivation. However, as pointed out earlier, for such a system to work two additional assumptions have to be made. First of all, at the beginning of a derivation, categorial features have to be marked in different ways already, according to whether they are +Interpretable or -Interpretable. And secondly, at the end of the derivation there must be a grammatical device (filter) which evaluates the format of the clause structure.

Yet, it is conceivable that both of these assumptions could be avoided by slightly reinterpreting the system proposed here. It could be argued that there is an alternative source for categorial movement rather than feature checking. Suppose that language is, to use Chomsky's (1995) terminology, to a large extent a "perfect" system and that "perfection" in the domain of categorial feature matrices consists of having a complete feature matrix with all the categorial features positively specified.[19] In terms of this assumption, feature matrices like [+N, -V] or [-D, +T; -N, +V] are "imperfect" because they contain negatively specified categorial features. Hence, we could argue that such categories have to make up for their "imperfection" by establishing a local configuration with an element which contains the missing feature(s).[20] Once such a local configuration has been established, the categorial feature matrix is licensed because the locally available features compensate for the "imperfection" of the category. As for entirely positively specified feature matrices such as A, C or P, they do not require any interaction with other categorial features and, as shown in sections 5.1 and 5.2.3, they are therefore to a large extent inert with respect to categorial feature syntax.

Conceived in such a way, the system would be similar to the model used in chemistry for explaining why atoms join together to form molecules in the way they do. The main aspects of this model are, for our purposes, the following (see e.g. Gillespie et al. 1989:178ff., Gribbin 1999:74ff. for concise discussions): (i) The electrons of an atom occur in different layers ('shells') around the nucleus. (ii) Atoms like to have full ('closed') shells, i.e. shells containing a specific number of electrons. Such closed shells lead to a chemically stable state.

[19] Thanks to Luigi Rizzi for suggesting the connection between the notion of "perfection" and the categorial feature system proposed in this paper.

[20] This idea is similar to some extent to a proposal made by Cardinaletti & Starke (1994) for pronouns. In their system, certain elements have to move in order to compensate for structural deficiency. Here, the movement would be triggered by a deficiency in the feature matrix of a category.

(iii) What matters for the creation of molecules is the number of electrons in the outermost electron shell. If the outermost shell of an atom does not contain the number of electrons required for a closed shell, the missing electron(s) can be obtained through the formation of a molecule with one or several atom(s) which also do not have a closed outer electron shell. The atoms within a molecule then "share" their electrons and thereby achieve an illusion of having closed shells. This type of chemical bonding is referred to as "covalent bonding". If the outer shell of an atom is already closed, the atom is reluctant to interact chemically because no additional electrons are needed to close the shell. (iv) This model explains why certain atoms get together to form molecules while others do not react in this way.

For example, a hydrogen atom contains just one electron but it should have two to close its electron shell. Carbon has four electrons in its outer electron shell but it should have eight for a closed shell. A carbon atom and four hydrogen atoms can then combine to form a methane molecule (CH_4) and thereby to obtain closed shells through sharing electrons. Each of the hydrogen atoms contributes its electron to close the outer electron shell of the carbon atom (4+1+1+1+1=8). And the four electrons in the outer shell of the carbon atom are shared with the four hydrogen atoms so that each hydrogen atom seems to have the required two electrons for closing its own shell (for each H: 1+1=2). Such a configuration leads to a stable state. Given the proposal made in the previous sections, a similar scenario holds for example for the occurrence of DP in TP. Both constituents have negatively specified categorial features, i.e. they lack certain features. The creation of a local configuration then compensates for this lack: T and V on T help to close the matrix of D, and D and N on the DP close the matrix of T. Categorial attraction can therefore be interpreted as a form of covalent bonding.

