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Abstract: In this paper I claim that, if Minimalist Premises about derivations are accepted, Logical Form as an interface level where syntactic (albeit covert) operations are performed should not be part of the model. I propose an analysis of Quantifier Raising and covert Wh-movement phenomena that relies solely on features of the functional category Quantifier and on overt operations of Merging and Checking. The notions of c-command and scope are rejected as explanations for the ambiguities of sentences containing quantifiers. Consequently, covert movement of Quantifier Phrases is not only unnecessary, but logically untenable.

0. Introduction. Ambiguities are a fact of language. It is often the case that the same string of words can have multiple meanings. The following sentences are all ambiguous. However, the nature of their ambiguity is considered different. Accordingly, the mechanisms invoked to explain their diverse interpretations varies from one to the other.

(1) a. There is a bat over there
b. She cannot bear children

(2) a. The spy saw the cop with the binoculars
b. Flying planes can be dangerous

(3) The statues were buried

(4) a. Every man loves a woman
b. Every spy suspects some Russian
c. I will force you to marry no one
d. No Russian is a spy

(5) My brother read a book yesterday

[1] I am indebted to the participants at the Syntax Salon at the University of Arizona. In particular, I cannot be thankful enough to Eloise Jelinek for instructing me on the issues I did not know about that were relevant for this research. Also, Rudy Troike, Antxon Olarrea, Andrew Carnie, Andrew Barss, Terry Langendoen, and the other participants gave me insightful comments. I thank Tom Bever, because it was in response to a question by him that I come up with these arguments.

Most researchers agree that the ambiguities in (1) are of a lexical nature. These sentences contain words (*bat, bear*) that are ambiguous. However, the rest of the examples above do not include lexically ambiguous words. Their ambiguities are accounted for through syntactic mechanisms. Few syntacticians would disagree that the ambiguities in (2) are due to the fact that there are two different syntactic derivations for the same surface string of words. The difference lies in the phrase structure of the two derivations (*with the binoculars* can attach to *police* or to *saw*, for instance). The ambiguity in (3) is attributed to the contrast in syntactic category of the past participle (if it is a verb, the sentence refers to an action. If it is an adjective, it refers to the state *the statues* were in). As for (4), the ambiguity is explained in terms of scope between several quantifiers or between a quantifier and a modal verb. This ambiguity is dealt with at the level of Logical Form, through the operation called Quantifier Raising (QR). Finally, (5) is ambiguous regarding its action type: it could mean that *my brother* finished the entire book yesterday (accomplishment), or that he engaged in some book-reading for a while, without necessarily completing the book (activity). Lexical, structural, categorial, scopal and aspectual are all possible types of ambiguities that have been considered in the literature.

In this paper I argue that the reasoning that applies to the ambiguities in (2) should apply equally to those in (3), (4) and (5): if a sentence has two meanings, there are two different syntactic (overt) derivations for it. All these ambiguities are structural in nature, as opposed to lexical ambiguities like those in (1). Categorial, scopal and aspectual are all *syntactic* ambiguities. I claim that, as such, they should be accounted for by the syntactic mechanisms proposed by Minimalism for overt syntax. In my analysis, the predicate *buried* in (3) has only one category: verb (Sanz and Bever, in press); reference to LF movement is unnecessary to explain the meanings of (4); and aspect is part of the inflectional component of sentences (Sanz, 1996). I will concentrate on the examples in (4), involving determiner quantifiers, because they have been traditionally analyzed with recourse to covert syntax (Logical Form)[2]. I claim that, if Minimalist premises about derivations are accepted, LF movement (Quantifier Raising, for instance) is not only logically unnecessary but impossible to maintain in order to explain the data.

[2] I will not deal with adverbial quantifiers of the type that also exists in English, such as *all* in the sentence *The fish is all cooked*, for instance.

Whether or not those Minimalist premises are the best way to characterize syntax is not the topic of this paper. There will undoubtedly be new ways of picturing syntactic operations in the future. My proposal offers a way of reasoning within the model as presented in Chomsky (1995), without questioning the major tenets of the theory other than the necessity for movement operations at LF. Although I will limit myself to cases of QR and Wh-movement, the same reasoning should be extended to other types of phenomena that ares dealt with by positing LF movement. I will not discuss (3) or (5), despite the fact that the analysis proposed here applies equally to them (see Sanz 1996, and Sanz and Bever, in press for a complete account of these ambiguities).

I aim to eliminate LF as a level where syntactic (although covert) operations take place. Logical Form is precisely what its name indicates: the logical meanings a sentence can express, a description of its possible interpretations. Imagine that I choose to state the two senses of (2) as follows (using logic operators):

(6) a. There is a cop with binoculars such that I saw him
b. There is a cop such that I saw him with binoculars

These are the two logical forms of this sentence. But they are not two Logical Forms in the technical sense used in generative grammar. This is because we have a preferred mechanism to account for the two meanings based on overt syntax: phrase structure ordering. Covert movement need not be posited to explain this ambiguity.

LF mechanisms (QR in particular), on the other hand, are called for when the sentences contain quantifiers. At LF, there are covert applications of Move alpha to place the quantifiers in the right c-commanding position for scope. I believe that the notion of wide and narrow scope based on c-command relations is wrong and it is what has prevented researchers from strictly following the premises of the model and deriving the meaning of sentences from the overt computation. This attachment to the notion of c-command to explain scope weakens attempts to eliminate Logical Form like that of Kayne (1998): he is forced to posit several operations of overt movement that seem empirically unjustified. I propose that the checking of features that occurs before Spell-Out contains all the required semantic information and creates a unique structure with a

unique meaning for every derivation. The reason is that functional categories contain purely formal features but also semantic features that can be checked "for free" when the former are checked overtly.

