Feature primitives and the syntax of specificity

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A large variety of morphosyntactic processes appears to correlate with a 'specific/non-existent' interpretation of the constituents involved, providing evidence for the hypothesis that 'specificity' is syntactically encoded. This paper discusses some possible implementations of this general insight. It argues against the view that syntactic operations such as movement are triggered by the need to satisfy interface conditions with the interpretive system (as is the case with Diesing's Mapping Hypothesis), and against the view that the relation between syntax and specificity-related processes is only indirect, representing the side-effect of defocussing processes (as is the case with Zubizarreta's and Reinhardt's approaches to object-scrumbling). The view endorsed here is that the feature inventory of natural language has to be considerably extended to include 'interpretable' features of various sorts (in the spirit of Stowell & Bezghelli's decomposition of Quantifier Raising into a set of movement operations involving a specific set of quantificational features). The analysis will reveal that the interpretable feature involved in the specificity effects has to be identified with 'familiarity' (a notion roughly corresponding to Pesetsky's D-linking and Prince's givenness/saliency) and must be carefully distinguished from the presupposition of existence/cardinality which is usually associated to the semantics of quantificational constituents. An important consequence of the proposed analysis is that the properties of operator movement are no longer assumed to depend on the traditional A/A' distinction, but on the nature of the interpretable features involved within the domain of A'-movement.

1. Introduction

This paper addresses the conceptual issues posed by types of movement which seem to have a semantic trigger. The empirical domain that will be investigated covers the so-called 'specificity effects': syntactic processes which appear to correlate with a 'specific' interpretation of the constituents involved. In much recent work, it has been observed that the specific interpretation of certain syntactic constituents is encoded in syntax through various morphosyntactic means. Enç (1991), for example, notes that in Turkish the presence of accusative case morphology correlates with a specific interpretation of an indefinite direct object. Diesing (1992) observes that scrambling of indefinites in German and Dutch yields a specific interpretation of
the noun phrase, capitalizing on the original suggestions found in Reudlan (1988) and de Hoop (1992)).

If it is assumed that specificity effects are somehow encoded in syntax, the question of course arises how this idea can be theoretically implemented. At first sight, the severe epistemological constraints of the Minimalist Program (Chomsky 1995) might be interpreted as preventing us from charging the computational system with illegitimate semantic features, which might be thought of as surreptitiously discharging the burden of explanation on the computational system (i.e., syntax), instead of looking at the interface conditions or at the independent properties of the systems of interpretation and use which are intuitively relevant for the derivation of the interpretive facts under examination. If movement reduces to morphological checking of features, specificity effects which correlate with displacement phenomena raise such questions as: which kind of interpretable features are legitimate and must be checked? How can checking of interpretable features be characterized with respect to the by now more familiar operation of feature erasure which characterizes checking of non-interpretable features (cf. Chomsky 1995)?

In this paper, we will take the position that semantically-driven movement is in fact the consequence of the realization of interpretable features in ‘functional’ positions in which they are not ‘interpretable’, and from which they have consequently to be erased via checking. In order for this result to be achieved, some distinct lexical item present in the relevant numeration will have to be endowed with the same set of interpretable features, creating the conditions required for checking (let’s say, in terms of ‘Attract ø’ or some equivalent procedure). In this way, checking can be characterized as a uniform operation, leading to the deletion/erasure of non-interpretable features before they cause the syntactic representation to crash at one of the two interfaces (in the case of ‘alleged’ semantically-driven movement the non-interpretable features are those realized in the functional ‘target’). As for the ‘rationale’ for this strategy, we want to suggest that ‘redundant’ realization of interpretable features on functional categories/positions in which these features are non-interpretable corresponds to a specific class of computational operations which is resorted to in order to compensate the high degree of morphological ambiguity that is often found in natural language. Morphological inspection is often not able to reveal whether a certain determiner is endowed with the ‘formal’ feature encoding ‘familiarity’ which will be investigated in the course of this paper. However, the fact that the DP headed by this determiner undergoes overt move-
transferring illegitimate ‘pragmatic’ features from the system of use into the computational system, provided familiarity is rigorously defined as a specific semantic instruction for the interpretive system and there is serious empirical evidence in favor of the assumption that this feature is syntactically encoded. In fact, we claim that familiarity can be naturally defined as one of the ‘interpretable’ features encoded in the computational system and that the evidence for encoding is overwhelmingly.

This paper is organized as follows. In sections 2 and 3 we will try to arrive at a precise definition of the ‘semantic’ instructions which correspond to the so-called ‘specific’ interpretation of certain constituents, briefly reviewing and discussing the evidence that specificity is morphosyntactically encoded. On the basis of cross-linguistic data, we will come to the conclusion that the following three semantic instructions are arguably encoded in the computational system: (i) specificity as an inclusion relation, (ii) specificity as rigid designation, and (iii) familiarity as an identity relation. Section 3 focuses on the analysis of scrambling in Germanic SOV languages such as Dutch and on the relevance of the notion of ‘familiarity’, now considered as a formal feature expressing a well-defined semantic instruction at the LF-interface, in triggering displacement. We will show that analyses which consider the specific interpretation of scrambled constituents to be an indirect effect of a defocalisation process (as in Reinhart 1995) rather than a direct effect of a formal feature encoding familiarity face serious empirical and conceptual problems.

2. Specificity and Movement

If the view is adopted that the notion of specificity is encoded in the computational system, the question should be addressed as to how this semantic effect is encoded and how it relates to displacement phenomena like scrambling. In Diesing (1992), scrambling of noun-phrases out of VP is forced by the principles of semantic composition, assuming a bottom-up algorithm for combining semantic types. She basically interprets scrambling as a process of type mismatch resolution. In informal terms, specific constituents are of the wrong semantic type (i.e., they are quantificational) and cannot therefore be combined with the verb. As a consequence of this type mismatch trouble, specific constituents have to leave the VP. Non-specific constituents, basically corresponding to indefinite arguments, are semantically translated into variables, according to the standard approach in D(iscourse)R(epresentation)/T(heory); they are individual-referring constituents, may combine with the verb and need not be scoped out of the VP. This is basically the conceptual content of Diesing’s so-called Mapping Hypothesis, which clearly takes syntax to be driven by the principles of semantic compositionality. Reformulated in minimalist terms, this clearly entails that movement is not exclusively triggered by feature-checking operations: for instance, a specific constituent must undergo QR in order for the correct semantic representation to be produced at the interface, an intuitively anti-minimalist standpoint. At the very least, the Minimalist Program would force us to replace the semantic approach advocated by Diesing with a feature-driven approach, according to which the semantic trigger (i.e. the realization of suitable ‘compositional’ configurations at the interface) is replaced by interpretive features of the appropriate kind, to be checked in designated functional positions (cf. Hornstein (1995) for an in-depth discussion of the issues involved).

Suppose we replace a movement approach to scrambling based on type mismatch resolution with one based on semantic features. Is this a real choice between two different theories or are we surreptitiously charging syntax with ‘redundant’ denotational devices which simply duplicate the ‘type-information’ relevant for the mapping of syntactic representations into interpretable structures? We think the choice hinges on a real empirical issue, at least for two quite clear reasons. First, pronouns are individual-referring expressions, and it cannot certainly be claimed that they have to vacate the VP because they belong to the wrong semantic type: the extra denotational device which is needed in order to ensure that the pronoun leave the VP, say, an extra index encoding familiarity, is sufficient to assign the theory more expressive power with respect to a theory that simply encodes the information concerning the semantic types (this whole issue is clearly reminiscent of the role of Novelty/Familiarity conditions in D(iscourse)R(epresentation)/T(heory)). Second, Diesing’s proposal is based on the insight that the constituents interpreted ‘specifically’ are those that give rise to operator-variable structures involving restricted quantification (abstracting away from individual-level expressions like personal pronouns, for which special familiarity indexes are introduced to encode the ‘specific’ reading): specificity corresponds in fact to the ‘presuppositional’ interpretation of the constituents which undergo a QR-like operation, leading to tripartite structures of the usual kind (where the restricted clause is assumed to correspond to the presupposed set). However, we want to claim
The impossibility of having object agreement with wh-phrases which quantify over a non-familiar set of objects is further corroborated by the wh-exclamative structures in (3). Clearly, the exclamative phrases quelle surprise and quelle erreur do not quantify over a familiar set of surprises/errors. Exclamation typically applies to entities which are new (i.e. unfamiliar) in the context of discourse. Presence of object agreement is therefore impossible in these wh-exclamative contexts.

(3) a. Quelle surprise elle m'a fait (*-e)!
   What a surprise she me has made
   b. Quelle erreur il a commis (*-e)!
   What a mistake he has made

In short, the phenomenon of object agreement in French correlates with a well-known interpretative effect, intuitively involving quantification over a familiar set of objects.

Interestingly, the obligatory familiar reading of a noun phrase is not restricted to object agreement contexts. As exemplified in (4), wh-phrases in complex inversion structures exhibit the same interpretative effect. That is, the wh-phrase must quantify over a familiar set of objects. The interrogative sentence (4a), for example, is appropriate in a situation in which one is watching a scene of a movie on television. The wh-element quantifies over an entity (woman) which is physically salient (hence familiar) in the discourse context. Such a familiar reading is not permitted with the bare wh-phrase qui in (4b) and the modified combien-phrase in (4c). As predicted, these wh-phrases are incompatible with complex inversion.

(4) a. Quelle femme se cache-t-elle sous la perruque blonde?
   Which woman REFLEX hides herself under the wig blond
   b. *Qui joue-t-il aux échecs?
   *Who plays chess?
   c. Jusqu'à combien de gardes du corps suivaient (*-ils) les vedettes?
   Up to how-many body-guards followed (they) the stars

Summarizing, the phenomena of object agreement and complex inversion illustrate the morphosyntactic encoding of the familiar interpretation of the variable which is quantified in: the NP-complement of the interrogative determiner refers to a set of entities which has already been introduced or is physically salient in the context of discourse.
2. Subject of ergatives

A further illustration of the syntactic encoding of specificity comes from the interpretation of subject noun phrases in Italian, in structures where they are headed by a weak determiner (cf. Delfitto and Pinto 1992). It turns out that preverbal subjects of ergative verbs headed by a weak determiner, for example, are only possible with a specific reading. So, the subject tre ospiti in (5a) only has a partitive reading in which it quantifies over a set of guests which are familiar in the context of discourse. This restricted reading of the preverbal subject does not seem to be a property of the [Spec,IP] position as such. This becomes clear when we consider the interpretation of preverbal subjects of unergative (cf. (5b)) or transitive verbs (cf. (5c)). It turns out that these are not restricted to a presuppositional reading; they also allow an existential (i.e. non-specific) reading of the subject noun phrase.