But what about elements which are not deficient? In the realm of atoms, helium or neon are substances of this type. For example, helium, like hydrogen (see above), has an electron shell which requires two electrons to be closed and, contrary to hydrogen, it does have two electrons in its electron shell. Similarly, neon, like carbon, has an outer shell requiring eight electrons and, contrary to carbon, the outer shell does contain eight electrons. Thus, neon and helium always have a closed outer shell, and for this reason they simply do not need to interact with other elements to be in a stable state. Given this "self-sufficiency", atoms like neon or helium have the property of being reluctant to interact chemically with other elements. A similar argument can be made for positively specified categories such as A ([+N, +V]), C and P ([+D, +T; +N, +V]) within the system proposed here. As the discussion in sections 5.1 and 5.2.3 showed, all of these categories are fairly inert with respect to processes triggered by categorial features (cf. condition 8 *Attraction Resistance*). The explanation of this property is then of the same type as in the chemical model. A, C and P already have closed feature matrices, so they do not need to interact with the categorial features of other categories and they are therefore reluctant to get involved in categorial feature licensing.

In terms of a covalent bonding system, categorial feature matrices could be generated already in the adequate format (i.e. with positive and negative features) and the categorial features therefore would not have to get manipulated any more in the course of the derivation. More generally, it would be conceivable that the concept of feature checking could thus be dispensed with. Furthermore, whether a derivation converges or crashes would not have to be established on the basis of an interface filter which checks the format of the clause structure. Instead, the requirement would simply be that at the end of the derivation every constituent must have closed categorial feature matrices in the sense that it is either specified by positive feature values or that it is in a local configuration with another matrix which contains the missing features. The general derivational system as outlined in section 4.2 (*Search-Attract-Check*) could still be maintained to a large extent except that *Search* would not get initiated by an uninterpretable categorial feature but by a feature matrix which has to close its categorial feature matrix.

7. Conclusion

Starting from the observation that the standard concepts used for analyses of the syntax of A-positions (EPP, abstract Case) are simply stipulations, I proposed in this paper that the effects of the EPP and of Case Theory can be derived from an independently motivated component of the grammar, namely the theory of syntactic categories. More precisely, I argued that EPP and Case phenomena are the result of feature checking processes whose purpose is to specify categorial feature matrices adequately before the derivation reaches the interfaces. Alternatively, EPP and Case phenomena can be analyzed in terms of a model of covalent bonding in which categories have requirements that can be compared to those of atoms in the sense that the absence of features in a categorial feature matrix has to be compensated by establishing a local configuration with an element bearing the relevant features.

Given the prominent role of categorial features, the consequences of the system proposed here are far-reaching and there are many issues that, for reasons of space, could not be explored here.[21] However, I have shown that some of the main phenomena that have been analyzed in terms of the EPP and abstract Case within GB and Minimalism can be reanalyzed in a simple way in terms of categorial features. For certain phenomena, the categorial approach has even clear advantages. For example the observation that A and N are not structural Case assigners within standard Case Theory follows directly from the categorial feature specifications of these two categories. Or while the movement behavior of objects has remained problematic in terms of Case-theoretical approaches, it follows from the independently proposed DP/NP distinction.

Finally, from a purely conceptual point of view, the categorial feature approach has two important advantages. First of all, it unifies two aspects of the grammar (EPP, Case) which have standardly been treated as independent components. In terms of the proposals made in this paper, the EPP and abstract Case are simply two different manifestations of the same underlying property of the grammar, i.e. categorial feature checking (or categorial bonding). However, there is a second, even more important, consequence of the framework outlined here. Since the property that has been argued to unify the EPP and abstract Case is related to another component of the grammar (the theory of syntactic categories), we obtain the result that the EPP and abstract Case can simply be eliminated entirely as independent components of the grammar. As I have argued, the EPP and abstract Case are both pure stipulations and therefore conceptually problematic. The simplest way to avoid these conceptual problems is by eliminating the EPP and abstract Case entirely.

References

Abney, S. (1987) *The English Noun Phrase in Its Sentential Aspect*, Ph.D. Dissertation, MIT, Cambridge, Mass.

Alexiadou, A. (1997) *Adverb Placement. A Case Study in Antisymmetric Syntax*, John Benjamins, Amsterdam.

