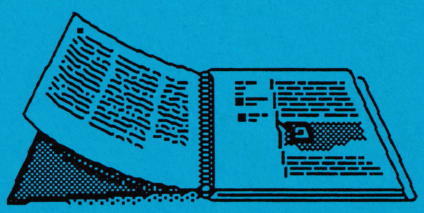
Zentrum für Allgemeine Sprachwissenschaft,
Sprachtypologie und Universalienforschung

ZAS Papers in Linguistics

Volume 5
August 1996



Edited by

Artemis Alexiadou
Nanna Fuhrhop
Paul Law
Sylvia Löhken

ISSN 0947-7055

Table of Contents

The Syntactic and Semantic Properties of Free Relatives in Modern Greek*

Artemis Alexiadou (ZAS, Berlin) & Spyridoula Varlokosta (UPenn)
artemis@fas.ag-berlin.mpg.de & sparti@linc.cis.upenn.edu

1. Introduction

In addition to 'headed' relatives there exists a type of relative clause which, using the traditional terminology, 'lacks an overt head'. Such constructions are known as 'free' or 'headless' relatives (henceforth FRs). Unlike 'headed' relatives which modify a head NP (cf. (1)), FRs are not head modifiers (cf. (2)). Rather they are arguments of the matrix verb similarly to wh-questions (cf. (3)):

(1) I will buy the car which you are selling
(2) I will buy what(ever) you are selling[1]
(3) I don't know what you are selling

FRs have attracted a great deal of attention within linguistic theory. Three major issues have been the focus of a considerable amount of debate in the generative literature: A) their semantic properties, B) their matching effects and C) their internal structure.

A) As shown in (2), FRs in English are introduced by wh-words, which sometimes can be suffixed by *-ever*. It has been argued that FRs introduced by plain wh-words have a reading

---

*Earlier versions of this paper were presented at the GGS 1995 in Jena and at the 2nd International conference on Greek Linguistics. Many thanks to Elena Anagnostopoulou, Daniel Büring, Anastasia Giannakidou, Alex Grosu, Geoffrey Horrocks, Jaklin Kornfilt, Andre Meinunger, Renate Musan, Cristina Schmitt, Melita Stavrou, George Tsoulas and Chris Wilder for discussion.

[1] English exhibits FRs in a number of categories, NPs, PPs, APs, and AdvPs (cf. Bresnan and Grimshaw 1978):

(i) a. I will buy [NP what(ever) you are selling]
b. John will leave [PP when(ever) Mary leaves]
c. John will grow [AP however tall his father grew]
d. I will word my letter [AdvP however carefully you word yours]

Larson (1987) points out that assuming categorial variation for FRs, involves a puzzling asymmetry between full and free relative clauses since the structure of the former involves a head which is uniquely NP, whereas the structure of the latter involves a broader range of categories. Furthermore, he points out that the positions occupied by the FRs are not exactly positions where PP, AP, or AdvP exclusively occur but positions which admit a broader spectrum of categories whose semantics is locative, temporal, and so forth:

(ii) I will leave [FR whenever Mary leaves]
(iii) I will leave [AdvP subsequently]
[PP on Thursday]
[NP the day that Mary arrives]

Independently, there is evidence that *when* and *where* can be seen as bare NP adverbs (cf. Larson 1985, Enç 1986, Alexiadou 1994). Thus, the categorial variety of FRs, as put forward in Bresnan and Grimshaw (1978), is an epiphenomenon. Thoughout this paper we will be assuming that FRs are DPs and that all FRs have a DP structure, in the spirit of a more unified analysis of FRs a la Larson (1987). (We refer the reader to the Appendix for arguments in favor of the position that FRs are DPs and not CPs).

similar to the one of definite NPs like 'the thing', whereas FRs suffixed by *-ever* have the meaning of a universal quantifier (cf. Larson 1987):[2]

(4) a. I ordered what he ordered =
I order the thing he ordered
b. I will read whatever you assign =
I will read everything/anything you assign

This claim has been challenged first by Jacobson (1988, 1995) and subsequently by others (Srivastav 1991a,b, Grosu 1994, 1996, Rullmann 1995). These authors argue that *what* and *whatever* can result in both definite and universal readings and that the universal reading of FRs is due to some other factor. For example, according to Jacobson (1988, 1995) the universal reading of FRs is in fact a plural definite reading, i.e., it arises because FRs can denote maximal plural entities.