In sum, I assume that logical operators are and must be used only to *describe* the meanings of sentences, not to explain or cause language phenomena. All Logical Forms are then reduced to "logical forms" or descriptions of the meaning of the possible several derivations that end in the same surface form. In a nutshell, there are ambiguous sentences (i.e., ambiguous surface strings) but not ambiguous *derivations*.

This theory has two very desirable results: it offers a unified account of syntactic ambiguities using only the accepted premises of the model for overt syntax, and it reduces the model itself so that it becomes more minimal. In my account, Spell-Out is the end of the syntactic derivation: after Spell-Out, the sentence is sent only to PF. The derivation creates a sentence with only one meaning (like each of the two derivations in (2)). Ambiguities are such only from the point of view of the hearer, who, like in (2), is aware of both possible trees and must choose by context or by a natural bias towards one of them in his language.

At a more conceptual level, I will claim that ambiguity is a consequence of economy. Features of functional categories are the cause of syntactic operations. My account argues that semantic ambiguities result from features having a plus or a minus sign. This means that languages have a tremendously rich expressive power with a very limited inventory of words (the closed-class, the functional categories).

1. Scope, c-command and features. Scope is an LF notion based on c-command relations. The two meanings of (4) are said to derive from the quantifier *every* having narrow or wide scope over the quantifier *a* (May 1985)[3].

(7) a. $[_S\ [_{NP}$ every man$]_2\ [_S\ [_{NP}$ a woman$]_3\ [_S\ e_2$ loves $e_3]]]$
(For every man, there is a woman such that he loves her)

b. $[_S\ [_{NP}$ a woman$]_3\ [_S\ [_{NP}$ every man$]_2\ [_S\ e_2$ loves $e_3]]]$
(There is a particular woman such that all men love her)

[3] May's example is *Every spy suspects some Russian.* I have copied the derivation and changed the words, using *every* and *a* instead of *every* and *some*. The accounts are identical.

There are two instances of QR in each of these derivations. QR moves phrases to positions like [Spec, IP], from which they can have scope. After the two operations have been performed, the correct c-command configuration to account for the wide and narrow scope of the quantifiers with each other is achieved. Scope, according to this, depends on structural position.

This analysis disregards the well-known fact that the quantifiers involved in this derivation are ambiguous when they occur by themselves, even in sentences with no other arguments. Obviously, c-command notions are not needed in explaining these ambiguities, since there are no other quantifiers to have scope over or to c-command. Observe the following example.

(8) There is a book on the table

Out of context, this sentence means both that there is *only one* book on the table or that there is an *unspecified* book (some book or other). The quantifier *a* in English is, therefore, ambiguous between a specific meaning in which it is equivalent to the number one (which, following Troike (1990) I will consider specific), and an interpretation in which it is unspecific (in which case it opposes itself to *the*). Now note sentence (9). In this case, *a* does not mean one woman in particular, but any woman. It is a reference to the individual as a type (Carlson, 1977).

(9) A woman always knows what she wants

There are, therefore, at least two dimensions of the quantifier *a* which characterize its meaning: +/-specificity and +/-type reading.

Now consider the also ambiguous quantifier *every* in English. In some sentences, *every* can be equivalent to *all* or synonymous with *each*. However, in other cases, only the distribute reading (*each* reading) is allowed. Whereas (10)a may have the two

paraphrases below, the distributive interpretation is preferred in (10)b, where many events of individual helping take place.[4]

(10) a. I read every book in this room
I read all the books in this room
I read each book in this room

b. I helped every child

Furthermore, with type predicates, only *all* and not *every* is allowed. The quantifier *every* has a preferred distributive reading in comparison with *all* (Gil (1995)).

(11) a. All men gathered at dawn

b. *Every man gathered at dawn

This type of ambiguity in certain quantifiers is pervasive in English. For instance, the quantifier *somebody* is ambiguous between a specific and a non-specific reading (Andrew Barss, p.c.). One can make the following statement, whether one has a specific person in mind that is on the other side of the door or whether one has heard noises that indicate the presence of an unspecified person.

(12) There is somebody outside

Milsark (1974) noted differences among determiners that permitted to classify them into two groups: strong and weak. Weak determiners are capable of appearing in existential sentences, whereas strong determiners are banned in this construction. Diesing (1992) explores this distinction further in terms of presuppositionality of quantifiers, which offers us a third dimension along which to consider the ambiguity of *a*.[5]

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[4] In fact, Haspelmath (1995) points out that there are three diachronic sources for *every* or its equivalents in Indo-European languages: (a) free-choice indefinite determiners like "any", (b) distributive prepositions and (c), "all". Thus, more features and interpretations are possible, but, for simplicity of the argument, I limit myself to the most obvious synchronic ones, expressed in my account as [+/-distributive].

[5] See also de Hoop (1995) for a refinement of the weak/strong opposition. She claims that weak and strong NPs can in turn have weak and strong readings. For her, different properties of determiners can be crucial in different linguistic context. This is an idea akin to the one developed in this paper.

(13) a. There is/are a/some/a few/many/three fly (flies) in my soup.

b. *There is/are the/every/all/most fly (flies) in my soup

[Examples from Diesing (1992)]

Weak determiners are ambiguous between a presuppositional and a non-presuppositional or cardinal reading (the latter is an assertion of the existence of the entities they refer to), whereas strong determiners presuppose the existence of the entities they apply to. This is exemplified as follows.