The contrast illustrated in (5) and (6) seems to be related to the fact that in Italian subject inversion is actually ‘free’ only with unaccusative predicates, as is exemplified in (7) (cf. Delfitto and Pinto 1992). So, in (7a), the inverted subject is easily admitted to occur in an all-focus sentence: the subject simply introduces a new referent in the discourse. This is arguably not the case with postverbal subjects of transitive and unergative verbs, which can only receive a contrastive focus reading, as is shown in (7b,c).

In conclusion, preverbal subjects of unaccusative verbs are obligatorily assigned a partitive reading, crucially involving the familiar interpretation of the (implicit) partitive complement. In this respect, they differ from preverbal subjects of unergative and transitive verbs which may be easily assigned a non-partitive reading (cf. Delfitto & D’Hulst 1995 for an account of this contrast).

3.3. Prepositional accusatives in Rumanian

Another illustration of the morphosyntactic encoding of a specificity-related interpretive property comes from Rumanian. Consider the following paradigm with prepositional accusatives (drawn from Dobrovie-Sorin 1993):

In (8), the transitive verb is specified for a further argument which is assigned to a preposition.

In (9), the transitive verb does not specify for a further argument, but an agent is still marked by the preposition.

In (10), the accusative argument is designated as a whole by a prepositional phrase.
As noted by Dobrovie-Sorin, object indefinites preceded by the preposition *pe* do not give rise to weak crossover effects (cf. (8)), do not admit modified cardinals (cf. (9)), and are compatible with clitic-doubling (cf. (10)). Interestingly, this cluster of properties is shared by names, but not by object indefinites that are not preceded by *pe*. What we can conclude from these observations is that prepositional accusatives behave semantically as rigid designators (i.e. they pattern like names): the speaker must have a specific referent in mind. Thus, the aspect of meaning which is morphologically encoded in Romanian is the so-called 'referential' reading of the indefinite, which exhibits in fact the same semantic status as a proper name. The characterization of this class of phenomena as specificity-related is clearly reminiscent of de Hoop’s approach to scrambling in Germanic, according to which the ‘referential’, ‘generic’ and ‘partitive’ interpretations of scrambled constituents can be all traced back to a common feature of these constituents, referred to under the label ‘specificity’ (see de Hoop (1992)). It is quite significant that the DP-readings which undergo morphosyntactic encoding crosslinguistically tend to overlap with the cluster of interpretations which has been shown to correlate with scrambling in Germanic. As far as the ‘referential’ reading is concerned, the Romanian facts presented above represent a convenient illustration of this general point.

3.4. Cliticization in Romance and Germanic languages

The phenomenon of cliticization represents a third example of the grammatical encoding of interpretive effects. As shown by the following examples from Dutch (11) and Italian (12), clitics notoriously fill syntactic positions which are not available to other DPs. (11) illustrates a contrast in the distribution of the lexical DP *het boek* and the clitic *'t*: the former cannot precede an indirect object-verb DP, whereas the latter is admitted to do so (see especially Zwart (1993) for a detailed discussion of this class of facts). The examples in (12) show that displacement of a lexical DP to a position in between the subject and the finite verb is impossible, whereas it is allowed for clitics.

(11) a. *..dat ik het boek Marie gisteren gaf*  
..that I the book Mary yesterday gave
b. ..dat ik 't Marie gisteren gaf*  
..that I it her yesterday gave

(12) a. *Gianni il libro ha letto*  
Gianni the book has read
b. *Gianni lo ha letto*  
Gianni it has read

What appears to be syntactically encoded in these cliticization structures is the ‘familiar’ interpretation of these constituents, whose referent has to be identified with entities which have already been introduced in the discourse or are physically salient. In the literature, pronoun movement has often been related to ‘specificity effects’ (see Corver & Delfitto (forthcoming) and Uriagereka (1995)). Here, specificity is clearly related to the definition of ‘definiteness’ found in Enl(1991), in terms of the identity relation (but see the next section for critical remarks on the identification of familiarity with definiteness), and also clearly overlaps with the case where ‘familiar’ indexes are used in DRT (see Diezing & Jelinek (1995) for a DRT-related approach to pronoun displacement, according to which pronouns move to VP-external functional projections, as ‘free riders’ on the verb, in order to avoid to be interpreted in the scope of existential closure). 4

3.5. Clitic doubling in Greek and scrambling in Germanic

A fourth illustration of the grammatical encoding of interpretive effects is based on clitic doubling in modern Greek and scrambling in Dutch. Let us first consider clitic doubling.

Anagnostopoulou (1994) observes that there is a contrast in meaning between the sentence in (13), lacking clitic doubling, and the sentence in (14), where the DP *ton sigrafeia* is doubled by the clitic *ton*. (13) is ambiguous between the reading in which the D (definite)D (description) ‘the author’ refers to A. Miller and the reading in which it refers to the inferred individual ‘the author of the book about A. Miller’. Interestingly, clitic doubling seems to have a disambiguating effect: the only reading available is the one in which the referent of the definite description ‘the author’ is obligatorily identified with A. Miller, which corresponds to an entity which has been explicitly introduced into the context of discourse (corresponding to Prince’s notion of egiveness).

(13) O Jannis diavase (ena vivlio jia ton Arthur Miller), enthusiastike, ke thelise na gnorisi ton sigrafeaj apo konta
John read [a book about A. Miller], he got very enthusiastic, and he wanted to get to know the author, where $j = 1$ or $j = $ the author of the book about A. Miller.

O Janissi diavase [ena vivlio jia ton Arthur Miller], enthusiastic, ke telise na toni gnorisi i ton sigrafei apo konta.

John read [a book about A. Miller], he got enthusiastic, and he wanted to get to know the author, where $j = 1$.

The important comparative observation we would like to make is that there seems to be a strong correlation between the cases in which clitic-doubling preferably applies in Modern Greek and the cases in which scrambling is preferably adopted in Germanic SOV languages, contrary to the received wisdom that scrambling of definite constituents is entirely optional in German and Dutch. Consider the Dutch sentences in (15) and (16). When scrambling has applied as in (16), there is quite a strong tendency among the speakers to interpret the incomplete definite description *de regisseur* (the director) as referring to the previously mentioned Fellini, producing a typical familiar reading. On the other hand, if scrambling does not apply (as in (15)), the incomplete definite description is preferably interpreted as referring to the 'inferred' individual *the director of the movie about Fellini*.

(15) Ik heb gisteren een film over Fellini gezien en ik heb een uur later *de regisseur* ontmoet.
Yesterday I saw a movie about Fellini and an hour later I met the director.

(16) Ik heb gisteren een film over Fellini gezien en ik heb de *regisseur* een uur later *ti ontmoet.

A comparison of the clitic doubling paradigm in (17), taken from Anagnostopoulou (1994), with the scrambling paradigm (18) provides further confirmation of the parallel interpretive properties of clitic doubled noun phrases and scrambled noun phrases. Consider first the clitic doubling paradigm: (17a,b) show that clitic doubling is the preferred option with incomplete definite descriptions (*tin gata*) but is clearly disfavored with complete definite descriptions (*tin mitera tou Shakespeare*); (17c,d) illustrate the impossibility of clitic doubling in sentences where the relevant noun phrase is used nonreferentially. In (17e) nonreferentiality of the direct object relates to its inalienable interpretation. In (17d), nonreferentiality holds under an 'attributive' reading of the direct object DP.

(17) a. *Tin vlepo tin gata*
I see the cat.

b. *Tin-idha tin mitera tou Shakespeare ston ipno mu*
I dreamt of the mother of Shakespeare.

c. *O Janissi tin-exi tin miti tu patera tu*
John has-it his father's nose.

d. *%Spania tin xaidevo tin mikroteri gata*
I seldom pet the smallest cat.

Consider now the scrambling paradigm from Dutch:

(18) a. Ik heb nog nooit *de Bijbel* gelezen
I have never read *the Bible*.

b. Ik heb *de bijbel, nog nooit ti* gelezen
I have never read *the Bible*.

c. Ik heb nog nooit *het laatste artikel van Chomsky* gelezen
I have never read *the last article of Chomsky*.

d. Jan heeft altijd de neus van zijn vader gehad
Jan has always had his father's nose.

e. ...omdat ik *zelden de kleinste kat aai* (with attributive reading)
...since I seldom pet the smallest cat.

The examples (18a,b) show that application of scrambling yields a different interpretation of the the noun phrase *de bijbel*. The incomplete definite description *de bijbel* in (18b) no longer exhibits the sort of 'type' reading proper to (18a), involving generic reference to the religious text, but is preferably interpreted as referring to a specific token which has already been introduced in the context of discourse. Example (18c) illustrates that complete definite descriptions preferably do not undergo scrambling; that is, the word order in (18c) is the unmarked one for complete definite descriptions. Analogously to the impossibility of having non-referential noun phrases in clitic doubling structures, scrambling does not apply to such noun phrases, as is exemplified in (18d,e).

The above facts on Modern Greek clitic doubling and Dutch scrambling strongly point to an important conclusion. What seems to be encoded is familiarity and familiarity should not be confused with morphological definiteness. The definite DP in (19) may turn out to be just as unfamiliar as the indefinite 'two-headed' man of (20) (a
ell-known point which is forgotten quite often in the work on the
\(\text{min}\) of specificity (cf. e.g. Enç (1991)).

