

Interpretive Asymmetries in Major Phrases

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1. Introduction.

It has been widely recognized in the syntax and semantics literature that the major phrases (NP (or DP's), VP (or Predicates), AP) have different levels in them that require different sorts of interpretations.¹ To take just one example, it is widely recognized that nouns may take prepositional phrases either as complements (as in (1)), or as restrictive modifiers (as in (2)):

- (1) a. the king of England
b. a decision on the course of the economy

- (2) a. the king at the end of the table
b. a decision over breakfast

These differing functions are correlated with differing syntactic configurations, which we might represent in the following way, following Radford (1988) and Jackendoff (1977):

[NPthe [N'[Nking] [of England]]]

[NPthe [N'[N'[Nking]] [at the end of the table]]

A large amount of research has been conducted over the years which explores the functions of various "levels" for semantic interpretation, of it within the X-Bar framework of syntactic categories (e.g. Williams, 1975; Zamparelli 1995).

The topic in this paper is closely related to these issues but, I will argue, fundamentally different in kind. I will be reviewing a confluence of research in syntax and semantics of major phrases which, I believe, all point in the same direction: that there is a fundamental asymmetry between the sorts of interpretations these phrases may have before, and after, the addition of their associated functional categories. While the major phrases can be used

either to make reference to type or token information, only type information is available within the lower reaches of the phrase.

Since the work on noun phrases is the most copious, and as it is where the asymmetry shows up most plainly, I will begin there.

2. Noun Phrases.

It has been noted for some time (Szabolcsi, 1987, Stowell, 1989) that some languages display an asymmetry between nominals that appear in argument positions, and those that appear in non-arguments positions, such as vocatives and predicate nominals. In Italian, for example, the non-argument positions allow no determiner to appear and generally disallow a determiner; whereas in argument positions the opposite seems to be the case (Longobardi, 1994, p. 612).

- (3) a. **(Un/il) grande amico di Maria mi ha telefonato.* (Argument)
 *(A/the) great friend of Maria called me up
 b. *Caro amico, vieni a trovarmi.* (Non-argument)
 dear friend come to visit me

On the assumption that lack of a determiner means that one has only that portion of a noun phrase which is sister to the determiner, these observations are consistent with the "DP" hypothesis (Abney, 1987). What we have been traditionally calling "noun phrases" are constituents with D as a head and NP as its sister. Thus, this syntactic asymmetry between the character of argument and non-argument noun phrases might be expressed as:

Only DP's can be arguments

Though this would seem to be immediately challenged by languages such as English which has determinerless noun phrases in argument positions ("Cats chase mice"), and predicate nominals with an apparent determiner ("John is a doctor"), more subtle arguments have been made that English and other Germanic languages in essence follow the same pattern (Crisma, 1999). One of the chief assumptions that must be made is that at least some instances of apparently determinerless noun phrases have, in fact, null determiners. Indeed, in Spanish and Italian, there do appear instances of determinerless noun phrases in selected argument positions so long as those empty positions are properly governed (Contreras, 1986; Torrego, 1989). Chierchia (1998) takes a different point of view, however, in

suggesting that a parameterization takes place which will allow NP's to be arguments for languages such as English and Chinese (and not Italian or Spanish), though they must undergo a type-shift operation in the semantics which, in effect, gives them DP-type denotations. I will have a little more to say about this last view later on.

One notion that has been expressed repeatedly is that determiners are necessary for reference (Higginbotham (1985), Vergnaud and Zubizarreta (1991); Longobardi (1994)); it follows then that NP's (as opposed to DP's) have no inherent reference. What is the meaning of an NP, then? The usual semantic representation, as found in Montague grammar for example (where "NP" would be construed as the category CN), would be to construe them as predicates ranging over individuals. But another notion that has gained some currency is that NP's have denotations among the category of kinds, or types. One smallish bit of support for this comes from sentences such as the following:

- (4) a. [Several [bears]] were seen at the campground. *They* are common in mountainous areas.
b. Jack bought [a [[Mercedes [with a leather interior]]]]. It turns out *they* come in only five different colors.

In (4a), the pronoun *they* is most plausibly interpreted as synonymous with *bears*, and does not refer to several bears, or those bears seen at the campground. In (4b) there are two natural construals of the pronoun--saying either that Mercedes (in general) come only in five different colors, or that Mercedes that have leather interiors do (or, that the leather interiors do). If NP's have as their denotations types or kinds, then there is a ready antecedent for the pronouns present in the discourse already introduced in the prior sentence.