(14) a. There are some ghosts in my house.

(Unstressed ghosts, asserts the existence of ghosts)

b. SOME ghosts are in my pantry; the others are in the attic.

(Presupposes the existence of ghosts).

[Examples from Diesing (1992)]

In the case of (8) above, the non-presuppositional reading is further ambiguous between an interpretation in which *a* is equivalent to *one* and one in which it is merely non-presuppositional (which I call "cardinal" following Diesing 1992).

Thus, any sentence with a weak quantifier in its object position, for instance, is bound to be ambiguous, because the lexical entries of these quantifiers are ambiguous. Lexical entries are a collection of features. The previous observations about the meaning of the quantifier *a* in English lead us to think that its lexical entry has at least the following features: [+/-specific], [+/-cardinal], [+/-type]. There are four possible combinations of these features ([+specific] and [+type] are incompatible features within the same lexical item, and hence that combination is excluded). These combinations account for the three meanings illustrated in (8), (9) and for the interpretation of examples similar to (14)b but containing the quantifier *a*, in which the existence of the entity (in this case, *the book*) is presupposed.

(15) a. [+specific], [+cardinal], [-type]:
There is a book (only one) on the table
b. [-specific], [+cardinal], [-type]:
There is a book (some book or other) on the table
c. [+specific], [-cardinal], [-type]:
A unicorn is in my garden.
d. [-specific], [-cardinal], [+type]:
A woman (any woman, "women") knows what she wants

The peculiarities of the meaning of *every* can also be stated in terms of features. This quantifier can be [+/-distributive].

The data in this brief section show that quantifiers express more than one meaning when used in isolation. Lexical items are described in terms of features, and therefore the possible interpretations of the quantifiers can be captured naturally through the features of these words. Notions of scope or c-command are not relevant to explain these simple sentences.

2. Radically Minimal. In this section, I review some familiar premises of the Minimalist model. I argue that, if these premises are accepted, the type of covert movement which prevails in the literature on LF cannot be maintained. In other words, one cannot logically postulate LF as a syntactic level whose operations are necessary before the end of the derivation for the sentence to be interpretable. The model should consist of a derivation and a point of Spell-Out, after which the derivation is sent to PF. All the operations before Spell-Out should yield the correct semantics of the sentence. The following are some of the general assumptions of Minimalism.

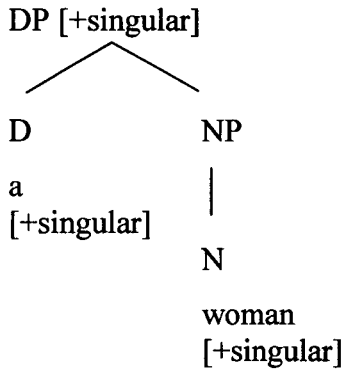
1. A derivation starts with a numeration (an array of elements with their features). The derivation consists of rearranging the elements of the numeration.
2. Different derivations have different meanings.
3. Syntactic operations are caused by features of functional categories (or, in other words, only features of functional categories cause syntactic operations).

4. Movement means movement of features. Only PF convergence forces anything but features to raise. During the derivation, some material is pied-piped to satisfy PF. This means that overt movement is movement of phrases or heads. Covert movement, on the contrary, is movement of FEATURES ALONE.
5. At every step of the derivation, there is a comparison for economy with possible competitor derivations (only with those that have the same features or are consistent with what has taken place until that point). Once something is checked or an operation takes place on an element and the derivation proceeds to the next step, it cannot be changed later on.
6. Features of functional categories must be checked by lexical items. Checking is performed by placing the lexical item in the functional projection with the features. Checking features (i.e., being in the right projection to check features) is the reason for movement of lexical items.
7. Only functional categories with some semantic import are allowed in the structure (according to Chomsky, only Comp, T and Det).
8. Features may have a plus or a minus sign. The sign of features of both functional categories and lexical items is specified for each derivation (for instance, at the point of choosing the numeration, it is determined whether the derivation will be [+past], a particular noun will be [+Nominative], etc.).
9. Features are strong or weak: a strong feature requires an overt operation to check it. A weak feature does not hold such requirement. The strength of features is fixed within a language. Parameters are the consequence of the difference is strength between languages. (In other words, to argue that a feature is strong in a language, ideally we should find that it is weak in another).
10. The operations that drive the derivation are Select, Merge, Move and Spell-Out. The operation of Move is recast in terms of attraction of features: a functional category with a formal feature attracts a lexical category with the same feature. Therefore, the operation Move is called Attract. When attracting features, all of them come as a bunch. Some features are checked "for free" when a feature needed for overt checking is attracted by a functional category.

Premise number 3 shows that the traditional LF approach to covert movement summarized in Section 1 cannot be maintained. That approach proposes covert movement of phrases (and even of entire clauses). In order to establish the right position for c-command (on which scope depends), IP is iterated or a Spec is created. As opposed to this, movement of features does not create a position because it does not pied-pipe any phrases or heads. The features should be able to move by themselves to the functional category whose (weak) feature they are checking. Under this premise, we must re-think LF movement and the requirement that a quantifier phrase c-commands entire portions of the sentence. Premise number 10 makes matters worse: movement, even covert movement, is attraction of features. A new Spec or any other position cannot be created for movement of an element. The position must be there and must embed a feature that needs checking. Hence, movement for the purpose of achieving a c-command position is not justified. These two facts alone legitimate an attempt like this to question LF operations, to argue against QR and to find an alternative explanation for semantic ambiguities.