(19) I saw your father yesterday (drawn from Prince 1981)
(20) I saw a two-headed man yesterday

t is the notion of familiarity, rather than the (essentially morphologi-
al) notion of definiteness which is in fact relevant for a proper analy-
is of the so-called (mistermed) “definiteness effect”. The ill-formed-
ness of the Italian sentence (21) is not due to the definite nature of
the noun phrase. This can easily be shown by replacing l’uomo (‘the
man’) with the definite DP il vicino (‘the neighbour’), as in (22). In
this example, the “definiteness effect” is entirely absent. What seems
to underlie the contrast between (21) and (22) is the notion of famil-
arity. The definite DP il vicino is easily interpreted as the complete
definite description “my/our neighbour” as a consequence of its deictic
meaning. Permitting such an interpretation, il vicino can easily be
introduced as new (i.e. nonfamiliar) information in presentational
constructions (i.e. the uniqueness requirement proper to the semantic-
tics of singular definite descriptions can be satisfied without assign-
ing the DP a context-dependent interpretation). The DP l’uomo
(‘the man’) in (21), due to the lack of this deictic meaning, is hardly
interpretable as a ‘complete’ definite description, i.e. a ‘description’
such that the lexical content of the DP is sufficient to satisfy the un-
iqueness requirement. The latter can only be satisfied if the DP is
linked to a set of previously established antecedents, under the condi-
tion that such a set be a singleton. We interpret the ‘familiar’ inter-
pretation of the DP in (21) as corresponding to the presence, in the D-
position, of the interpretable feature encoding the context-dependent
interpretation of the DP. In this way, the prohibition that familiar
DPs occur VP-internally (i.e. in presentational contexts) immediately
follows from the checking requirement on quantificational features,
according to which familiar DPs must be displaced to the (VP-exter-
nal) functional position where the non-interpretable ‘familiarity’ fea-
ture is also encoded, as required by the general conception of
feature is also encoded, as required by the general conception of

(21) *È entrato l’uomo dalla finestra (Belletti 1988)
(22) È entrato il vicino dalla finestra

(There) has entered the man through the window
(There) has entered the neighbour through the window

It is worth noting that the approach advocated here is fully compat-
ible with the relevance of the traditional contrast between ‘anaphoric
reference’ and ‘deictic reference’ in the analysis of the double-definite-
ness effect in Scandinavian (see Kester (1996) for a recent survey of
the issue). It would also be interesting, on conceptual and empirical
grounds, to compare our proposal with the view of ‘incomplete’ defini-
t descriptions recently developed in Chierchia (1995), according to
which ‘anaphoric’ defnites (i.e. ‘incomplete’ definite descriptions) are
interpreted as functions of (syntactically represented) implicit vari-
ables, whose value is either contextually or anaphorically supplied.
Intuitively, the two approaches are theoretically and empirically
distinct, but a satisfactory discussion of this issue would fairly exceed
the limits of this paper.5

3.6. What is encoded?

At the beginning of section 3, we raised the question as to which
aspects of meaning are encoded (morpho)syntactically. On the basis
of the crosslinguistic data discussed above, we are now able to pro-
vide an answer. Three aspects of meaning are encoded, namely:

1. Specificity as an ‘inclusion’ relation. This aspect of meaning is
exemplified in (23):

(23) a. Several boys entered the museum (Enç 1991)
 b. Later, I saw two boys at the movies

The range of quantification of two in (23b) corresponds to the familiar
set of boys introduced in (23a). The set referred to by two boys is
‘included’ in the familiar set. Notice that this interpretation corre-
sponds to Enç’s (1991) definition of specificity as partitive. It is this
interpretive property which is encoded in French object agreement
and complex inversion (cf. 3.1.) and in the Italian subject-of-ergative position (cf. 3.2.).

2. Specificity as ‘rigid designation’. This aspect of meaning is exemplified in (24):

(24) Helen must beat an athlete from UCLA who is trained by the Dogar brothers (Prince 1981)

In this example, the indefinite direct object noun phrase behaves as a name-like expression. Recall from section 3.3, that name-like behavior was a property of Rumanian prepositional accusatives. Thus, it is the semantic property of ‘rigid designation’ which is encoded in Rumanian. As noted in Reuland (1988) and De Hoop (1992), this notion is also relevant in the case of scrambling of indefinites in languages such as Dutch and German.6

3. Familiarity as an ‘identity relation’. This aspect of meaning is exemplified by the use of an incomplete definite description in (25) and of a pronoun in (26): the referent of the ‘familiar’ constituent is identified with a previously defined or physically salient entity.

(25) We got some beer out of the trunk. The beer was warm

(26) We got some beer out of the trunk, but it was warm

It is this notion of familiarity that is encoded in the case of cliticization (cf. 3.4). Greek clitic doubling and scrambling of definites in Germanic (cf. 3.5).7

From these observations, we would like to draw two main conclusions. First of all, specificity as an inclusion relation and familiarity as an identity relation can be dealt with as essentially the same phenomenon. Both aspects of meaning involve a context-dependent interpretation of the domain of quantification. Informally, we want to propose that this context-dependent reading depends on the fact that a determiner $\alpha$ is endowed with a quantificational feature encoding the property that $\alpha$ quantifies over a domain of familiar objects. As for the difference between ‘inclusion’ and ‘identity’, it might be easily made to depend on the interpretive requirements encoded in the semantics of the different determiners ‘cardinality’ or ‘exhaustiveness’ properties proper to definite determiners, exemplified above with the ‘uniqueness’ requirement traditionally associated to the semantics of singular definite descriptions.

Assuming that specificity effects can be reduced to familiarity, along the lines sketched above, we would be left with two aspects of meaning that are encoded (morpho)syntactically: ‘familiarity’ and ‘rigid designation’. We propose that these interpretive properties correspond to the presence of well-defined interpretable features on the definite or indefinite determiner, respectively encoding the semantic instruction that the domain of quantification has to be restricted to the context of discourse and the semantic instruction that the DP has ‘rigid-designation’ (i.e. name-like) properties. As for the former feature, what we are suggesting is that the traditional operation of ‘relativization to a model’ of model-theoretic semantics is encoded in the computational system. As for the latter feature, we propose that the so-called ‘referential’ interpretation of indefinites, according to which they behave as proper nouns and which is traditionally conceived of as a pragmatically-driven phenomenon (see Neale (1990) for a recent survey of the issues involved), might well be syntactically encoded in certain languages, as suggested by the Rumanian facts and by the interpretation of scrambling in Germanic (the interpretation of a scrambled constituent as a ‘concealed’ proper name is arguably sufficient to trigger scrambling in Dutch, cf. de Hoop (1992)).

Secondly, we may now draw an important conclusion concerning what is not encoded in the computational system. Quite surprisingly, what is not encoded is the presupposition of existence/cardinality which is part of the semantics of strong determiners. Consider, for example, the contrast between (27) and (28):

(27) All American Kings lived in New York (Lappin & Reinhart 1987)

(28) Five American Kings lived in New York

The traditional problem raised by the observation that (27) is true according to standard logic but is normally understood as ‘undefined for a truth-value’ according to the speakers can be solved by adopting the view, shared by Diesing (1992), that ‘strong’ determiners involve the presupposition that the domain of quantification is not empty. The hypothesis is that specificity and presuppositionality coincide: remember that what has to vacate the VP, according to Diesing, is just the ‘presuppositional’ material. In other words, the process of tripartite structure formation and the ‘presuppositional’ interpretation
claim being that these readings correspond to the natural interpretation of a general defocalization strategy, as is the case with the ‘prosodic’ movement recently proposed for Romance scrambling by Zubizarreta (1995). In the next section, we will show that such a defocalisation approach towards scrambling faces empirical and conceptual difficulties. Focus, even if understood as a legitimate syntactic feature, is not sufficient to derive the scrambling facts.

4. Scrambling: towards a feature based approach

As we have seen in the previous section, scrambling appears to correlate with the specific or familiar interpretation of the displaced constituent. This section addresses the question as to how the relation between movement and the specific/familiar reading is encoded in grammar. If we adopt, in line with Minimalist assumptions, a feature based approach towards displacement phenomena, two alternative feature based approaches towards scrambling can be distinguished.

The first approach, which we will label theory A, states that specificity and familiarity are notions which are not syntactically encoded (as a consequence of severe restrictions in the set of formal features which are admitted in syntactic computations) and are consequently not involved in triggering syntactic movement operations such as scrambling. According to this view, the only syntactic feature involved in scrambling operations is the focus feature. The general idea is that scrambling takes place in order to defocalise a constituent. The specific or familiar reading of the scrambled constituent is considered a side effect of PF-constrained focus assignment procedures (see Zubizarreta 1994 and Reinhart 1995 for two distinct implementations of theory A).

The second approach, which we will label theory B, differs from theory A in interpreting specificity and familiarity as primitive features which are syntactically encoded and are actually involved in triggering movement operations such as scrambling. As already emphasized at the onset, the basic insight is that the familiar or specific reading is lexically encoded by means of a quantificational feature realized within the scrambled constituent (normally, in the determiner-position) and which must be checked against the feature specification of a designated functional category, which is non-interpretable and would therefore cause the derivation to crash at the LF-interface if not erased. As for the semantic instruction expressed by the ‘familiar’ feature realized within the scrambled constituent, we can assu-
If discourse requirements determine a constituent (to carry the syntactic focus feature, and α is not assigned phonological prominence (i.e. phrasal stress) by the NSR, some constituents distinct from α will have to vacate their original position in order for the focused constituent to comply with the PF-constraint (31). It is assumed that this condition can be satisfied through either the marked prosodic strategy of deaccenting or prosodic movement. These two strategies are exemplified in (32b and c), which are both appropriate replies to the question in (32a).

(32) a. Cosa pensi che Gianni abbia dato a Maria? What do you think that Gianni has given to Maria
b. Gianni ha dato [a Maria] un libro tₜ, (prosodic movement) Gianni has given to Maria a book
c. Gianni ha dato un libro a Maria

In these replies, the constituent carrying interpretive focus (i.e. the constituent which is determined by compelling discourse considerations to be interpreted as focused) is the DO un libro. In order to comply with (31), the DO-noun phrase must also be assigned prominent stress. However, prominent stress will be assigned by the NSR-rule to the IO-PP, which is the base structure is more deeply embedded than the DO-noun phrase. In order to get phrasal stress on the DO, the more deeply embedded IO can be de-accented and stress can be shifted to the left-adjacent DO. This strategy yields (32c). The second strategy, prosodic movement, is illustrated in (32b): the IO is scrambled leftward, in order to yield an output structure in which the constituent carrying the syntactic focus feature also contains the most deeply embedded prosodic word. In this way, scrambling can be assumed to have a defocalizing effect for the scrambled constituent. As already noticed above, this general approach still leaves the possibilities open that scrambling be conceived of as either a PF-movement phenomenon (Reinhart 1995) or a syntactic process which provides the right output structure for PF-interpretation, hence exhibiting some of the typical properties of syntactic movement (Zubizarreta 1994).

One potential advantage of the defocalisation approach towards scrambling is that specificity/familiarity effects are potentially accounted for without resorting to the introduction of new classes of interpretable features among the formal features which are allowed to feed the syntactic computation: only focus is required, under the
hardly problematic assumption that the assertion-presupposition partition is encoded in syntax.