B) A second property of FR constructions which has attracted a lot of attention is the so-called **Matching Effects** FRs exhibit in some languages (first discussed in Grimshaw 1977 and Bresnan & Grimshaw 1978). Matching refers to the fact that the wh-phrase must be of the same category as the position associated with the FR in the matrix, as shown in (5):

(5) a. I will love [NP [NP whoever] you tell me]
b. I will love [NP this man]
c. *I will love [NP [PP with whom] you go for a walk]

In languages with overt case marking, we observe Case Matching as well, that is, the case of the FR pronoun is determined by the matrix verb and not by the verb of the FR clause. Spanish and Modern Greek (MG) are matching languages (cf. Suñer 1984 for Spanish and Philippaki & Stavrou 1986 for MG):

(6) Pare opjon /*opjos erthi
take-2Sg whoever-ACC/*-NOM come-3Sg
'Take whoever may come'

C) The third issue of controversy, and one very closely related to the other two just discussed, is the **internal structure** of FR constructions. Some researchers have argued that the wh-phrase in (2) is in the head position and a null nominal is in the clause-internal base position (cf. Bresnan & Grimshaw 1978). This is claimed to explain the matching effects observed in some languages (cf. Bresnan & Grimshaw 1978). Additionally, it is argued that an analysis along these lines provides an explanation for the semantic properties of FRs since the burden of supplying the quantificational force of a FR is borne by the lexical meaning of the FR wh-word in the head position (cf. Larson 1987). On the other hand, some other researchers have argued that the wh-phrase is in Spec, CP while a null nominal occupies the head position, appealing to some other mechanisms in order to explain the matching effects observed in some languages (COMP-accessibility hypothesis in Groos & Van Riemsdijk 1981 and for different varieties of this proposal see Hirschbuehler & Rivero 1981, 1983, Harbert 1983,

[2] Larson's argument in favor of *whatever* having universal quantificational force comes primarily from 'missing-Preposition' FR constructions; we refer the reader to Larson (1987) for more details and to Grosu (1996) for a critic.

Suñer 1984, Grosu 1994, among others) or the semantics of these constructions (type-shifting operations as in Jacobson 1988, 1995).

In this paper we attempt to shed more light onto the aforementioned issues by examining the FR construction in MG. But, why Modern Greek? Unlike English FRs, FRs in MG are not introduced by the same elements that introduce wh-questions, but by a series of pronouns which are morphologically distinct both from the wh-words used in interrogative complements and from the series of relative pronouns that introduce 'headed' relatives. This is shown in (7):[3]

---

[3] The FR series in MG includes the pronouns *opjos/a/o* 'whoever' *o,ti* 'whatever', *opou* 'wherever', *opote* 'whenever', and *osos/i/o* lit. 'however much/many':

(i) a. Tha fao o,ti mu pis
FUT eat-1Sg whatever me tell-2Sg
'I will eat what you tell me'

b. Erxete opjos theli
come-3S whoever want-3S
'Whoever wants, may come'

c. Pai opou theli
go-3Sg wherever want-3Sg
'He goes wherever he wants'

d. Erxete opote theli
come-3Sg whenever want-3Sg
'He comes whenever he wants'

e. Troi oso theli
eat-3Sg as mush as want-3Sg
'He eats as much as he wants'

With the exception of *osos*, all these pronouns are formed by a wh-element (*pjos* 'who', ti 'what', *pu* 'where' *pote* 'when') and the morpheme *o-*, which according to some scholars (cf. Andriotis 1967) is related to the determiner, but according to others (cf. Hatzidakis 1907) is a morpheme responsible for the 'indefinite' reading these relative pronouns have. Since the opinions vary, we will not put too much weight on the morphological decomposition of these elements. Our approach here is compatible with either view.

FRs in MG can also be introduced by the *-dhipote* series (*opjosdhipote* 'whoever', *otidhipote* 'whatever', *opoudhipote* 'wherever', *opotedhipote* 'whenever', *ososdhipote* 'however much/many'). There are distributional and interpretational differences between the two series which arise from the fact that the *-dhipote* series has the distribution and interpretation of a free choice item and thus, a semantically dependent use (see Varlokosta 1995 and Giannakidou in preparation). We will not discuss these cases here; we will rerstrict ourselves to the *o,ti/opjos* series.