Let us analyze the implications of the other premises of Minimalism: Determiners are functional categories. Determiners form DPs with lexical items, and these DPs become the arguments of the verb. In this sense, Determiners are a different type of functional category than Tense or Comp, since they project onto phrases that are inserted in the VP. Other functional categories form part of the inflectional component, placed above VP. Nonetheless, Determiners are functional, and as such, have features that require checking. Some of their features are strong (i.e., morphological features), which means that checking must be overt. How does the checking of Determiner features occur? By the operation of Merge, Determiners join lexical items to create DPs. The following is the derivation of the DP *a woman*. The Det *a* has the strong feature [+singular].

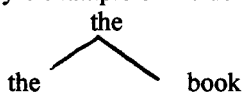
(16) a.



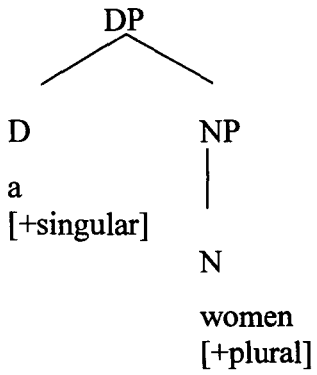
Following the premises of bare phrase structure proposed in Chomsky (1995b)[6], the "percolation" of the feature [+singular] to the maximal node does not necessitate further explanation: when two elements Merge, a new object is created which is the projection of one of the two elements (in this case, D). The label of the new object is the very same element that projects. Thus, it can be assumed that the D with all its features becomes the label of the new object. This explains that the new DP will be [+singular] for the remainder of the derivation. From this point of the computation on, this DP will perform operations that require those features (e.g., will have to check the number of TP). No other features can be added or changed in it for the rest of the computation.

However, observe the ill-formed DP **a women*. If the features of the complement in a Merging operation were irrelevant, the derivation of *a women* would be grammatical: a new object in which the D becomes the label of the projection is formed. But if Spell-Out were to apply at this point, the DP would crash at PF.

[6] Chomsky's example of the derivation of a DP is the following (page 246):

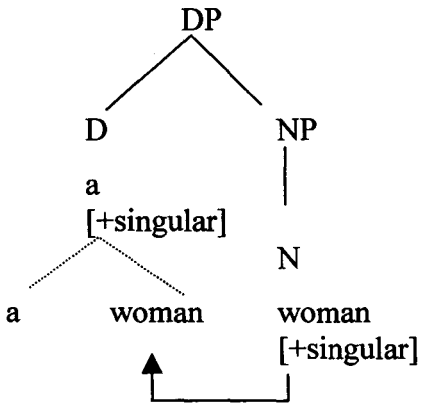


(17) *



This suggests that when a functional category Merges with its complement, the morphological features of both items must be checked against each other for agreement, or else the derivation will crash when it is Spelled Out. But the complement is not in the checking domain of the head. A possible solution for this checking of features is to posit overt adjunction of the complement to its head, as in (18), which preserves the word order of the surface form.

(18)

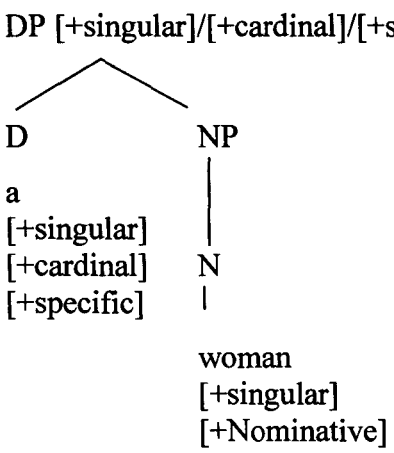


What is clear is that the checking of the Determiner features must occur at the point of Merging with its complement, since there is an evaluation procedure that considers whether the derivation can continue or crashes after the DP is created. The adjunction operation proposed in (18) has no empirical consequences that I can see. It is a mere theoretical device to account for the checking of the morphological features of both the D and its complement. There is an alternative explanation that does not pose a movement

operation but would have to change the model to include some kind of checking in internal domains. I will not develop this idea further here, but it must be noted that there are phenomena related to Aktionsart, unaccusatives and Case marking in objects that is unexplained so far in the model. Sanz (in progress) develops an analysis of these facts based on the influence of objects in the functional component of sentences. In this analysis, she proposes a kind of checking in internal domains which consists of the complement of a head activating linguistically some features of the head at the point of Merging. Even though this may sound far-fetched, it is important to realize that, since Merging consists of joining a lexical item to a functional category in the same projection, it is a legitimate checking procedure by premise number 6. Thus, Merging alone creates the necessary conditions for checking, without further ado. I will leave the issue of deciding between the adjunction operation and a special type of checking in internal domains open, reminding the reader that either plain Merging or Merging followed by an overt adjunction operation of the complement to its head accounts for the morphological checking that takes place between the head of a DP and its complement. Both of these are overt operations.