An extensive discussion of this idea, that NP's denote types or kinds, is to be found in Vergnaud and Zubizarreta (1992). The initial puzzle they are trying to deal with is the fact that in the French inalienable possession construction, in certain instances a singular DP is interpreted as a plural.

- (5) (= V&Z (4a)) *Le médecin leur a radiographié l'estomac.*
"The doctor X-rayed their stomachs"

Here, the singular definite form *l'estomac* appears to be interpreted as if plural, rather than singular, due to an association of predication that exists between *l'estomac* and the plural clitic *leur*. They go on to argue that this predication relation only results in plurality of the DP makes reference to a type, rather than to a token.

They assume the DP hypothesis, and in the case where the DP denotes a token, as in *that cat* (over there on the chair), there is a relation that holds between the (interpretations of) D and the NP, namely, one of instantiation. So, in this example, the D *that* will denote an object a just in case a instantiates, or is an exemplar of, the sort of thing b that is denoted by the NP, in this instance *cat*. Thus, the NP/DP structure is a distinction between types, introduced by the NP, and tokens, introduced by the DP. Vergnaud and Zubizarreta codify this distinction as their "Correspondence Law" (p. 612):

When a DP or NP denotes, the DP denotes a token, and the NP denotes a type

To put it another way, individuals only "appear" at the DP level, and not at the NP level.

This then raises the question of those instances of DP's that would appear to denote types themselves, as they most commonly can. For example, if you say that John and Bob work on the same computer, you could intend that they share a computer at work, or that each has his own computer, but they are of the same type (e.g. they are both Apple G-3 powerbooks). For such instances, they suggest that there are expletive articles, in particular the definite article *le/la* in French, which make no semantic contribution to the whole; that is, they introduce no individuals into the denotation of the DP. The denotation of the whole DP then is just that of the NP, a type. In (6a) the type reading of *le ordinateur* "the computer" is schematized, and in (6b) the token reading:

(6) a. Type: j
 |
 [DP *le* [NP *ordinateur*]] (denotation of DP is j, the type denoted by NP)

b. Token:
 a j
 | |
 [DP *le* [NP *ordinateur*]] (denotation of DP is individual a, which
 instantiates type j)

One might assume that definite articles in many other languages function similarly (e.g. Brugger, 1993, for a discussion of Germanic).

Longobardi (1994) takes up a different issue, that of DP's that cannot have type readings: proper names (his view is updated some in Longobardi, 2001). His well-known analysis, based primarily upon Italian data, is one that examines the surface syntax of proper names, and claims that proper names must move into the D position from their "original" position within an NP. Thus, the structure of the DP *Maria* would involve movement of a name from its position within the NP to D.

(7) [DP [D *Maria*] [NP e]]

There is an alternative form with modified proper names (and, dialectically, with certain unmodified names) which exhibits a definite determiner:

(8) ...*il vecchio Camaresi*
"(the) old Camaresi"

In this instance, there is no movement into D. Further, in many languages, definite articles are routinely used before proper names.

The semantics of a structure like (7), Longobardi suggests, is that the determiner D which contains the name *Maria* takes as its reference just the person referred to by that name; the empty NP position remains uninterpreted. When an article is present, and the name continues to occupy a position within the NP, Longobardi takes the article, as in (8), to be an expletive. In this instance, the expletive serves as the initial element of a chain which binds the occurrence of the name in the NP. From a semantic viewpoint, reconstructing Longobardi somewhat, the notion seems to be that the expletive article has the effect of "absorbing" the proper name meaning and making it its own denotation, so that the name's meaning is unavailable for interpretation within the NP.²

This, again, insures that reference to individuals is a function of D, and not a function of NP. In the case of common nouns, for which there is no similar pattern of evidence for movement to D at S-structure, the lack of movement is motivated by the idea that common nouns make reference to kinds (or substantive universals). Longobardi generalizes thus:

"Common nouns must always be used to refer to a kind..."

This prevents movement to D at S-structure (though allowed is prefixation to a definite article, as in Albanian and Scandinavian). At the level of LF, however, movement to D is available. This holds not just for proper names in languages which associate no article with names or in which there is no evidence of S-structure movement, but also common nouns themselves. If the common noun remains unmoved, and is in an argument position, there must be a D; if the D is null, it is interpreted existentially:

(9) John saw [e [dogs]] (=John saw some dogs)

However, there is the option, at LF, of movement into D; in this case the DP makes reference to a kind, the kind named by the N appearing in D:

(10) [dogs [e]] have four legs.