Alexiadou, A., & E. Anagnostopoulou (1997) "Toward a Uniform Account of Scrambling and Clitic Doubling", in W. Abraham & E. van Gelderen (eds.) *German: Syntactic Problems - Problematic Syntax*, Niemeyer, Tübingen, 143-161.

---

[21] But cf. Haeberli (1999) for a discussion of several additional consequences of this framework for the analysis of the Germanic languages.

Besten, H. den (1983) "On the Interaction of Root Transformations and Lexical Deletive Rules", in W. Abraham (ed.) *On the Formal Syntax of the Westgermania*, John Benjamins, Amsterdam, 47-131.
Bobaljik, J.D. (1995) *Morphosyntax: The Syntax of Verbal Inflection*, Ph.D. Dissertation, MIT, Cambridge, Mass.
Bobaljik, J.D. & D. Jonas (1996) "Subject Positions and the Roles of TP", *Linguistic Inquiry* 27, 195-236.
Bresnan, J. (1994) "Locative Inversion and the Architecture of Universal Grammar", *Language* 70, 72-131.
Cardinaletti, A & M. Starke (1994) "The Typology of Structural Deficiency", ms., University of Venice and University of Geneva.
Cecchetto, C. (1994) "A Semantic Trigger for Scrambling", *Rivista di grammatica generativa* 19, 33-69.
Chomsky, N. (1970) "Remarks on Nominalization", in R.A. Jacobs & P.S. Rosenbaum (eds.) *Readings in English Transformational Grammar*, Ginn, Waltham, Mass., 184-221.
Chomsky, N. (1974) "The Amherst Lectures", *Documents Linguistiques*, Université de Paris VII.
Chomsky, N. (1981) *Lectures on Government and Binding*, Foris, Dordrecht.
Chomsky, N. (1986) *Knowledge of Language: Its Nature, Origin and Use*, Praeger, New York.
Chomsky, N. (1991) "Some Notes on the Economy of Derivation and Representation," in R. Freidin (ed.) *Principles and Parameters in Comparative Grammar*, MIT Press, Cambridge, Mass., 417-454.
Chomsky, N. (1993) "A Minimalist Program for Linguistic Theory," in K. Hale & S.J. Keyser (eds.) *The View from Building 20*, MIT Press, Cambridge, Mass., 1-52.
Chomsky, N. (1995) "Categories and Transformations", in *The Minimalist Program*, MIT Press, Cambridge, Mass., 219-394.
Chomsky, N. (1998) "Minimalist Inquiries: the Framework", *MIT Occasional Papers in Linguistics* 15.
Chomsky, N. (1999) "Derivation by Phase", *MIT Occasional Papers in Linguistics* 18.
Chomsky, N. & H. Lasnik (1993) "The Theory of Principles and Parameters", in J. Jacobs, A. von Stechow, W. Sternefeld & T. Vennemann (eds.) *Syntax: An International Handbook of Contemporary Research*, de Gruyter, Berlin, 506-569.
Cinque, G. (1999) *Adverbs and Functional Heads*, Oxford University Press, Oxford.
Collins, C. (1997) *Local Economy*, MIT Press, Cambridge, Mass.
Collins, C. & H. Thráinsson (1996) "VP-internal Structure and Object Shift in Icelandic", *Linguistic Inquiry* 27, 391-444.
Déchaine, R.-M. & M. Tremblay (1998) "On Category Features", paper presented at GLOW '98, Tilburg University, *GLOW Newsletter* 40, 26-27.
Diesing, M. (1992) *Indefinites*, MIT Press, Cambridge, Mass.
Diesing, M. (1996) "Semantic Variables and Object Shift", in H. Thráinsson, S.D. Epstein & S. Peters (eds.) *Studies in Comparative Germanic Syntax II*, Kluwer, Dordrecht, 66-84.
Dobrovie-Sorin, C. (1990) "Clitic Doubling, *Wh* Movement and Quantification in Romanian", *Linguistic Inquiry* 21, 351-397.
Dubinsky, S. & K. Williams (1995) "Recategorization of Prepositions as Complementizers: the Case of Temporal Prepositions in English", *Linguistic Inquiry* 26, 125-137.
Emonds, J. (1976) *A Transformational Approach to English Syntax*, Academic Press, New York.
Emonds, J. (1985) *A Unified Theory of Syntactic Categories*, Foris, Dordrecht.
Enç, M. (1987) "Anchoring Conditions for tense", *Linguistic Inquiry* 18, 633-657.