3. Semantic features of Quantifiers. The previous derivation of a DP was a simplification. The feature [+singular] is not the only feature of *a*, although it may be its only morphological one. Let us now consider a richer set of features based on our analysis in Section 1 of this paper. Furthermore, imagine that the DP *a woman* is the subject of a particular derivation. As before, the number feature is strong and must be checked by the merged complement. The Determiner and the Noun have other features, both semantic ([+cardinal], [+specific]), and purely formal ([+Nominative]). Since nothing can be changed or added later on in this DP, all these features, even if they are weak, percolate "for free" at the point of Merging, when strong [+singular] is obligatorily checked (this is assuming that the semantic features are weak. Since Merging is an overt operation but checking of all the features of the Determiner occurs at the same time, there is no way to determine whether these features are also strong, as number is). The DP is created successfully in this way, and for the remainder of the computation it will be [+singular],[+cardinal],[+specific], [+Nominative].

(19)

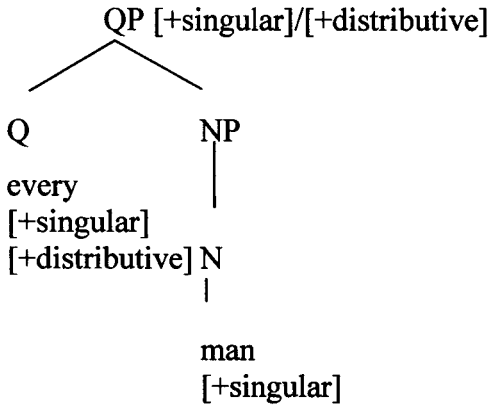


In sum, checking of features is fulfilled when the lexical item and the functional category are in the same functional projection. Whereas the features of other functional categories (like Tense and Comp, for instance), are satisfied by movement, because they are above the VP, the checking of features of Determiners occurs through Merging of a lexical item which has the same morphological features as D. This creates a syntactic object (a DP) that inherits those features and becomes part of the argument structure of the sentence by Merging in turn into the VP (as subject, object or some other complement). All the features of the quantifier are checked at this point in the derivation. An evaluation procedure will eliminate those DPs that are badly formed based on morphological features, which are strong. The semantic features are checked for free because once the DP is formed, nothing can be added to it. This checking of features as the computation takes place makes unnecessary any further checking after Spell-Out.

In the discussion above, I have been using the word Determiner. But I could have substituted it for Quantifier. Quantifiers are Determiners, and hence functional categories. As functional categories, their features are determined for every particular derivation at the point of the numeration. The sign of the features specified in Section 1 must be established in the numeration. For instance, an occurrence of *every* enters the numeration as either [+distributive] or [-distributive], and the derivation proceeds based on that. Returning to sentence (4)a, (*every man loves a woman*), the derivation in which every man loves the same woman is different from the derivation in which each man loves a different woman, because their numerations differ.

At some point in the derivation, the quantifier will be selected to enter the derivation. It is at this moment that it projects and joins another lexical item to create a QP. Its features are checked but not eliminated, since they have semantic import. They become part of the entire QP. In the case of the QP *every man*, a [+distributive] *every* forms a [+distributive] QP as long as it joins a morphologically singular *man.* For the remainder of the derivation, the QP will be [+distributive]. No matter what operations this QP performs during the derivation, its features have already been checked overtly at the point of Merging. No covert rearranging of its position or movement of its features is necessary to derive the meaning of the QP in a particular derivation.

(20)



Considering the features of *every* and *a* that we proposed in Section 1, sentence (4)a should have multiple meanings, not only the two allowed by scope interactions. This is because one of the quantifiers involved (the weak *a*) has four possibilities of combination of its features, and the other (strong *every*) has two. The following table summarizes these possibilities.

(21) Possible meanings of *a*:

a. [+specific], [+cardinal], [-type]: There is only one book on the table

b. [-specific], [+cardinal], [-type]: There is some book or other on the table

c. [+specific], [-cardinal], [-type]: A unicorn is in my garden (only one)

d. [-specific], [-cardinal], [+type]: Any woman knows what she wants ("women")

Possible meanings of *every*:

A. [+distributive]
B. [-distributive]

The possibilities of combination of the preceding quantifiers are multiple. In other words, there are many potential derivations based on the elements *every, man, loves, a, woman*, each of them with different features in the numeration. In particular, depending on the features of the two quantifiers selected in the numeration, there are eight possible numerations in which *every man* is the subject and *a woman* is the object. Imagine a set of men composed by [A, B, C] and a set of women containing [X, Y, Z]. The possible numerations and their meanings are exemplified in the following chart.

(22) **1. *every* = [+distributive] (each); *a*= [+specific], [+cardinal], [-type]: (one, non-presuppositional)**
Meaning: A, B and C (individually) love one and only one woman. A loves X, B loves Y and C loves Z, for instance. Or both A and B love X, C loves Y and nobody loves Z. (It is a trait of the individual characters of A, B and C to love only one woman).

2. *every* = [-distributive] (all); *a* = [+specific], [+cardinal], [-type]: (one, non-presuppositional)
Meaning: A, B and C (as a group) love only one woman (it is a trait of men as a group to love one and only one woman).

3. *every* = [+distributive] (each); *a* = [-specific], [+cardinal], [-type]: (some or other, non-presuppositional)
Meaning: A, B and C individually love some woman or other (X, Y or Z).

4. *every* = [-distributive] (all); *a* = [-specific], [+cardinal], [-type]: (some or other, non-presuppositional)

Meaning: A, B and C as a group love some woman or other (it is a trait of men as a group to love some woman or other).

5. *every* = [+distributive] (each); *a* = [+specific] [-cardinal], [-type]: (one, presuppositional)

Meaning: A, B and C individually love only Y, for instance (all of them love the same woman).