Structures like (10) allow reference to the kind dogs as a whole, and preclude existential quantification. Throughout, Longobardi is adamant in the view that NP's cannot denote individuals, only types.

The notion that individual reference is a function of higher-level functional categories finds some support from the domain of lexical semantics. It is commonly noted that the internal structure of words does not allow determiners to appear, suggesting that the categories D and DP do not appear word-internally. This should preclude reference to individuals, and, in fact, it does in most constructions. For instance, in languages which incorporate objects, no D may appear internally to the word, and proper names do not appear to be among the possible objects incorporated. In English, a number of verbs are derived from proper names (e.g. *to boycott*, *to lynch*, *to hector*), but these do not constitute reference to the individuals bearing those names (e.g. "(*) I boycotted himself" ≠ "I boycotted Charles Cunningham Boycott"), nor do nouns or adjectives derived from names (e.g. *sandwich*, *macintosh*, *davenport*; *platonian*, *sadistic*). In root compounds, even full recognizable names do not make reference: use of *Disneyland*, named after Walt Disney, does not constitute a reference to that person (e.g. "??Disneyland was founded by him"), and a Bowie knife, so-called after Jim Bowie, makes no reference to that person. It is only in synthetic

compounds that one finds genuine referring names--"he is a Nixon-hater from way back"; "Chomsky-bashing is a favorite pastime of the conservative press," etc.

Finally, a very different point of view is expressed in Chierchia's work (1998a; 1998b). Chierchia argues, *pace* Longobardi and others, that NP's, subject to parameterization, may function as arguments just like DP's can: that is, on his analysis there is no empty determiner slot in the case of bare plurals or determinerless mass terms, on this parameterization. This is because NP's make reference to (or take as their denotations) kinds, and Chierchia disputes the notion that D is necessary for at least this type of reference. Chierchia does allow for null determiners in some languages, including Italian and Spanish, which have a different parameter setting. The point is, once again, that NP's are taken to denote kinds of things, and any notion of individual reference in Chierchia's analysis requires the presence of D, or a type-shifting operation that has the same semantic effect as adding D.

From the above review, I have sought to point out that there is a confluence of research which suggests that the notion of an "individual" is not part and parcel of the semantics of the NP, but is only something that becomes available once the functional projection of the DP is added. That is, "higher" levels of interpretation make available something that is fundamentally unavailable at the "lower" levels which are confined to the expression of types of things alone. The discussion above is not comprehensive (e.g. Cheng and Sybesma, 1999, among others, could be used to make much the same points).

What I am going to do now is move on to the major phrases VP and AP, and point out that it is plausible to think that a similar pattern emerges there, as well. In the end, I will hope to have established that there is a fundamental interpretive asymmetry that pervades the grammar of major phrase types.

3. Verb Phrases

At first sight, it would appear that verb phrases, which commonly contain DP's that make reference to individuals, would not be at all similar to DP's in this regard. There are, however, two hints in the literature that they might. The first is Emmon Bach's (1986) notion, which has enjoyed wide currency, that verbs do not denote events (which may be looked upon as a sort of individual) or functions from individuals to truth-values or other functions, but instead denote event-*types* (or *eventualities*). It appears that the sorts of

elements which require reference to the world and token-information are to be found "above" the VP. For instance, tense, which situates an event temporally within a world, is interpreted outside the VP at a higher level. Speech-act marking, which requires or conveys token information about the ongoing speech act itself (see Speas' contribution, this volume), likewise appears at this higher level. Evidentials, which require information about the (token) knowledge-state of the speaker, occur at this higher level.

The second hint, based upon syntactic argument, is to be found in a perspective of Diesing's "Mapping Hypothesis" (Diesing, 1992).

Mapping Hypothesis (p. 10)

--Material from VP is mapped into the nuclear scope

--Material from IP is mapped into a restrictive clause

This presumes a scheme of semantic interpretation that stems from Heim (1982) and Kamp (1981), where a restrictor clause provides the immediate context for the interpretation of the nuclear scope (which typically corresponds to the main assertion). The Mapping Hypothesis mainly affects the syntax and interpretation of DP's.