A final note about the FR pronoun *osos*: FRs introduced by *osos* seem to display an 'amount reading' (see Carslon 1977 for amount relatives) and a behavior similar to *what* (cf. Carlson 1977, Grosu 1996). More specifically, *osos* FRs, like *what* FRs, appear with mass nouns or non-individual NPs, unlike the rest of the FR pronouns:

(ii) a. Ipja oso krasi mu dosane
drank-1Sg as much wine me gave-3PL
'I drank what wine they gave me'

b. *Ipja oso potiri krasi mu dosane
drank-1S as much glass wine me gave-3PL
'*I drank what glass wine they gave me'

(7) a. Potisa pjos irthe *(Question)*
asked-1Sg who came-3Sg
'I asked who came'

b. Opjos theli erhete *(FR)*
whoever-NOM want-3Sg come-3Sg
'Whoever wants, may come'

c. Agorasa to spiti pu/to opjo mu arese *(Headed Relative)*
bought-1Sg the-house-ACC that/which me pleased
'I bought the house that I liked'

Besides their distinct morphological composition Modern Greek FRs exhibit very distinct semantic and syntactic properties. First, although FR pronouns in Modern Greek appear to behave like *whatever* and not like *what* with respect to a series of diagnostics (cf. Iatridou & Varlokosta 1995), we will show that their quantificational force is essentially determined by the tense-aspectual properties of the sentence.

Furthermore, Modern Greek FRs exhibit matching effects. However, these matching effects are restricted to certain positions, namely object and postverbal subject position. In (preverbal) subject or dislocated positions FRS may not show matching, that is, (preverbal) subject and dislocated positions allow for both matching and non-matching FRs (cf. Philippaki & Stavrou 1986). The option of non-matching FRs in non-subcategorized positions has been pointed out for Catalan (Hirschbuehler & Rivero 1981, 1983) and Spanish (cf. Suñer 1984) as well. However, in this paper we show that at least in Modern Greek matching is also available in preverbal positions. We argue that matching vs. non-matching effects in Modern Greek FRs simply follow from the fact that these constructions occupy different syntactic positions; non-matching FRs are instances of left-dislocated structures (including preverbal subject FRs) whereas matching FRs are either instances of focus constructions or hanging topics (in the case of subject FRs).

---

c. *Ipja osa potiria krasi mu dosane
drank-1S as many glasses wine me gave-3PL
'I drank what glasses of wine they gave me'

d. Ipja opjo potiri krasi mu dosane
drank whatever glass wine me gave-3Pl
'I drank whatever glass of wine they gave me'

They receive a 'least amount' interpretation:

(iii) Ipja oso ligo krasi mu dosane
drank-1S as little wine me gave-3PL
*oso poli
as much

And they occur with Ns which do not cooccur with the other FR pronouns, crucially non-referential amounts:

(iv) zigizi osa/*opja kila perimena oti tha zigize
weighs what/whatever kilos expected-1S that FUT weighed
'he/she weighs what kilos I expected he/she would'

We will not discuss *osos* FRs here.

Finaly, we will claim that our facts and the conclusions we reach with respect to the syntactic and semantics properties of Modern Greek FRs are compatible with the analysis of FRs along the lines of Vergnaud (1974) and Kayne (1995).

The paper is organized as follows: in section 2 we discuss the semantic properties of FRs. In section 3 we review previous analyses of the structure of FRs. In section 4 we extensively discuss the Matching effects.

2. The Semantic Properties of FRs

Before we turn to the semantic properties of FRs in MG, we will briefly review the discussion concerning the semantic properties of FRs in English.

2.1. The Semantic Properties of FRs in English

As we mentioned earlier, it has been argued in the literature (cf. Bresnan & Grimshaw 1978 and Larson 1987) that *wh-FRs* appear to have an interpretation similar to definite NPs, whereas *ever-FRs* have the quantificational force of a universal:

(8) a. I ordered what he ordered =
I order the thing he ordered
b. I will read whatever you assign =
I will read everything/anything you assign

Jacobson (1988, 1995), on the other hand, argues that this distinction is an oversimplification and that all FRs are ambiguous between a definite and a universal reading (following essentially Cooper 1983). According to Jacobson, there are FRs introduced by *what* that appear to have universal force:

(9) I read what was on the reading list =
I read everything that was on the reading list

On the other hand, there are FRs introduced by *whatever* that do not have universal quantificational force but a meaning much like a definite NP, with *-ever* simply indicating ignorance on the part of the speaker as to the identity of the thing in question:[4] [5]

---

[4] The 'speaker's ignorance' reading is first discussed in Jacobson (1988, 1995) who attributes it to Elliot (1971). Tredinnick (1995) argues that this use of *whatever* has an existential presupposition associated with it absent in the normal use of *whatever*.