An important empirical advantage is that this analysis, despite its simplicity, seems able to derive some long-debated properties of scrambling in Dutch, as those related to De Hoop's (1992) Principle of Contrastiveness. This principle relates object scrambling to the possibility of assigning (contrastive) focus to the verbal predicate. In other words, the application of scrambling is not triggered by interpretive properties of the scrambled element itself (as would be the case in theory B1), but is rather made dependent on the focalization properties of the selecting predicate. This is illustrated by the following well-known minimal pair, drawn from De Hoop (1992):

\[\begin{align*}
&\text{(33)} & &\text{...omdat Jan een kati altijd ti heeff} & &\text{because Jan a cat always has} \\
&\text{(34)} & &\text{...omdat Jan een kati altijd ti lieheef} & &\text{because Jan a cat always loves}
\end{align*}\]

The ungrammaticality of (33) receives a straightforward explanation under the reasonable assumption that the light verb status of hebben ('have') prevents this verb from being marked as focused, to the effect that scrambling has no trigger in (33). That is, the application of scrambling in (33) would provide a structure in which the focal stress would be incorrectly assigned to the verb, counting as the most deeply embedded constituent. The verb in (34), on the contrary, is easily assigned a (contrastive) focus interpretation, and scrambling is correctly predicted to take place when this is the case.

Despite these attractive conceptual and empirical aspects, the prosodic theory faces in our view quite serious difficulties. First of all, scrambling seems to affect a constituent even in contexts where the purpose of this operation cannot consist in allowing a more embedded constituent to be marked as focused, for the very reason that focus is independently assigned to a higher constituent. This is arguably the case in (35)-(36):

\[\begin{align*}
&\text{(35)} & &\text{Aan wie heb je het boek nooit ti gegeven?} & &\text{To whom have you the book never given} \\
& & &\text{I think that even JAN the girl never kissed has} \\
&\text{(36)} & &\text{Ik denk dat [selfs JAN] t meisje nog nooit ti gekust heeff} & &\text{I think that even JAN the girl never kissed has}
\end{align*}\]

The syntactic focus feature is associated with the interrogative phrase (cf. (35)) and with the subject bearing the focus marker (cf. (36)). These focused elements have been clearly assigned prominent stress by means of the de-accenting strategy. Here, the relevant observation is that scrambling can operate within the de-accented part even though there is no prosodic reason for it to take place. That is, the PF-constraint (31) has already been satisfied by means of the de-accenting strategy, and hence there is no prosodic trigger for DO-scrambling to take place. Nevertheless, scrambling is possible, which suggests that an independent, non-prosodic trigger is involved.

A similar problem is raised by (37b), which as a reply to (37a) has the adjunct carrying the syntactic focus feature.

\[\begin{align*}
&\text{(37)} & &\text{How did the teacher examine Mary?} & &\text{I think that he had the girl taken exam'} \\
& & &\text{Ik denk dat hij 't meisje SCHRIFTELIJK t, getentameerde heeff} & &\text{I think he had the girl written has examined}
\end{align*}\]

Notice that the DO het meisje ('the girl') has been scrambled to a position preceding this focused adjunct. Now, clearly scrambling of the object does not yield an output structure which would associate prominent stress with the adjunct, since the main verb is still the most deeply embedded element and should therefore receive phrasal stress under the NSR. This suggests that prominence is assigned to the adjunct by means of the de-accenting strategy. But if the PF-constraint (31) can be satisfied by de-accenting the material to the left of the adjunct, there is no prosodic trigger any more for scrambling the DO to the left of the adverb. So, here again the well-formedness of (37b) suggests that an independent non-prosodic trigger is operative in the application of scrambling.

The all-focus structure in (38b) also seems to pose a problem for the defocalisation approach.

\[\begin{align*}
&\text{(38)} & &\text{What happened?} & &\text{Someone has the president with a knife attacked}
& & &\text{Iemand heeft de president, met een mes ti nagevallen} & &\text{Someone has attacked the president with a knife'}
\end{align*}\]

Since (38b) is an all-focus sentence, the focus feature is associated with the S-node (i.e. the highest node in the tree). Remember that, under Cinque's reformulation, the NSR simply assigns main promi-
These examples represent an adaptation to scrambling of the evidence that focused pronouns need not correspond to new information (cf. among others Prince (1981)). Clearly, the focused pronoun represents the assertion in (40b) and is therefore assigned narrow focus. This, however, does not prevent the pronoun from receiving a 'familiar' interpretation in (40b), that is, from referring to a well-established individual in the domain of discourse.

The compatibility of scrambling and focalization (which clearly argues against the view that scrambling essentially reduces to a defocalization process) is strongly confirmed by the evidence that certain instances of scrambling correspond in fact to focus-movement. In (41b), for example, conceived of as an answer to (41a), the bracketed constituent clearly receives a focused/contrastive reading. Still, the option of scrambling this constituent is the preferred one, as revealed by the more marginal status of (41c).

Summarizing, the fact that scrambling turns out to be quite compatible with focalization seems to cast strong doubts on theory A's claim that scrambling is necessarily linked to defocalization effects. We rather have a situation in which the grammar distinguishes two types of scrambling: (i) scrambling which relates to the properties of familiarity/specificity on the one hand, and (ii) scrambling induced by the property of focus on the other hand (cf. (40b),(41b)).

If the grammar allows focus movement with definites, as in (40b,41b), we should expect it also to apply to indefinites. As is well-known, scrambling of indefinites is generally associated with a specific reading of the scrambled constituent (Reuland 1988, De Hoop 1992). However, as observed by Zwart (1993), scrambled indefinites do not necessarily have a specific reading. In (42b), for example, the constituent a girl simply receives an existential reading.

(42) a. Who did John kiss yesterday?
   Peter said that Jan a GIRL yesterday kissed has
Zwart concludes from facts such as those in (42) that interpretive effects are merely a function of intonation, and that scrambling seems to be driven by well-established syntactic mechanisms such as case-checking. However, notice that in order to account for the compulsory specific reading of the scrambled indefinite in (43b), he has to resort to the stipulation that indefinite DPs which precede focused material are necessarily specific (Zwart 1993: 316), a condition which actually corresponds to the ‘Principle of Contrastiveness’ introduced in De Hoo (1992):

(43) a. When did John kiss a girl?
     b. Peter *zei dat Jan een meisje, GISTEREN *t gekust heeft.
     Peter said that Jan a girl *YESTERDAY kissed has

If we assume, however, that scrambling in Germanic SOV-languages is ambiguous between two quite distinct syntactic processes (one corresponding to a familiar or specific reading of the scrambled constituent and the other corresponding to a focused reading of the same element), the scrambling phenomenon in (42b) can simply be interpreted as being triggered by the property of contrastive focus. In other words, both (42b) and (43b) have an independent trigger for movement. In (42b), the triggering element is the contrastive focus property, whereas in (43b), the property of specificity is involved.

Obviously, this approach immediately raises important questions concerning the nature of the interpretable feature which is assumed to be relevant for the instances of focus scrambling exemplified in (40b), (41b) and (42b). We have already suggested that a common property of the scrambled constituents in these examples is their contrastive reading. But how is contrastive focus to be defined?

Under one of the possible approaches to Informational Focus, according to which the formal feature encoding Focus is assumed to express the required information about the ‘asserted’ part of a sentence, we might simply claim that contrastiveness is an essential property of Focus tout court (against the traditional distinction between contrastive focus and informational focus which dates back to at least Halliday 1967). Obviously, what is asserted is necessarily contrasted to what is not asserted, and there would be simply no room for a distinct notion of Contrastive Focus (this is essentially the view adopted in Zubizarreta 1994). However, there is a growing consensus in the literature (cf. Kiss 1995 for a detailed survey of the relevant literature) that two notions of Focus should be carefully distinguished: one that the first usually labelled as ‘Operator Focus’ and the

second identified with the traditional notion of ‘Information Focus’. Despite various attempts to reduce one of these two notions to the other, there is convincing evidence that the notion of Focus involved in syntactic displacement should not be confused with the notion of Focus which correlates with the application of the mechanism of unmarked stress assignment. The latter notion tends to correspond with the identification of Focus with the material left in the VP (cf. Vallduví 1992), whilst the former tends to overlap with a quite restrictive notion of ‘Contrastiveness’, according to which Focus correlates either with the feature [+exhaustive] (cf. Szabócsi 1981) or with the feature [+Familiar] (cf. Kiss 1995). Focus as an ‘exhaustiveness operator’ (apparently the correct hypothesis for languages such as Hungarian) correlates with the semantic instruction that the focused constituent expresses the ‘unique’ individual to which the relevant predicate applies (‘exhaustive listing’), quite independently of the presuppositional properties assigned to such a constituent. On the other hand, when Focus seems to involve ‘familiarity’ (as is arguably the case in Romance, see the discussion below), an additional constraint is introduced, to the effect that the domain of quantification to which the Focus Operator applies is restricted to a finite set of objects which are already known to the discourse participants. In this way, the notion of Focus which is arguably relevant for syntactic displacement (under the familiar label ‘Focus Movement’) appears to exhibit a significant link with the notion of ‘familiarity’, an independent trigger for movement according to the main thesis defended in the present contribution. It seems to us that the approach which introduces the notion of ‘familiarity’ in the analysis of Contrastive Focus is able to shed some light on focus-driven scrambling in Germanic, by confirming the essential insight that the interpretable feature corresponding to the context-dependent reading of a quantified constituent is assigned a crucial role in triggering different kinds of syntactic movement. In rather informal terms, what seems to be at stake in the sort of contrastiveness involved in focus-driven scrambling (of both definite and indefinite) is that what is asserted is characterized by an ‘inclusion’ relation in a ‘familiar’ (that is, previously established in the discourse context) set of alternative choices. In other words, the ‘values’ of the set of alternatives have to be egiven in the context of discourse, in the sense assumed to be relevant for the notion of ‘familiarity’.