6. *every* = [-distributive] (all); *a* = , [+specific] [-cardinal], [-type]: (one, presuppositional)

Meaning: A, B and C as a group love Y (it is a trait of the group to love Y).

7. *every* = [+distributive] (each); *a* = [specific], [cardinal], [+type]: ("women")

Meaning: A, B and C individually love women in general (not particularly X, Y and Z) (loving women is a trait of their individual characters).

8. *every* =[-distributive] (all); *a* = [-specific], [-cardinal], [+type]: ("women")

Meaning: A, B and C as a group love women in general (loving women is a trait of men as a group).

Of course, the chart is, in principle, alarming. The same sentence cannot have eight (or more) different meanings. Language would be extremely inefficient if this were true. But there is no cause for such alarm. In fact, I will argue that language is efficient precisely because of this situation. After all, ambiguities are such only from the point of view of the hearer, who must decode the sentence. Derivations are not ambiguous *per se*. Languages come with enough devices to make the hearer's task easier. To begin with, words have preferred readings, based probably on the frequency of use of the item with

certain features. For instance, the word *every* is preferred in the distributive reading, since the language has alternatives to express collectivity: *all men*, for instance (Gil (1995) proves this to be the case cross-linguistically). If the speaker meant that men as a group love, say, the same woman, he would have had the choice of disambiguating by using a different quantifier. Likewise, in the unlikely event that all men loved only one and the same woman, the derivation could have contained the unambiguous quantifier *one*. Furthermore, some of these meanings collapse with each other because the end result is the same whether they are used in the distributive or type meaning. In our example, the use of the word *every* as "each" or "all" does not really make a difference as to the elements of the set that should be included (which are A, B and C). This is because the position where it is in our example is a topic position which must be presuppositional (according to Diesing (1992)'s Mapping Hypothesis). In Minimalist terms, this means that the functional projection where subjects are (whether it is TP, TopicP, EventP, etc.) has a feature [-cardinal]. Thus, our example can only refer to a set of presupposed men. Therefore, the eight interpretations above probably reduce to four major ones, which correspond to the values of *a* as specific, non-specific but cardinal, specific but non-cardinal and type. Independently of how many of the above meanings is ever considered plausible by any speaker of English, there are clearly more theoretical possibilities than the two that scope positions allow for.

In principle, it would seem natural, given my analysis based on the possible features of the quantifiers involved in a construction, that a change in order between the two quantifiers should not alter the possibilities of interpretation of the sentence. That is, if *every* has two possible meanings and *a* has four possible meanings, whether *every* precedes *a* or *a* precedes *every* in the sentence, there should be eight possible interpretations. This is because scope, a structural notion, plays no role under my account. However, the sentence *a woman loves every man* does not seem to have as many possible interpretations as *every man loves a woman.* [7] This is precisely expected under my analysis, since it is a consequence of the fact that meaning is based on features. The commutation of the position of strong and weak quantifiers does result in a reduction of the possible meanings of the sentence because the subject position, having the feature

[7] I thank Terry Langendoen for pointing this out to me.

[-cardinal] (i.e., +presuppositional) is incompatible with those possible meanings of *a* with the feature [+cardinal]. In other words, the subject position is the projection of a functional category with features of its own, which must be checked by a QP in the sentence. A weak quantifier in this position can only be interpreted as presuppositional. The ambiguity of weak quantifiers (presuppositional or non-presuppositional readings) only applies to certain positions. If a weak quantifier is in a functional projection in the inflectional component of the sentence, it must be compatible with the features of that projection.

4. Covert Wh-movement. I have argued against the rule of Quantifier Raising at LF to explain ambiguities in sentences with quantifiers. I have offered an alternative explanation of the ambiguities based on the features of quantifiers, which are functional categories and hence need checking. In my account, all the features of a quantifier are checked overtly at the point of Merging with its complement, and at the end of the computation the interaction of the features of the position where the QP ends and the features of the quantifier itself will determine a unique meaning for the sentence. The sign of every feature of a functional category (including quantifiers) must be determined for every numeration and nothing can be changed or added after the computation has started.

Another type of LF movement proposed in the literature has to do with Wh-words. Some languages leave their Wh-words *in situ* (Chinese, Japanese), whereas others require overt movement of their Wh-words (English). In order to interpret the sentence as a question, it was posited that in the former, the Wh-word undergoes movement at LF (Huang, 1982). This is because the Wh-word always has scope over the entire sentence. I have already argued against the notion of scope. If one of the major reasons to posit covert Wh-movement in a language is to make sure that the Wh-word is placed in a scope position so that the sentence is interpreted as an interrogative and we assure wide scope of the Wh-word over all other quantifiers in the sentence, then, under my account, covert Wh-movement simply does not take place, because scope is not where the meaning derives from (see Troike 1990, 1992, for a detailed account of Chinese, Japanese and Korean interrogatives in which he argues against Wh-movement). The meaning of a

sentence is determined uniquely by the point of Spell-Out because all the semantic features should have been checked by then.

But then, how do the interrogative sentences in languages with Wh-*in situ* get interpreted as interrogatives? Cheng (1991) notes that the languages that have Wh-words *in situ* are precisely the ones that have question particles. She proposes that all sentences must be typed (as interrogatives, declaratives, etc.) and that languages have two choices to do this: a fronted Wh-word or a question particle. Thus, one of the motivations for positing covert Wh-movement (marking the sentence as a question) disappears if we can substitute it by this other way of clause-typing.