Evidence from the interpretation of bare plurals is one type of data Diesing considers. It is well known that bare plurals have (at least) two distinct readings: an existential reading, and a generic reading. The hypothesis is that bare plurals in subject position are interpreted existentially if appearing within the VP, but generically if appearing in the IP position. Consider (11).

- (11) Sharks are visible. (ambiguous)
a. [IP Sharks [VP e are visible]]
b. [IP [VP Sharks are visible]]

(11) is ambiguous between two readings, an existential reading in which there are some sharks that can be seen at the moment, and another generic reading in which it is stated that sharks, in general, are of such a size and composition as to make them visible entities (unlike air, microbes, or electrons). The generic reading would thus be accorded the syntactic structure (at LF) in (1a), while (1b) would give rise to the existential reading.

Diesing provides syntactic motivation for (11a) vs. (11b) comes from German, which displays a surface reflex of these two interpretations in the position of the DP. For the generic interpretation (11a) the surface position is argued to be outside the VP, whereas the existential interpretation (11b) has the DP within the VP. That is, the differing interpretations are induced by the structural differences, in particular whether the DP appears within the VP or not. Within the VP, it is interpreted existentially as in (12), but outside the VP it appears to have a generic interpretation (13). This follows naturally from the semantic assumptions of the DRT framework (Kamp, 1981, Heim, 1982) together with an additional stipulations that the operation of existential closure operates at the VP level (and not on texts), and that there is a generic operator GEN that induces a tripartite structure for generic sentences.

(12) [IP [VP Sharks(x), are visible (x)]] (existential reading)

(13) [IP GEN (Sharks (x)) ([VP e are visible])] ("universal" reading)
 (= roughly, "If something is a shark it has a propensity towards being seen")

This analysis generalizes to other argument positions, such as object position. So in (13a,b) the existential vs. the generic reading of the determinerless noun phrase *dogs* is accounted for as described:

- (14) a. John petted dogs (existential, within the VP, bound by existential closure)
 b. John hates dogs ("universal", outside the VP, in restrictor of GEN)

This line of thought is applied to other types of DP's. The point of immediate relevance is that a consequence is that any NP/DP that is intuitively "presuppositional" in character *must* move into a higher position in the IP to be interpretable; it cannot remain within the VP.

This makes for an interesting list of types of DP/NP's:

- Things "bound by" the generic operator
- Strong quantifiers
- Definites and demonstratives
- Proper names
- Specific indefinites

--Partitives

--Pronouns (though not discussed explicitly)

One good question to ask is, what do all these sorts of noun phrases have in common? They are not all strong (Barwise and Cooper, 1981; Milsark, 1974), nor are they all definite; they are not all quantificational, nor does it appear that all induce a tripartite structure. So perhaps a better question to ask is, what types of DP's can remain within the VP at the level of LF (taken to be the input to semantic interpretation)? The list is not very long:

--Weak indefinites

In Carlson (in press) it is argued that weak indefinite noun phrases (*a man, three cats, several papers...*) are distinguishable from all the other sorts of noun phrases in one crucial respect: their semantics is definable based solely on type information. For all other sorts of noun phrases some kind of token contextual information is required. For instance, proper names obviously require a notion of reference to a particular, context being one such particular. Quantifiers like *every* require contextual information. Consider a situation in which students a,b,c, and d have left the room. Did *every* student leave? What you have to know, of course, is that a,b,c, and d are the only students in the context. This is token information. By way of contrast, we need no recourse to token context to evaluate weak indefinites: in the situation described we know that four students left, or that some students left. It might appear offhand that even weak indefinites require reference to individuals. But this is not so--the particular identity of individuals is irrelevant, as is context.³

A slightly different but related discussion is to be found in McNally (1998), in which she seeks to characterize the types of noun phrases that may appear in the English existential construction. In sentences like "There are several envelopes on the desk", the postverbal NP *several envelopes* is securely within the VP. Her argument is that the nature of these noun phrases can be captured in this way: "The postverbal NP will thus have to be interpreted as a property...". What McNally intends by using the term "property" is noun phrases that can be defined solely with regard to type information.

The discussion of VP-meanings here is also consonant with a suggestion made by Dominique Sportiche (pc), based in part on observations about the nature of English Gapping constructions. His idea is that determiners and NP's actually become dissociated

in the syntax, with the D part of the DP appearing higher in the tree, outside the VP, leaving only the NP within the VP. To illustrate the basic idea, instead of assigning the sentence (15) the structure in (15a) as is the custom making use of Quantifier Raising, the structure is better represented as (15b):

- (15) The man saw every cat
a. [The man_x [every cat_y [x see y]]] (no!)
b. [The_x [every_y [man_x see cat_y]]] (yes!)