In the case of contrastively focused indefinites, we might assume that the choice concerns the ‘restrictions’ on the variable x, that is, the different ‘ranges’ over which the variable is assumed to vary.
What is chosen corresponds with one particular restriction out of a set of familiar ‘restrictions’. Consider, for example, the following discourse fragment, in which (44b) is conceived of as an answer to (44a):

(44) a. Wat heb je nog nooit gegeten? Een appel of een per? What have you never eaten? An apple or a pear?

b. Nou, ik heb EEN APPEL, nog nooit ti gegeten Well, I have AN APPLE never eaten

We assume that the familiarity effects proper to structures involving focus-movement can be expressed as in (45). The ‘assertion’ expressed by the focused constituent corresponds to the value of the variable in (45) (in the case of (44b), one apple out of a set of previously introduced apples), but the range of variation of this variable corresponds to a disjunction of familiar ‘ranges’ (“x is an apple or x is a pear”), which are therefore part of the presupposition. Thus, the interpretive effect of the application of focus scrambling to the indefinite noun phrase in (44b) is that it indicates which particular ‘range’ out of the set of given ‘restrictions’ of the variable the speaker has chosen.

(45) I have never eaten x (where x is an apple or x is a pear): choose one restriction of x out of a ‘familiar’ set of possible restrictions of x

In the case of contrastively focused definites, the choice directly concerns the value of the variable x: the application of focus-scrambling to the definite has the interpretive effect of indicating which value has been chosen out of a set of potential familiar values for x (in (46), the choice is between a male and a female individual).

(46) a. Wie heb je nog nooit ontmoet? Marie of Paul? Who have you never met? Marie or Paul?

b. Nou, ik heb HEM, nog nooit ti ontmoet Well, I have HIM never met

(47) I have never met x (where x is Mary or x is Paul): choose one value of x out of a possible set of ‘familiar’ values of x

The idea that the formal feature encoding familiarity is crucially involved in the application of focus scrambling is independently confirmed by the interpretive properties of topicalization in Romance languages (in fact, a well-known instance of focus-movement).

Romance exhibits the alternation between a structure where the focused constituent is left in situ (corresponding to the unscrambled structures in Germanic) and a structure where focus is fronted. Fronted foci necessarily receive a contrastive interpretation (in the restrictive sense discussed above, crucially involving familiarity effects), whereas focused constituents which remain in situ typically do not imply contrastiveness. This is shown by the fact that the Spanish topicalization structure in (48) rather than the in situ structure (49) represents the natural answer to question (50), whereas (49) is the most natural answer to question (51).

(48) LAS NOTICIAS lee Juan todos los dias
    The news reads Juan every day

(49) Juan lee todos los dias LAS NOTICIAS
    Juan reads every day THE NEWS

(50) Qué lee Juan todos los dias? las noticias o el horoscopo?
    ‘What does Juan read every day: the news or the horoscope’

(51) Qué lee Juan todos los dias?
    ‘What does John read every day?’

The conclusion that we would like to draw from the above discussion is that the cases in which the focus feature is realized in a designated functional position and triggers movement, correspond in fact to cases where the set of possible alternatives (represented either by the set of potential ‘ranges’ over which the variable varies or directly by the set of potential values for the variable) consists of given values. In other words, it seems that the semantic instruction expressed by the Focus feature which turns out to be encoded in syntax, triggering displacement to a designated functional position in a variety of languages, crucially confirms the relevance of the interpretable feature encoding ‘familiarity’ for syntactic operations. In fact, we have been led to conclude that the notion of Focus that is relevant for movement operations in syntax (Operator Focus) essentially consists of the merge of the two independent features encoding ‘exhaustiveness’ and ‘familiarity’ (understood in Prince’s 1981 sense, with possible extensions to the definition proposed in Ward and Prince 1991, for which cf. the discussion in fn. 1). In other words, focus-scrambling in Germanic appears to confirm the insight that Operator Focus, in a large variety of languages, does not reduce to the expression of ‘exhaustive listing’, but crucially encodes the choice of a uni-
que element out of a set of ‘familiar’ options (see Kiss 1995). On the other hand, familiarity does not play any role as far as the notion of information Focus is concerned (an essentially PF-constrained notion, cf. Reinhart 1995), confirming that the bipartition between two distinct notions of Focus is ineliminable.

Summarizing, in this section we have proposed that the specific and familiar reading associated with scrambled constituents cannot be interpreted as a side effect of focus assignment procedures. Scrambling, in other words, is not simply a defocalisation strategy (as in Reinhart 1995). We rather propose that interpretable features such as familiarity are encoded syntactically, and trigger the displacement of constituents which are assigned a familiar reading. As proposed above, we assume that checking of an interpretable feature is triggered by the presence of such a feature in a designated functional position, where it is non-interpretable and from which it must be therefore erased. The codification of this kind of semantic instructions in the syntactic representation implies that the computational system exhibits a strong tendency to morphosyntactic pre-encoding of one or more readings out of a set of logically admissible interpretations. Notice that this conclusion is much in the spirit of Stowell and Beghelli’s (1994) decomposition of quantifier raising into a set of checking perations involving distinct quantificational features (interrogative, negative, distributive, etc.), and strongly argues in favor of the ‘active’ role that interpretable formal features play in the syntactic computation (against the view adopted in Hornstein 1995).

On the encoding of Familiarity

The result of our discussion so far is that a focus based approach towards scrambling of definites cannot be empirically and conceptually successful if familiarity is not recognized as an autonomous syntactic feature entering syntactic computations (either directly or as a part of the definition of Operator Focus). As emphasized before, we define familiarity as an ‘interpretable’ formal feature realized on the determiner at the moment it enters the numeration. The semantic instruction provided by this feature is not that the interpretation ‘presuppositional’, corresponding to the requirement that the restrictor set be non-empty (as was the case in Diesing (1992)), but rather that the domain of quantification has to be restricted to familiar objects, yielding a form of context-dependent (and object-dependent) quantification.9

Importantly, strong determiners are only optionally endowed with the ‘interpretable’ feature encoding familiarity when appearing in the numeration which enters the syntactic computation. In this way, what we predict is a bipartition in the class of strong determiners: namely those which are endowed with the quantificational feature encoding familiarity and those which are not. In the previous section, we have suggested that the encoding of the ‘familiarity’ feature in the determiner system allows us to capture the semantic generalization which seems to underlie scrambling of definite DPs, namely the fact that the strong DPs which typically undergo scrambling are those that are interpreted as incomplete definite descriptions, i.e. as descriptions whose conditions of interpretation necessarily require a context-dependent reading.

The difference in interpretation of context dependent strong DPs with respect to context independent ones can be illustrated by comparing the truth conditions of sentences containing the two types of strong DPs. If we follow Chomsky in interpreting (D)efinite(D)escription) as universal quantifiers involving a presupposition of cardinality, the truth conditions for (52a), containing the full definite description the president of Burundi, will essentially be those expressed in (52b). In (53a) we have the incomplete DD the president: it is ‘incomplete’ in the sense that the property corresponding to the common noun is not sufficient to single out a unique object in the real world, contradicting the cardinality requirement instantiated in (52b). However, the cardinality requirement is met if the interpretation is made dependent on the context of utterance, by being relativized to a model in which there is in fact only one president. So, sentence (53a) is felicitous under the condition that there be only one salient president in the discourse context in which (53a) is uttered.

(52) a. John met the president of Burundi
   b. John met every president of Burundi and there exists only one individual which satisfies the property of being ‘president of Burundi’

(53) a. John met the president
   b. John met the president is true iff John met every president and there is one and only one contextually salient president

What we actually want to propose is that the relativization of the
interpretation to the context of utterance is syntactically pre-encoded by means of the familiarity feature. This feature provides a specific semantic instruction at the LF-interface. The relevant reading/interpretation of the strong DP is provided after the interpretable familiarity feature has been checked in a designated functional position (due to the independent interface requirement that unifiability feature be erased from this functional position, where it is on-interpretable). The interpretive result of this morphosyntactic strategy will consist in the context dependent reading of the determiner, roughly corresponding to some form of object-dependent interpretation according to which the quantified variable ines over a set of previously established entities (cf. Delfitto 1995). If the strong determiner enters the computation devoid of the familiarity feature, it will not receive a context-dependent interpretation, even though it is obviously allowed to retain the 'presuppositional' meaning associated with the notion of 'presupposition of existence', which is assumed to correlate, in Diesing (1992), with the syntactic process of 'restrictive clause formation'. As emphasized above, one of the main claims of this contribution is that a fundamental distinction should be introduced between the notion of presupposition of existence and the notion 'familiarity'. We intend to show that familiarity (and only familiarity) is syntactically encoded by means of an interpretable formal feature realized in the determiner position.

If a distinction exists between definite determiners carrying the miliarity feature and those which are not specified for it, we expect to see languages in which the definite determiner may have a different morpholexical realization depending on the familiar or unfamiliar interpretation of the definite constituent. This prediction actually borne out: the determiner system of Fering (Ebert 1970), for example, makes a distinction between the 'presuppositional' definite article α and the 'context-dependent' article di. The latter is used contexts where the referent of the definite DP is naturally assigned a familiar interpretation.

10 a. A hunj hes twurk
   The dog (the speaker's dog) has toothache
b. Oke hes α fut breeg
   Oke has the foot broken ("Oke broke his foot")
   A* Đon domst buñen ha a* đon grast eerdapler
   The most stupid farmers have the biggest potatoes

(55) a. Peetje hee jister an kû slachtet. Jo saai, det kû wiar ai sün.
   Peetje has yesterday a cow slaughtered. One says, the cow was not healthy
b. Nû maagi dach uns di döör tacht!
   Now close please the door PRT!
   'Please close the door!

A closely related kind of empirical evidence is arguably provided by the so-called 'double definiteness effects' in Scandinavian, which have been traditionally analysed by resorting to the distinction between 'deictic' and 'anaphoric' reference. It can be shown that the former notion can be arguably clarified in terms of 'presupposition of existence', whilst the latter is clearly related to familiarity (see Kester 1996 for an analysis of double-definiteness along these lines). Due to space limitations, we will not pursue these matters here, being content with having indicated an empirical domain which is certainly relevant for the general hypothesis put forward in this contribution.

6. Familiarity and scrambling as operator movement

So far, we have defended the position that scrambling of strong DPs is triggered by familiarity, conceived of as the interpretable feature that encodes quantification over a domain of familiar (i.e. pre-established) objects. This obviously implies that (accusative) case is not the feature triggering application of scrambling and that scrambling is not an instance of A-movement (i.e. movement to a L-related position). We would like to assume, in fact, that scrambling of a strong DP involves movement of a constituent carrying the familiarity feature to an operator (i.e. A*/non-L-related) position (which we want to identify with the specifier of the functional projection encoding familiarity), where the familiarity feature is checked and consequently erased from a position in which it is non-interpretable. This analysis of scrambling as an A'-movement operation triggered by the checking requirement on the interpretable feature encoding familiarity raises the question as to how to account for some well-known scrambling properties which suggest an A'-movement analysis of scrambling, e.g. absence of weak crossover effects, absence of reconstruction effects, etc. In this section, we will reconsider some of the properties associated with scrambling and show that these properties follow straightforwardly from an A'-movement analysis under the
additional assumption that familiarity is crucially involved. Obviously, we should emphasize that a complete coverage of the many insights and observations in the research domain of scrambling is far beyond the scope of the present contribution.