Enç, M. (1991) "The Semantics of Specificity", *Linguistic Inquiry* 22, 1-25.
Fanselow, G. (1995) "A Minimalist Approach to Free Constituent Order", ms., University of Potsdam.
Frampton, J. (1995), "Expletive Insertion", ms., Northeastern University.
Gillespie, R. J., D. A. Humphreys, N. C. Baird & E. A. Robinson (1989) *Chemistry*, 2nd edition, Prentice Hall, Englewood Cliffs, N.J.
Goodall, G. (1996) "Effects of the EPP and Active Heads in Passives", ms., University of Texas, El Paso.
Gribbin, J. (1999) *Almost Everyone's Guide to Science*, Phoenix, London.
Grimshaw, J. (1991) "Extended Projections", ms., Brandeis University.
Groat, E. & J. O'Neil (1996) "Spell-Out at the LF Interface", in W. Abraham et al. (eds.), *Minimal Ideas. Syntactic Studies in the Minimalist Framework*, John Benjamins, Amsterdam, 113-139.
Guéron, J. & T. Hoekstra (1988) "T-chains and the Constituent Structure of Auxiliaries", in A. Cardinaletti, G. Cinque & G. Giusti (eds.) *Constituent Structure*, Foris, Dordrecht, 35-99.
Haeberli, E. (1999) *Features, Categories and the Syntax of A-Positions. Synchronic and Diachronic Variation in the Germanic Languages*, Ph.D. Dissertation, University of Geneva.
Haegeman, L. (1993) "Some Speculations on Argument Shift, Clitics and Crossing in West Flemish", in W. Abraham & J. Bayer (eds.) *Dialektsyntax*, 131-160, Westdeutscher Verlag, Opladen.
Haegeman, L. (1995) *The Syntax of Negation,* Cambridge University Press, Cambridge.
Holmberg, A. (1986) *Word Order and Syntactic Features in the Scandinavian Languages and English*, Ph.D. Dissertation, University of Stockholm.
Hoop, H. de (1992) *Case Configuration and Noun Phrase Interpretation*, Ph.D. Dissertation, University of Groningen.
Hornstein, N. (1999) "Movement and Control", *Linguistic Inquiry* 30, 69-96.
Jaworska, E. (1986) "Prepositional Phrases as Subjects and Objects", *Journal of Linguistics* 22, 355-374.
Johnson, K. (1991) "Object Positions", *Natural Language and Linguistic Theory* 9, 577-636.
Josefsson, G. (1992) "Object Shift and Weak Pronominals in Swedish", *Working Papers in Scandinavian Syntax* 49, 59-94.
Kayne, R. (1989) "Facets of Participle Agreement in Romance", in P. Beninca (ed.) *Dialect Variation in the Theory of Grammar*, Foris, Dordrecht, 85-103.
Kayne, R. (1994) *The Antisymmetry of Syntax*, MIT Press, Cambridge.
Koizumi, M. (1993) "Object Agreement and the Split VP Hypothesis", *MIT Working Papers in Linguistics* 18, 99-148.
Koopman, H. (1997) "The Structure of Dutch PPs", ms., UCLA.
Koster, J. (1978) "Why Subject Sentences Don't Exist", in S.J. Keyser (ed.) *Recent Transformational Studies in European Languages*, MIT Press, Cambridge, Mass., 53-64.
Kural, M. (1998) "Passives without Argument Incorporation", *NELS 28*, 203-217.
Laenzlinger, C. (1998) *Comparative Studies in Word Order Variation. Adverbs, Pronouns and Clause Structure in Romance and Germanic*, John Benjamins, Amsterdam.
Laka, I. (1993) "Unergatives that Assign Ergative, Unaccusatives that Assign Accusative", *MIT Working Papers in Linguistics* 18, 149-172.
Marantz, A. (1992) "Case and Licensing", *ESCOL '91*, 234-253.
Marantz, A. (1997) "No Escape from Syntax: Don't Try a Morphological Analysis in the Privacy of Your Own Lexicon", ms., MIT.