Whether this suggestion can be fully motivated remains to be seen. However, it has the character of leaving type information only within the VP.

Thus, Verb Phrases as well may have the same sorts of characteristics as the better-understood DP's, type information alone in the lexical projection, and any token information is made available only with the addition of higher functional projections. Something like this has also been explored in Svenonius (1996) and Guéron (ms).

4. Adjective Phrases

Much less work has been done on the intricacies of the interpretation of AP's than on DP's and VP's. Consequently, this section will be brief. But here, too, once this asymmetrical interpretive framework is in mind, AP's quite plausibly fit the pattern outlined above for VP's and DP/NP's.⁴ Again, our point of departure is the very common idea that adjective phrases express predicates that apply to individuals, so an adequate representation of the semantics of an AP like [AP clever] is simply *clever*(x).

Rothstein (1999) argues that the meanings of adjective phrases should not be so analyzed. Her strategy is to compare the denotations of adjective phrases to those of verb phrases. The main difference between them is that VP's form predicates, whereas AP's do not, but require the presence of the copula in order to function as a predicate. From the present perspective, addition of a copula is the higher-level functional category that makes available token information.

Briefly, Rothstein argues that AP's denote a certain species of eventuality which lacks the properties of predicatability and localizability. The thrust is that AP's denote states that correspond to mass rather than count interpretations, and because of this lack of

"packaging" they cannot be located in time, even though they might have duration.

Consider the following contrast:

(16) (=Rothstein's (51))

- a. Yesterday, the witch made John clever for three hours.
- b. Yesterday, the witch made John clever at three o'clock.

In (16a), the phrase *for three hours* can modify the AP *clever*. Note that the interpretation does not localize the time of being clever. For instance, the sentence's meaning is compatible with a situation where a witch, at nine in the morning yesterday, performs some little ceremony that has the effect of making John clever between one and four in the afternoon today. Or, even perhaps the actual cleverness has yet to appear. There is another reading of (16a) where *for three hours* modifies the main verb *make*, which could be interpreted as repetitive acts of transforming John, or as the duration of an extended ceremony, perhaps.

In contrast, (16b) only has a reading where the modifier *at three o'clock* modifies the main verb. Lacking is an expected reading where the witch performs a ceremony of sorts during the morning hours that has the effect of John suddenly becoming clever at three that afternoon. The witch's activities must take place at three, not in the morning. Unlike durative modifiers, point-time modifiers localize an eventuality, which requires reference to specific, token information, and AP's do not have a denotative structure that allows this. Note that if the copula is added to (16b), the localization of the cleverness is made possible:

(16) b'. Yesterday the witch made John be clever at three o'clock.

Here, it is possible to have the witch perform some magic in the morning, which has the effect of John suddenly becoming clever at three o'clock later that day.

A detailed discussion of Rothstein's view of VP meanings, and how to square what she says there with the current perspective would take us too far afield. However, her discussion is highly suggestive of the notion that AP's, too, involve only type information and there is a requirement that some higher-level functional category be applied to it in order to make reference to specific, individual token information.

5. Conclusion.

I have reviewed some of the research in this paper which appears to support the notion that major phrases, NP, AP, and VP, have a semantics that differs qualitatively from the semantics of the higher-level projections in which they may be embedded. I have left aside discussion of PP's, unsure whether to count them as major phrases at all, and having nothing to offer about them in any case. My goal here has been to establish the plausibility of a certain view--that these categories encode type-information only--and that research conducted with this view of the organization of the grammar in mind may lead us to understand better the character of natural language.

Footnotes

1. I wish to thank the audience of the Conference on Asymmetry for their comments and help. In particular, I have gained increased perspective from discussion with Anna-Maria DiSciullo, Jacqueline Guéron, and Peter Svenonius.
2. Longobardi does address the fact that proper names do, occasionally, function as genuine predicates, meaning roughly "x has the name Y". So, if I complain there are too many Jeff's in the department, *Jeff* is functioning as a predicate and not a name.
3. One has to deal with vagueness of quantifiers like *many* and *quite a few*, and I will not get into the question here of how one accomplishes this in the absence of context (see Chierchia and McConnell-Ginet (2000) for an analysis which does not necessarily rely on context).
4. This section needs to be qualified by Cinque's (1995, 1999) analysis of AP in the DP domain being placed among the functional categories in the DP. If this is so, then the type/token asymmetry might have to be located in the functional domain only. However, Rothstein's focus, on the other hand, is on AP's that are functioning as predicates of sentences, and comments here are limited to that.