6.1. Scrambling of XP

A strong argument in support of scrambling as an A′-movement process is the fact that scrambling does not only take noun phrases as its input, but also constituents of a different categorial type, whose movement is generally assumed not to be triggered for reasons of case licensing (cf. Webelhuth 1989, Vikner 1994). The relevant property underlying scrambling (of definites) seems to be the familiar reading of the scrambled element. Consider, for example, the following discourse contexts in which the utterance by speaker B contains a scrambled “pro-lexical”, which functions grammatically as a complement to the verb and is clearly assigned a familiar interpretation.

(56) A: Ken jij Jan Pietersen?  
Know you Jan Pietersen
B: Ik geloof dat ik die vroeger op een feestje kort -- gesproken heb  
I believe that I that (=him) formerly at a party briefly -- spoken to have

(57) A: Ben jij wel eens in New York geweest?  
Have you once in New York been
B: Jazeker. Ik heb daar vroeger enige tijd -- gewoond  
Yes. I have there formerly some time -- lived

(58) A: Mijn lezing is om 12.00 uur  
My talk is at 12.00 hours
B: Niet waar! Jouw lezing kan dan nooit -- zijn. 12.00 uur is lunchtijd.  
Not true! Your talk can then never -- be. 12.00 hours is lunchtime.

(59) A: Ben jij vroeger weleens jaloers op Kees geweest?  
Have you formerly once jealous of Kees been
B: Wie van ons is dat, vroeger eigenlijk niet -- geweest?  
Who of us has that formerly in fact not -- been

(60) A: Wat is Jan arrogant!  
What is Jan arrogant!
B: 'How arrogant Jan is!

B: Ik hoop dat ik zo nooit -- word  
I hope that I so never -- become

These examples show that various types of ‘familiar’ pro-lexical complements undergo scrambling quite naturally. In (56), the demonstrative pronoun is referentially linked to the noun phrase Jan Pietersen. In (57), the demonstrative locative complement daar, which is anaphorically related to in New York, has undergone scrambling. Daar refers to a location which is familiar from the discourse context. In (58), a temporal demonstrative has been scrambled to a position preceding the adjunct nooit. The temporal demonstrative refers to a point on the time axis which has already been introduced in the discourse. In (59) and (60), the demonstrative pronouns dat (‘that’) and zo (‘so’) refer to a property already mentioned in the utterance produced by speaker A. In other words, the property has already been evoked in the discourse and counts therefore as familiar.

The cross-categorial relevance of familiarity for scrambling is also exemplified by the following minimal pair:

(61) *Ik geloof dat hij [erg hoog] nog nooit tje geweest is  
I believe that he very high yet never -- been has

(62) A: Jan heeft een berg beklimmen van 5000 meter hoogte  
Jan has a mountain climbed of 5000 meter height
B: Echt? Ik geloof dat hij zo hoog, nog nooit tje geweest is  
Really? I believe that he that high yet never -- been has

These examples show that scrambling of adjectival predicates is only allowed if the adjective phrase denotes a property (i.e. a degree of highness) which is familiar from the discourse context. In (62B), the adjective phrase contains the degree word zo, which is anaphorically linked to the measure phrase expressed in the utterance of speaker A. Being (Discourse)-linked, the adjective phrase is able to undergo scrambling. In (61), on the other hand, the property denoted by the adjective phrase is in no way familiar from the preceding context. Consequently, scrambling is impossible.

As has been observed in the literature (cf. Webelhuth 1988, Vikner 1994), scrambling of PPs is also allowed in languages like Dutch and German.
Although split topicalization (cf. van Riemsdijk 1989) is permitted (cf. (64)), split scrambling is impossible in (65). In other words, scrambling lacks a property which is found with topicalization, a typical A′-movement process. This asymmetry is only apparent, though. Closer examination of the data shows that split scrambling is permitted in exactly those cases in which the moved part (i.e. NP) represents D(iscourse)-linked information. Consider, for example, the following structures:

(66) A:  Heeft Hans veel boeken over taalkunde?
     Has Hans many books about linguistics?
B:  Nee, Hans heeft die, eigenlijk nooit [veel t₁] gehad
     No, Hans has those in-fact never [many --] had
     ‘Hans has never owned many of those’

(67) Platen van Elvis, ik denk dat hij die, morgen [geen t₁] zal krijgen
     Records of Elvis, I think that he those tomorrow [no --] will get

In these examples, the demonstrative pronoun die refers to an entity which is familiar from the discourse context (namely, boeken over taalkunde in (66) and platen van Elvis in (67)). The demonstrative element die, which carries the familiarity feature, is able to undergo split scrambling, leaving behind the quantifier.

6.3. Scrambling and Weak crossover

A central phenomenon in the discussions on scrambling is the weak crossover effect (WCO). This effect is illustrated in (68a), which contrasts with (68b):

(68) a. (??) *Peter zei dat Jan [tijdens haar, verblijf] [iedere studente₁] verleid had
     Peter said that Jan during her stay every female student seduced had
b.  Peter zei dat [iedere studente₁] tijdens haar, verblijf Jan
     Peter said that every (female) student during her stay
     Jan seduced had

This contrast is intended to illustrate the well-known hypothesis according to which syntactic binding is a necessary condition in order for a pronoun to be interpreted as a bound variable (cf. especially Reinhart 1995). In the ill-formed (68a), the pronoun haar is not c-
ommanded by the quantified DO-noun phrase and hence cannot be interpreted as being bound by the quantifier. If (68b), on the other hand, the quantified noun phrase occupies the subject position and commands the pronoun, yielding a bound interpretation of the latter.

As has been observed in the literature (Vanden Wyngaard 1988, Jakab 1990), scrambling of a noun phrase does not give rise to any WCO-effect. It rather overrides such an effect. This is illustrated in (39), the scrambled counterpart of (68a).

Peter zei dat Jan [iedere studente], [tijdens haar,] verblind had. Peter said that Jan every student during her stay seduced had

Absence of a WCO-violation in scrambled structures is often viewed as an argument in favor of scrambling as A-movement (cf. Vanden Wyngaard 1988). In fact, it is well-known that movement of a b-phrase (to an operator position) from an argument position from which it does not c-command the pronoun produces typical WCO-violations, which have been traditionally accounted for by assuming that the pronoun must be A-bound, a property tentatively captured by such conditions as Koopman & Sportiche’s ‘Bijector Principle’ and a firm’s ‘Parallelism Condition on Operator Binding’. We contend that the absence of WCO-violations does not necessarily represent an argument for viewing scrambling as an instance of A-movement if the fact that scrambling involves movement of (Discourse)-linked operators is fully recognized. At this point, it is interesting to observe that the effect of scrambling is exactly paralleled by the effect of clitic doubling in a language like Spanish: the absence of a WCO effect in (69) corresponds to the absence of a WCO effect in the Spanish variants involving a doubling clitic:

1) a. Su madre castigó a cada niño. (Zubizarreta 1994)
   His mother punished each child
b. Su madre lo castigó a cada niño.
   His mother punished each child

2) a. [A quienes], no dejó su madre ningún dinero $t$. (Suñer 1988)
   To whom not left their mother any money
b. [A quienes], no les dejó su madre ningún dinero $t$.
   To whom not to them left their mother any money

The contrast between b-examples in (70) through (71) on the one hand and the a-examples in (70) through (71) on the other hand can be reduced to the D-linked versus non-D-linked nature of the operator. In Spanish, the familiar interpretation of the direct object is encoded by clitic doubling, whereas in Dutch it is encoded by scrambling.

Let us now try to provide an answer to the question as to why a WCO-effect is absent in the scrambled structure in (69) but present in (68a). Or to put it differently, why does (68a) not allow a bound variable reading and why is such a reading allowed in (69)? We will argue that the presence of a WCO-effect (i.e. absence of the bound variable reading) is dependent on the feature specification of the antecedent-DP which is coindexed with the pronoun.

Consider first a standard WCO-effect, as in the following discourse context:

(72) A: Wie heb je in zijn tuin ontmoet?
    Who have you in his garden met
B: *Ik heb in zijn tuin elke buurman ontmoet
    I have in his garden EACH NEIGHBOUR met

This example shows that WCO-effects typically arise when the antecedent-DP is a focused operator. In (72), the narrow focus question requires an answer with focus (and nuclear accent) on the quantified DO elke buurman.

If we interpret, along standard lines, Informational Focus as entailing the partition of the sentence into an asserted part and a presupposed part, we might propose that the focus representation of (72B) is something like (73), with the variable bound by the lambda operator standing for the constituent in focus. This constituent corresponds to the universal quantifier each neighbour in (72B). As a consequence, the variable quantified in will be part of the assertion; furthermore, it is bound by a non-D-linked operator, since we are considering the interpretation according to which (72B) is an answer to (72A).

(73) $\lambda x$ (I have met x in his garden)

(74) *(for each x: x neighbour) (I have met x in the garden of x)

The general idea would be thus that pronouns cannot depend on variables which are neither ‘presupposed’ (in the sense of belonging to the presupposed part of the sentence) nor familiar (in the sense of ranging over a set of pre-established entities). In other words, WCO-
effects are triggered only if the quantified-DP which semantically
finds the pronoun is specified as [+focussed] and [-familiar].

An immediate confirmation of this hypothesis comes from the
analysis of the contrastive pair in (75) from English and from the
Dutch example in (76):

75) a. His wife will accompany each Ajax player.
    b. Even his wife accompanied each Ajax player.

76) Zijn docent geschiedenis zou elke student [meer kennis
    van de Tweede Wereldoorlog] moeten bijbrengen.

His history teacher should teach each student more
knowledge about World War II.