How does my theory apply to languages with Wh-*in situ*? I will not offer a thorough account of Wh-phenomena here, and I will limit myself to a few observations and a sketch of my theory applied to Wh-movement. In this type of languages, Wh-words can be interpreted as indefinites, interrogative words, universal and existential quantifiers (Cheng 1991, Troike and Park 1992, and Jelinek 1998 for a type of language whose Wh-words share these characteristics with the *in-situ* languages, Straits Salish). The same word means *who* or *someone*, *what* or *something* in these languages. This establishes a clear difference between the features of English Wh-words and those of Wh-words in *in situ* languages, which should be enough to make us undertake the analysis of the differences in questions in both types of languages based on the features of these words and not on scope considerations. Troike (1990) and Troike and Park (1992) point out that the Wh-words in the *in situ* languages can be [+/-specific]. According to them, when the Wh/indefinite word is [+specific], it can be bound by a Q[uestion] operator that has scope over the clause. Otherwise, the Wh-word has an indefinite reading. Therefore, covert Wh-movement is unnecessary to account for the interrogative meaning of these sentences.

My account is similar: I propose that semantic information is embedded in the form of features of functional categories. Question particles are functional categories. Therefore, those sentences with question particles simply start with a numeration containing a functional category that says [+interrogative]. This feature is, of course, overtly realized as a morpheme, which is the question particle itself. If the Wh-word is [+specific], the interaction between this feature (which gets checked when the item is Selected from the numeration to form a QP) and that of the question particle creates a

unique meaning for the sentence (interrogative). No movement of the QP is necessary, unless it is to check other features of the sentence overtly. Cheng points out that the interpretation of a Wh-word in Mandarin Chinese depends on other elements in the sentence (an interrogative particle of the Wh- or the yes-no type, a negative marker or a universal marker). This is consistent with the proposal put forth in this paper that it is the interaction of all the features of the functional elements of the sentence that creates different readings. Sometimes, these different readings are accompanied with differences in surface forms, and others they do converge in the same sentence form, which is why we talk about ambiguities of surface strings.

5. Ambiguity and economy. As stated in section 3, ambiguities are ambiguities only from the point of view of the hearer. There are no ambiguous derivations. As I have argued in these pages, if a string of words has several meanings, it is because there are different derivations involved (starting with different numerations). The traditional LF approach also assumes that there are different derivations, but they involve covert movement of phrases because the two meanings are based on c-command positions. This differs from my theory in that I claim that there are different *overt* derivations: the evaluation procedure that inspects the well-formedness of a QP means that strong features of Q are checked overtly by their complement when Merge takes place. Since the QP is formed only once, it must have a set of features in order for the derivation to proceed and nothing can be added or changed later on in the process, all features of Q must be checked at the same time. This is the checking "for free" that Chomsky assumes when there is a set of features, some of which are strong and some of which are weak.
To summarize, the non-idiosyncratic features of functional categories and lexical items are determined for each numeration, and the derivation cannot add anything once it has started. Even if some aspects of the derivation are unclear to the hearer, the derivation is unambiguously created. When Merging elements with each other, those semantic features that do not correspond to any overt morpheme will always remain ambiguous to a hearer decoding the sentence.

Ideally, all words should be unambiguous and all features weak, so that there would be only one possible meaning per sentence and no movement operations. But that

would mean that the inventory of, say, Determiners, would have to increase (every one of them would have only a set of possible features). Instead, languages allow for the possibility of having [+/-] features in their words and functional categories, so that the same category can enter in a number of different constructions. The cost of this is ambiguity for the hearer. In other words, economy is a compromise between what economy means for the speaker and what it means for the hearer. But a formal model of language is not concerned with decoding problems. Having more weak features and features with a dual sign has two positive consequences: the derivation performs fewer overt operations (i.e., less movement) and at the same time, speakers do not need to store thousands of words for different connotations. The hearer, on the other hand, does not know exactly how to decode the sentence and sometimes ambiguity results. Hopefully, context or frequency helps him select a preferred derivation, which in most cases is the intended one.

The type of quantifier ambiguity discussed in this paper is a very elegant solution of language to the problem of expressing all kinds of meanings with few elements. Quantifiers are functional categories, that is, a closed-class kind of word. It is not inefficient to have so many interpretations for the same string of words. In fact, it is economical. To understand this concept of ambiguity as economy, we may look at other languages in which the translation of *every man loves a woman* is not ambiguous. In these languages, the prediction is that there are more lexical entries of quantifiers than in English, each of which expresses one of the meanings of the English quantifiers. One such language is Spanish. In Spanish, the word *every* translates as three different quantifiers: *todo, cada* and *todos*. The first two are singular and the third is plural. The two singular quantifiers are used in unambiguous ([+distributive]) sentences. (23)a and b can only mean that each man loves a different woman. The singular in Spanish is incompatible with the type reading of the QP allowed in English. In the case of (23)b, the sentence is further restricted to a set of men in particular (that must be established previously), and it cannot make reference to men as a class.

(23) a. Todo hombre ama a una mujer (Every man loves a (different) woman)
b. Cada hombre ama a una mujer (Each man loves a (different) woman)

c. Todos los hombres aman a una mujer (All the men love a woman[8]/ all men love a woman--ambiguous)

(23)c could mean that all men love only one woman in particular or a different one each. This is because *una* (equivalent to English *a*) is indeed ambiguous between an cardinal and an unspecified readings. The plurality of the subject allows for both possibilities, whereas the singularity of *todo* and *cada* block the cardinal meaning of *una* (i.e., the same woman for every man). These two quantifiers are unambiguously [+distributive].