References

- Abney, S. 1987. The English noun phrase in its sentential aspect. Massachusetts Institute of Technology Ph.D. dissertation.

- Bach, E. 1986. "The algebra of events." *Linguistics and Philosophy* 9, 5-16.
- Barwise, J. and Cooper, R. 1981. "Generalized quantifiers and natural language." *Linguistics and Philosophy* 4: 159-219.
- Brugger, G. 1993. "Generic interpretations and expletive determiners." *University of Venice Working Papers in Linguistics* 3, 1-30. Venice: Centro Linguistico Interfacoltà.
- Carlson, G. In press. "Weak indefinites." In *From NP to DP: on the Syntax and Pragma-Semantics of Noun Phrases*. M. Coene and Y. D'Hulst (eds) . Amsterdam: Benjamins.
- Cinque, G. 1995. *Italian Syntax and Universal Grammar*. Cambridge: Cambridge University Press.
- Cinque, G.. 1999. *Adverbs and Functional Heads*. Oxford: Oxford University Press
- Cheng, L. and Sybesma, R. 1999. "Bare and not-so-bare nouns and the structure of NP." *Linguistic Inquiry* 30: 509-42.
- Chierchia, G. 1998a. "Partitives, reference to kinds, and semantic variation." In *Proceedings of Salt VII*. A. Lawson (ed.) Ithaca, NY: Cornell University.
- Chierchia, G. 1998b. Reference to kinds across languages. *Natural Language Semantics* 6, 339-405.
- Chierchia, G. and McConnell-Ginet, S. 2000. *Meaning and Grammar*. Cambridge, MA: MIT Press.
- Contreras, H. 1986. "Spanish bare NP's and the ECP." In *Generative Studies in Spanish Syntax*. I. Bordelois, H. Contreras, and K. Zagona (eds.), 25-49. Dordrecht: Foris.
- Diesing, M. 1992. *Indefinites*. Cambridge, Mass.: MIT Press.

- Guéron, J. 2001. "Sur la syntaxe de l'aspect." Ms, University of Paris III.
- Heim, I. 1982. The semantics of definite and in definite noun phrases. Ph. D. dissertation, University of Massachusetts/Amherst.
- Jackendoff, R. 1977. *X-Bar syntax: A study of phrase structure*. Cambridge, MA: MIT Press.
- Kamp, H. 1981. "A theory of truth and semantic representation." In *Formal methods in the study of language*. J. Groenendijk, T. Janssen, and M. Stokhof (eds.) , 277-322. Mathematisch Centrum, Amsterdam: Mathematical Center Tracts, 135.
- Longobardi, G. 1994. "Reference and proper names: a theory of N-movement in syntax and logical form." *Linguistic Inquiry* 25, 609-669.
- Longobardi, G. To appear. "How comparative is semantics? A unified parametric theory of bare nouns and proper names. " To appear in *Natural Language Semantics*.
- McNally, L. 1998. "Existential sentences without existential quantification." *Linguistics and Philosophy* 21, 353-392.
- Milsark, G. L. 1974. Existential sentences in English. Ph.D. dissertation, Massachusetts Institute of Technology.
- Radford, A. 1988. *Transformational Grammar: A First Course*. Cambridge: Cambridge University Press.
- Rothstein, S. 1999. "Fine-grained structure in the eventuality domain: The semantics of predicative adjective phrases and *be*." *Natural Language Semantics* 7, 347-420.
- Svenonius, P. 1996. "Predication and functional heads." In *Proceedings of the Fourteenth West Coast Conference on Formal Linguistics*. J. Camacho, L. Choueiri, and M. Watanabe (eds) 493-507. Stanford: Center for the Study of Language and Information.

Vergnaud, J-R. and Zubizarreta, M-L. 1992. "The definite determiner and the inalienable constructions in French and English." *Linguistic Inquiry* 23, 595-652.

Williams, E. 1975. "Small clauses." In *Syntax and semantics Vol 4*. J. Kimball (ed.), 249-74. New York: Academic Press.

Zamparelli, R. 1995. Layers in the determiner phrase. Ph. D. dissertation, University of Rochester.