In (75a), the bound variable reading is impossible for the same
reason as in the Dutch example (72b): a pronoun cannot be referentially
dependent on a variable which is specified as [+Focus] (in that it
belongs to the non-presupposed part of the sentence) and [-familiar] (in
hat it does not range over a pre-established set of entities). Sentence
75b contrasts in well-formedness with (75a) due to the fact that a con-
tituent distinct from the quantifier "each Ajax player" is assigned
narrow focus (viz. his wife). As a consequence, the quantified noun phrase
will be necessarily part of the presupposition, by being marked as non-
ocussed, quite independently of its familiarity specification. This
cclusion is confirmed by the well-formedness of the Dutch example (76),
where the fact that the quantified DP is marked as non-focussed hence,
as belonging to the non-presupposed part of the sentence) is
apparently sufficient to void a potential WCO-violation.

On the other hand, it seems that the specification of the quanti-
d DP as [+familiar] is sufficient to circumvent WCO-violations inde-
pendently of whether the DP belongs to the asserted or to the
resupposed part of the sentence, by being marked as [+focus] or as
[-focus], respectively). This hypothesis is corroborated by the follow-
ing examples:

77) The newsman who criticized him later belted WHAT official
    (Postal 1992)

78) a. Who do you think [that the woman who loves him] betrayed
    b. Which spy do you think that the woman who loves him betrayed

In the echo-question in (77), we have a wh-phrase ‘in situ’ which
is focused and ‘familiar’ (echo questions elicit confirmation of a refe-
rent which is supposed to have been established in previous discus-
sion). The well-formedness of this example suggests that the presence
of the familiarity specification on the quantified DP is sufficient to
void potential WCO-effects. This outcome is quite compatible with
the weakest crossover effects discussed in Lasnik & Stowell 1987.
The instances of ‘tough movement’ and the ‘cleft constructions’
discussed by these authors typically involve ‘referential’ controlling
DPs, which may be easily interpreted as constraining the range of
quantification of the implicit operators to a set (possibly a singleton)
of pre-established values. Even more significantly, as exemplified by
the minimal pair in (78), weak crossover effects are absent in the
cases where the moved WH-operator (which spy) can be assumed to
range over a set of pre-established entities (cf. Pesetsky 1987), whilst
they are clearly detected in structures involving bare wh-phrases (as
in 78a), which do not imply any presupposition of familiarity concern-
ing the domain of quantification (especially when phrases such as
‘the hell’ or ‘on earth’ are added).

Finally, the absence of WCO-effects is particularly instructive in
the case of (contrastive) focus scrambling, which we have analysed
earlier as involving both focus and familiarity. Consider, for example,
the following discourse context:

(79) A: Heeft Jan nog nooit zijn moeder gebeld?
     Has Jan never his mother called
    B: Nee, zijn moeder heeft HEM, nog nooit tij, gebeld
     No, his mother has him never called

Even though the pronoun zijn in the reply of speaker B is coin-
xed with a pronominal DP marked as [+focused], no WCO-effect or strictly
related backward anaphora violation is detected. We want to assume, in
full accordance with the analysis put forward above, that the ‘familiar’
status of the pronoun HEM is sufficient to override a WCO-violation.

Suppose the above observations concerning the presence versus
absence of WCO effects lead us to the conclusion that the latter are
generally voided if the pronoun is referentially dependent on either a
variable that is contained in the presupposition or on a variable
which ranges over a set of familiar objects. The final question would
then be: Why should this be the case?

The question admits a straightforward answer if we assume that
the bound variable reading can be achieved in two distinct ways:
When 'syntactic' binding holds (that is, the pronoun is coindexed with a c-commanding operator), the bound variable reading obtains by simply rewriting the pronoun as a variable;

(a) a pronoun can be referentially dependent on a non c-commanding variable, under the usual feature-matching constraints which are relevant for coreference. Since pronouns are inherently familiar (i.e. they obligatorily refer to pre-established entities), we are led to assume that pronouns are not allowed to depend on variables that range over 'unfamiliar' entities (that is, entities which have not been previously established within the domain of discourse), being syntactically marked as [-familiar]. Conversely, the variable reading is correctly predicted to be available when the pronoun depends on antecedents referring to familiar values, as is the case when the operator is specified as [+familiar]. In this way, a quite interesting connection is established between the 'referential' and the bound reading of pronouns, in that both of them crucially involve familiarity, if we abstract away from the case where syntactic binding holds. As a more general theoretical conclusion, this seems to confirm that the availability of the bound variable reading fairly exceeds the configurations where syntactic binding holds (cf. Delfitto 1990 for further discussion of this point).

Finally, it is worth noticing that the disjunctive formulation resorted to above, according to which WCO-violations are voided if the pronoun antecedent is either [-focused] or [+familiar], is not likely to raise any deep conceptual issue. As the analysis of Operator Focus adopted in the preceding sections has pointed out, Focus and Familiarity are in fact related notions, and are likely to interact within the feature system proper to natural language.

6.4. Scrambling and reconstruction

Another property of scrambling is that it does not allow reconstruction. That is, a scrambled element cannot be interpreted as if it were in the position of its trace. Scrambling rather creates or destroys binding possibilities, which suggests that scrambling involves A-movement. Consider, for example, the following data from Dutch ((80) is taken from Vanden Wyngaer 1988):

(80) a. *Piet heeft [met elkaar] hamer die mensen vermoord
b. Piet heeft die mensen [met elkaar] hamer -- vermoord

(81) a. ...omdat ik [tijdens Jans, feestje] de etter, uitlachte
   ...because I during Jans party the jerk laughed-at
b. *...omdat ik de etter, [tijdens Jans, feestje] -- uitlachte

(80b) shows that scrambling creates binding possibilities: after scrambling the direct object die mensen, this noun phrase can act as a binder for the reciprocal elkaar. (81b) shows that scrambling can also destroy binding possibilities: scrambling the epithet de etter to a position from which it c-commands Jans destroys the coreferential reading between the two noun phrases.

The above facts appear to be problematic for an account of scrambling involving operator movement (i.e. movement of the A-type). In general, A-movement patterns are assumed to exhibit the reconstruction property. This is exemplified in (82):
The relevance of the property of focus for reconstruction also holds for Dutch. Consider the following examples:

(85) A: Wie heeft hij naar kostschool gestuurd?
Who has he to boarding-school sent
B: *[Jans, zoon] heeft hij, t,j naar kostschool gestuurd?
Jan's son has he to boarding-school sent

(86) A: Wie heeft Jan naar school gestuurd, zijn zoon of zijn dochter?
Who has Jan to school sent, his son or his daughter
B: *[De ZOON van Jan,] heeft hij, naar kostschool gestuurd
The son of Jan has he to boarding-school sent

(87) a. *[Jans, JONGSTE zoon] gelooft ik dat hij, t,j naar kost school stuurt
Jan's youngest son believe I that he to boarding-school sends

b. *Ik geloof dat hij, [Jans, JONGSTE zoon] naar kost school stuurt
I believe that he Jan's youngest son to boarding school sends

The focused direct object is the focused constituent, which has to be reconstructed. After reconstruction, the pronoun he c-commands the name Jans, yielding a principle C violation. In (86), the question asked by speaker A defines a contrastive focus context, whereby the 'presupposed' set consists of two members, the son and the daughter. In the reply by speaker B, focus is assigned to the noun zoon. The noun phrase Jan is presupposed and is therefore not reconstructed. Consequently, no reconstruction applies, voiding a principle C violation. Something similar is found in (87), where the adjective jongste is assigned narrow focus. The possessor noun phrase Jans is presupposed and is therefore not interpreted in a reconstructed position. Again, the presuppositional value of the possessor noun phrase blocks reconstruction; this way, the absence of a principle C violation is accounted for. As illustrated by (87b), principle C is actually violated when the object noun phrase containing the focused adjective occupies its base position.

Although the properties of reconstruction would obviously deserve more elaborate study, it seems fair to conclude that absence of reconstruction does not necessarily imply that a reordering process is of the A-movement type. We have seen that reconstruction is not

(85B) is an answer to the narrow focus question (85A). The fronted direct object is the focused constituent, which has to be reconstructed. After reconstruction, the pronoun he c-commands the name Jans, yielding a principle C violation. In (84), the question asked by speaker A defines a contrastive focus context, whereby the 'presupposed' set consists of two members, the son and the daughter. In the reply by speaker B, focus is assigned to the noun zoon. The noun phrase Jan is presupposed and is therefore not reconstructed. Consequently, no reconstruction applies, voiding a principle C violation. Something similar is found in (87), where the adjective jongste is assigned narrow focus. The possessor noun phrase Jans is presupposed and is therefore not interpreted in a reconstructed position. Again, the presuppositional value of the possessor noun phrase blocks reconstruction; this way, the absence of a principle C violation is accounted for. As illustrated by (87b), principle C is actually violated when the object noun phrase containing the focused adjective occupies its base position.

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Feature primitives and the syntax of specificity

Notes

* Parts of this paper were presented at the 18th GLOW conference (June 1995, Tromsø). We would like to thank the audience of GLOW and two reviewers of ‘Rivista di Linguistica’ for their helpful remarks and comments.

1 One of the issues that emerge concerns the proper characterization of the feature ‘familiarity’. In the text, we qualify ‘familiarity’ as an interpretable feature, that is, as a morphosyntactically encoded item that corresponds to a semantic instruction at the interpretive interface. In a previous version of this article, we used the term ‘quantificational’ to characterize familiarity. One of the reviewers objected that this term is highly misleading, since it might suggest that familiarity represents an essential ingredient for a certain NP to be defined quantificationally. We agree on the ambiguity of the term, avoiding to use it unless further qualifications are added. However, the issue raised by the reviewer deserves some discussion. First of all, it is true that there are influential theories (such as DRT) which maintain that (indefinite) DPs don’t have to be treated quantificationally. Since it is precisely these DPs that are familiar according to our analysis, it might be mistaken to view familiarity as a quantificational feature. However, it should be emphasized that we interpret familiarity as strictly limited to definite DPs. As such, it should not be confused with the notion specificity, as widely argued in the course of the paper. If we try to determine what familiar DPs (such as the book, every book or it) have in common, we might conclude that it is their ability to refer to a class of antecedents that have been explicitly introduced or are physically salient in the context of utterance. In this sense, the notion presents a clear resemblance with the notion ‘giveness’, as defined in Prince 1981, and crucially excludes ‘inferred antecedents’, as confirmed by our discussion of civic-doubling in Modern Greek. It is therefore tempting to regard familiarity as a feature affecting the interpretation of strong determiners, in the sense that it would encode a context-dependent reading of these determiners, roughly corresponding to some form of ‘substitutitional’ interpretation according to which the quantified variable ranges over a set of previously established, or ‘familiar’, entities (cf. Delfitto 1995). This clearly entails that we would favour the quantificational treatment of definite DPs, which has been recently revived in the framework of dynamic semantics (cf. especially Chierchia 1996 for an enlightening analysis of definite determiners in terms of ‘maximal cardinality’). It is important, in this respect, that not only ‘incomplete descriptions’ such as pronouns and definite DPs, but also strong DPs such as every book can be assigned a familiar interpretation. We contend, for example, that sentences such as Every book will be sold in two days involve context-dependent quantification (intuitively, the variable quantified over by every range over a set of contextually restricted books). Of course, this does not necessarily entail that the contextually relevant set of books has been explicitly introduced in the context of utterance (cf. the notion of ‘accommodation’ in DRT). The sentence under scrutiny might be felicitously uttered, for instance, after the sentence John wants to get rid of his bookshop. In other words, the contextual restriction of the domain of quantification that characterizes familiarity may also originate from certain forms of relations with entities which have already been evoked in the discourse model. This is quite similar to what has been proposed for the felicity conditions on topicalization on the grounds of the examination of a large variety of corpora (cf. Ward and Prince 1991: 173): “The entity represented by the preposed constituent must be related, via a partially ordered set relation, to one or more entities already evoked in the discourse model”, whereby partially ordered sets are defined as partial orderings Rs which