Meinunger, A. (1995) *Discourse Dependent DP (De-)Placement*, Ph.D. Dissertation, Universität Potsdam.
Moltmann, F. (1991) "Scrambling in German and the Specificity Effect," ms., MIT.
Mulders, I. (1997) " Mirrored Specifiers ", in J. Coerts & H. de Hoop (eds.) *Linguistics in the Netherlands 1997*, John Benjamins, Amsterdam, 135-146.
Müller, G. & W. Sternefeld (1993) "Improper Movement and Unambiguous Binding", *Linguistic Inquiry* 24, 461-507.
Nash, L. & A. Rouveret (1997) "Proxy Categories in Phrase Structure Theory", *NELS 27*, 287-304.
Pesetsky, D. (1989) "Language Particular Processes and the Earliness Principle", ms., MIT.
Pesetsky, D. & E. Torrego (2000) "T-to-C-Movement: Causes and Consequences", ms., to appear in M. Kenstowicz (ed.) *Ken Hale: a Life in Language*, MIT Press, Cambridge, Mass.
Philippi, J. (1997) "The Rise of the Article in the Germanic Languages", in A. van Kemenade & N. Vincent (eds.), *Parameters of Morphosyntactic Change*, Cambridge University Press, Cambridge, 62-93.
Postal, P. (1974) *On Raising*, MIT Press, Cambridge, Mass.
Richards, N. (1997) *What Moves Where When in Which Language?*, Ph. D. Dissertation, MIT.
Riemsdijk, H. van (1990) "Functional Prepositions", in H. Pinkster & I. Genee (eds.) *Unity in Diversity*, Foris, Dordrecht.
Rizzi, L. (1997) "The Fine Structure of the Left Periphery", in L. Haegeman (ed.) *Elements of Grammar*, Kluwer, Dordrecht, 281-337.
Rochemont, M. (1986) *Focus in Generative Grammar*, John Benjamins, Amsterdam.
Rouveret, A. & J.-R. Vergnaud (1980) "Specifying Reference to the Subject", *Linguistic Inquiry* 11, 97-202.
Sportiche, D. (1996) "Clitic Constructions" in J. Rooryck & L. Zaring (eds.) *Phrase Structure and theLexicon* Kluwer, Dordrecht, 213-276.
Starke, M. (1993) "Notes on Prepositions and Clause Structure", ms., Université de Genève.
Stowell, T. (1981) *Origins of Phrase Structure*, Ph.D. Dissertation, MIT.
Suñer, M. (1988) "The Role of Agreement in Clitic Doubled Constructions", *Natural Language and Linguistic Theory* 6, 391-434.
Thráinsson, H. (1996) "On the (Non-)Universality of Functional Categories", in W. Abraham et al. (eds.), *Minimal Ideas. Syntactic Studies in the Minimalist Framework*, John Benjamins, Amsterdam, 253-281.
Vanden Wyngaerd, G. (1989) "Object Shift as an A-Movement Rule," *MIT Working Papers in Linguistics* 11, 256-271.
Vikner, S. (1994) "Scandinavian Object Shift and West Germanic Scrambling" in N. Corver & H. van Riemsdijk (eds.) *Studies on Scrambling*, Mouton de Gruyter, Berlin, 487-517.
Zwart, J.-W. (1993) *Dutch Syntax. A Minimalist Approach*, Ph.D. Dissertation, University of Groningen.
Zwart, J.-W. (1997) *Morphosyntax of Verb Movement. A Minimalist Approach to the Syntax of Dutch*, Kluwer, Dordrecht.