Thus, Spanish is a case in which sentences are less ambiguous, but two quantifiers are needed for what English can express with one (*todo* and *todos* are directly equivalent to *every*. *Cada* is equivalent to *each*). Furthermore, *every* can collapse the three meanings (*todo, todos* and *cada*), but *todo* cannot mean plurality at all, as *every* does in English. *Todo* cannot have the feature [-distributive]. It unambiguously has the fixed value [+distributive] for every derivation it enters in. Less ambiguity equates less economy of functional categories and less versatility of their features.

There have been a few senses in which the word economy has been used in the generative literature. In the era prior to 1980, a grammar was an evaluation procedure: the set of rules that most efficiently explained the data was considered the best grammar (Chomsky (1995a)). After 1980, the Principles and Parameters approach meant that, given the data, there is only one language which is consistent with it. As Chomsky points out, the question of explanatory adequacy could be asked in a serious way for the first time. The Minimalist Program is yet another step towards understanding the role of economy in language. The "least-effort" principles that appear pervasively in the literature are promoted to principles of grammar. Language is considered to be the best possible solution for the conditions imposed from outside the language faculty (the "bare output conditions", Chomsky 1995a, 1995b). Every derivation is the most economical possible given the array of words that starts it. The fact that syntactic operations are

[8] Note that the literal translation of the Spanish sentence is ungrammatical in English with the meaning that all men love a woman (i.e., the class of men). This is a phrase with two Quantifiers, *the* and *all*. In English, the features of *the* must be such that it cannot express generality. In Spanish, however, this does not hold, and the interaction between these two quantifiers is grammatical.

caused by functional categories and that parametric variation is limited to strength of features permits a very narrow class of typological variation among languages.

My account of quantifier ambiguity unveils another aspect of economy in Minimalism: the fact that having [+/-] semantic features in functional categories creates ambiguity of surface forms allows the speaker to express a wide range of meanings with a very reduced inventory of devices. Furthermore, it indicates that covert movement of phrases for scope purposes is unnecessary, and that overt syntax contains all it needs to derive the desired semantic results by the point of Spell-Out. This, indeed, means that ambiguity in language is a consequence of economy and a necessity if "least-effort" principles govern Universal Grammar.

4. Summary and Conclusions. The preceding pages are part of a logical reasoning to eliminate LF as a syntactic level where operations that complete the derivation take place. One of the motivations for LF was to explain data concerning the ambiguities of sentences with more than one quantifier. In this paper, quantifier ambiguities are accounted for without recourse to c-command or scope notions, that is to say, without reference to their position. Instead, they are explained in terms of the features that, as functional categories, quantifiers have. These features can have a plus or a minus sign, and are determined for a particular derivation at the point of the numeration. Ambiguous sentences are the result of distinct numerations. There are no ambiguous derivations. Every derivation is unique, because it is based on a unique numeration. There are ambiguous surface forms, because semantic features that are not attached to a particular overt morpheme are "invisible" to the hearer.

The quantifier strong features are obligatorily checked by their complements at the point in which they Merge to create a QP, since the evaluation procedure must make sure that the derivation can proceed if and only if the morphological features of D and its complement are compatible with each other. All other features of the quantifier are also checked at the same time. The QP then acquires the features of both the quantifier and its complement, and becomes an argument of the verb. No features can be added to it later, which is the reason why the QP must inherit all features of both of its components when it is created. The QP will move to check other features of the derivation as needed. At the

point of Spell-Out, there is a unique order with a unique set of features: hence, a unique meaning .

Explaining syntactic phenomena in terms of features of functional categories is the basic mechanism of Minimalism. My analysis does not propose anything else. The same analysis should be applied to the "categorial" and "aspectual" ambiguities exemplified at the beginning of this paper. The derivation in (3) is either plus or minus [telic], a feature that must be checked by the verb. No change in syntactic category is needed. Likewise, the same feature explains the ambiguity in (5). This theory, of course, should also be made extensive to other phenomena that have been previously explained through covert movement. Merging and checking account for the meaning of sentences. The evaluation procedure makes sure that the derivation can proceed after DPs are created, which means that all the features of D must be checked by Merging. The syntax/semantics interface consists of accepting that functional categories have semantic features. This is unquestionable, since we know that functional elements contribute to the meaning of sentences. It should be noted that, under my account, the definition of weak features is changed: a strong feature is one that requires overt checking by a lexical category. A weak feature is one that is checked "for free", when the strong features with which it forms a set are checked. Thus, weak features are also checked during the overt computation.

Logical descriptions of sentences are useful in understanding what features we must posit in the lexical entries of words. By describing the meanings of sentences containing quantifiers, we are able to determine the set of features of those quantifiers. But logical descriptions should not be part of the model. Following the steps of the reasoning of this paper, we logically do not need them.

Ambiguities are a consequence of the fact that economy considerations rule language. Thus, they are not inelegant. On the contrary, they support Chomsky's hypothesis that language is the best possible solution for the conditions imposed to the language faculty. In particular, speakers can express a wide range of meanings with a very reduced class of words: functional categories. For instance, a derivation with two functional categories (each of which with a [+/-] feature), allows for four possible combinations, which is the case in sentences with two quantifiers. Two positive outcomes

result: language acquisition is reduced to setting the strength of features and the memory load for speakers is kept reasonable. This suggests that some version of Minimalism may be a plausible model of language. The fewer operations we posit, the better. If we can account for phenomena with the mechanisms of overt syntax, that is all the model needs.

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