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are either reflexive, transitive and antisymmetric or irreflexive, transitive and asymmetric. Informally, the case of strong DPs seems to indicate that 'familiarity' allows identification with previously evoked antecedents and tolerates 'non-shared' antecedents only in a quite constrained and principled way (for example, the relation 'is-part-of', as in the case of book-bookshop, would be tolerated, whereas the relation 'is-author-of' would be inadmissible, as made clear by our discussion of Greek dit-on-climbing. Given the proposed limitation to strong DPs, we might regard as the 'neighbour' or the 'postman' (cf. the discussion about (22)) is that they are easily interpreted as functions from implicit variables whose value is contextually supplied. In a sense, they are more 'deictic' than descriptions as 'the man', getting interpreted, by means of various deictic means, as complete descriptions (for a detailed discussion on these and related matters, see especially Chierchia 1995). We put aside here the serious empirical issues which arise when one tries to characterize the notion 'referential indefiniteness' in formal terms. As is well-known the name-like properties of referential indefinites have been challenged by the observation that they seem to exhibit not only maximal scope (as proper names do) but also intermediate scope (a property of quantificational phrases). For a detailed discussion of this topic, see especially Rey 1992 (and the references cited there). See also Reinhart 1996 for an interesting treatment of indefinites in terms of choice functions. On the basis of (i), one of the reviewers objects to the idea that a pronoun can be used when its referent is familiar. In (ii), for example, use of the pronoun it is felicitous in spite of the fact that it is clear that we are talking about the missing ninth ball. What is important, however, is that although the presence of a ninth ball has not been textually or physically activated yet. Thus, 'familiarity' essentially applies to items that have already been introduced in the discourse (see (ii), where the elided phrase one textual introduces the antecedent) or that are physically salient (see (iii), where it refers to the punctured ball in front of the referee and the two soccer-players). 

(i) Eight of the nine balls are in the bag. "It is under the table"

(ii) One of the nine balls is in the bag. "It is missing. It is under the table"

(iii) A refere (and two soccer-players at the beginning of a match, who stand in front of the ball). "Look, it's punctured"

In terms of the terminology introduced in Prince (1981), we want to assume that pronouns generally refer to old, that is, given, referents and not to inferred constituents (cf. also fn. 1). In Prince's words, "for an NP to qualify as given, its referent must have been explicitly introduced in the discourse or be present in the physical context or be categorized in the same way as a referent previously introduced or physically salient (Prince 1981: 229). Given the identification we propose cited above, the notion 'familiarity' with Prince's notion 'old' given', the fact that inferentially related items are not easy to pronominalize is easily accounted for, in that they simply do not count as 'familiar' items. There are of course some well-known exceptions to this generalization, as Prince's example in (iv).

(iv) Pick two numbers, add six to the first number, and then multiply it by the second number.

For an analysis of scrambling as an instantiation of feature driven movement, see Cucchetto (to appear).

In what follows we will concentrate on the role played by the familiarity feature in scrambling of indefinites. We eschew discussion of how specificity is encoded in structures featuring scrambled indefinites and confine ourselves to saying that
scrambling of indefinites can presumably be handled by means of the same feature-based approach. Such an approach should address the question how the various meaning aspects that fall under 'specificity of indefinites' (viz. (a) specificity as partitivity (cf. Section 3.6), (b) specificity as rigidity designation (cf. Section 1.6), and (c) specificity as genericity) are encoded morphosyntactically. As for the first meaning (specificity as partitivity), we tentatively propose that the triggering feature is familiarity, and that this interpretable property is associated with an elided partitive phrase, which defines the (given) set to which the referent of the indefinite noun phrase belongs. Thus, in example (i), scrambling of the indefinite noun phrase would be interpreted as an instance of pied-piping: the formal feature that is attracted is the familiarity feature associated with the elided definite DP (which for the sake of convenience we have added in brackets). See Jesch et al. (to appear) for a discussion of specificity as a feature triggering scrambling.

(i) Marie had twee jongens (van de jongens) nog nooit gezoed
Marie had two boys (of the boys) thus far never kissed

As regards the locus of the functional projection encoding familiarity (labelled here as FP) within the clausal domain, we take the position that it is located in between TP and VP (under the assumptions that VP-adverbs are adjoined to VP and that AGR-projections do not exist). Thus, the hierarchical ordering in the clause is as follows: CP-TP-FP-VP. In line with this hierarchical ordering of the projections, the scrambled element will follow the subject in Spec,TP (but see fn. 2) and precede adverbial elements that are adjoined to VP. If the clause contains a NegP-projection, the scrambled element will precede the negation (niet, 'not') occupying Spec,NegP (cf. Haegeman 1995): CP-TP-FP-NegP-VP. As shown by the examples in (ii) and (iii), the direct object, carrying the familiarity feature, cannot remain in its base position. That is, scrambling of the familiar direct object places place obligatorily. In (ii), a hanging topic left dislocation structure, the pathet de etter, which is coreferential with the hanging topic Jan, must occur in the scrambled position. The same holds for the familiar DP de president in the utterance of speaker B in the discourse fragment in (ii):

(ii) a. Jan, ik ben de etter gelukkig nooit meer tegeengenomen
Jan, I have never been happy again met
b. 'Jan, ik ben gelukkig nooit meer de etter tegeengenomen
'Jan, I have never been happy again met

(iii) a. Ken jij Clinton? Do you know Clinton?
B: Vrij goed. Ik heb gisteren overigens z'n vrouw geïnterviewd
Quite well. I have yesterday by-the-way his wife interviewed
b. Gaf Bill toestemming voor een interview met Hillary?
B: Natuurlijk! Ik heb z'n vrouw gisteren twee uur lang geïnterviewd
Of course! I have his wife yesterday two hours long interviewed

As pointed out by some of the reviewers, German, as opposed to Dutch, permits scrambled elements not only in a post-subject position but also in a pre-subject position. This may lead one to conclude that in German, the PP-projection, encoding family, is freely ordered with respect to TP: i.e. CP-TP-FP-VP. However, before jumping to this conclusion careful and detailed study of the structural environments in which scrambling to a pre-subject position occurs is needed. It seems that scrambling of the familiar definite DP den Schurken to a pre-subject position (as in B’) is much better than scrambling to a pre-subject position (as in B):

(i) A. Was ist passiert mit Fritz?
‘What has happened with Fritz?’
B: Ich glaube dass der Direktor der Firma den Schurken gestern entlassen hat
I believe that the director of the company (NOM) the scoundrel (ACC) yesterday fired has
B’: Ich glaube den Schurken der Direktor der Firma gestern entlassen hat.
I believe that the scoundrel (ACC) the director of the company (NOM) yesterday fired has

As pointed out by Henk van Riemsdijk (p.c.), scrambling of the familiar object to a pre-subject position becomes felicitous when the subject is accompanied by a focus particle (and hence narrowly focused):

(ii) a. Wer hat denn eigentlich die Befugnis jemandem wie den Fritz zu entlassen?
Who has then in fact the authority someone like Fritz to fire
b. Ich glaube dass den Fritz der Direktor entlassen kann
I believe that Fritz (ACC) the director (NOM) can fire

Thus, the discourse-status of the subject seems to be an important factor in the placement of scrambled objects in pre-subject position. As a matter of fact, rather than concluding that the functional projection FP, which encodes familiarity, optionally occurs higher or lower than TP, one might put forward the hypothesis that FP has a fixed position (viz. dominated by TP: i.e. CP-TP-FP-VP) and that instances of object scrambling to a pre-subject position should be analysed as structures in which the subject has not raised to Spec,TP. e.g. because of focus. Obviously, this complex issue needs more elaborate study both at the empirical and theoretical level.

Although scrambling affects both DP- and non-DP constituents, we should point out that there are certain differences between these two kinds of scrambling. For example, whereas familiar DPs obligatorily undergo leftward movement, for example, whereas familiar DPs obligatorily undergo leftward movement (e.g. they must occur to the left of the negation niet (see fn. 11)), this does not seem to be true for PPs and APs. The structures in (62a) and (63), for instance, are also acceptable with the familiar constituent in its base position. We will leave these matters for future research.

11 It is often tentatively suggested that reconstruction is barred with A-move-
ment (witness *He seems to be John, to be intelligent) whereas it can be forced to apply with A'-movement (witness *Whose, mother does he, like?). A reviewer correctly observes that the grammaticality of structures such as (i) should be interpreted as evidence that reconstruction is not barred with A'-moved phrases that are pre-suppositional.
Introduction

The study of phonetic processing in Spanish differs from that in English in several ways. One of these differences lies in the structure of the phonetic system itself. In English, the phonetic inventory is relatively small and consists of a limited number of phonemes that are used to form words. In Spanish, however, the phonetic inventory is much larger and includes a wider range of sounds. This difference in phonetic structure has implications for the way in which languages are processed at the level of phonological representation.

In the course of historical phonetic evolution, the open mid-

pronounation

Spanish phonology as a non-derivational

David Defino & Robert Cooper

Werner, J. (1999). Dutch, French, P'di, dissonance. University of


Weinreich, O. (1968).做到是 of a phonological rule, MIT


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