[5] Jacobson (1995) points out the following differences between *whatever* and universal quantifiers:

I) universals can be modified by *nearly* or *almost*, *whatever* cannot:

(i) a. For years I did nearly/almost everything/anything you told me
b. *For years I did nearly/almost whatever you told me

II) universals license NPIs, *whatever* does not:

(ii) a. I can read everything Bill ever read
b. *I can read whatever books Bill ever read

(10) Everyone who went to whatever movie the Avedon is now showing said it was boring

Hence, Jacobson concludes that FRs have uniform semantics that are similar to that of definite NPs, that is, they denote maximal individuals. The apparent universal force of a FR comes from the fact that it can denote a maximal plural (i.e. non-atomic) entity (or from sum-formation in Rullmann's (1995) terms).

However, there are arguments in the literature in favor of the original position, put forward in Bresnan & Grimshaw (1978), and Larson (1987), that *what* has distinct distributional properties from *whatever*. All these arguments show that *whatever* patterns with universals like *every* in a number of ways:

i) *what* can participate in the making of a specificational pseudocleft *whatever* cannot (cf. Iatridou and Varlokosta 1995):[6]

III) universals do not support anaphora by it, *whatever* does:

(iii) a. *Everyone who went to every movie the Avendon is now showing said it was boring
b. Everyone who went to whatever movie the Avendon is now showing said it was boring

However, there is counterevidence to Jacobson's claims about *whatever*. Concerning Jacobson's point (I), Iatridou & Varlokosta (1995) point out that there are other universal quantifiers, namely *each* and *both*, that behave like *whatever* with respect to modification by *nearly/almost*:

(i') a. *For years I did nearly/almost each thing you told me to do
b. *I did almost/nearly both things you told me to do

As for (II), Tredinnick (1995) presents evidence that NPIs are possible in *whatever* FRs:

(ii') a. He got into trouble for whatever he ever did to anyone
b. I will go wherever the hell you go

Regardless of the disparity in judgements though, Iatridou & Varlokosta (1995) point out that universal quantifiers like *each* and *both* cannot license NPIs either:

(ii") a. *I can read each book that Bill ever read
b. *I can read both books that Bill ever read

Concerning (III), Tredinnick (1995) argues that in cases similar to (iiib) *whatever* has the so-called 'speaker's ignorance' reading. Iatridou & Varlokosta (1995) argue that pronominal anaphora is possible in (iiib) because the sentence has as part of its presupposition that the Avedon is, indeed, showing some (of course, specific) movie and it is this presupposition that licenses the pronoun; i.e., it is a referential pronoun, not a bound variable. If one constructs an example with *whatever* but without the speaker's ignorance reading, anaphora becomes impossible and Jacobson's sentence becomes bad (contrast iiib) to (iii')):

(iii') *Everyone who talks to whatever woman he meets on the street says she is beautiful

[6] Iatridou & Varlokosta (1995) argue that *whatever* is not possible in (11b) because in the specificational pseudocleft the FR functions as the predicate of predication (cf. Williams 1983) and universals cannot serve as predicates. Jacobson (1988, 1995) does not provide an explanation for this fact , nevertheless, she states that this behavior of ever-FRs "seems to be orthogonal to their quantificational force".

(11) a. What John is is important to himself
b. *Whatever John is is important to himself
c. *Everything John is is important to him

ii) *What* but not *whatever* can restrict adverbs of quantification (cf. Tredinnick 1995, Iatridou and Varlokosta 1995):

(12) a. When I go to the store, I mostly buy potatos
b. *Whenever I go to the store I mostly buy potatoes[7]
c. *Everytime I go to the store I mostly buy potatoes

iii) *whatever* is incompatible with epistemic modality in its clause (cf. Tredinnick 1995):[8]

(13) a. He does what must be a difficult job
b. *He does whatever must be a difficult job
c. *He does everything that must be a difficult job

Hence, according to these authors *whatever* and generally *-ever* FRs, have universal force which is derived from the nature of the particle *-ever*. What about the universal readings of plain wh-words? Tredinnick (1995) argues that bare wh-words are also compatible with situations that favor the universal reading, however, they do not have quantificational force of their own. In contexts which are ambiguous between a definite and a universallyquantified reading, *-ever* simply disambiguates in favor of the universal reading (or yields the speaker's ignorance reading). In contexts which are universally quantified from some other source the presense of *-ever* is not redundant, but it performs the function of widening the domain in the same manner as free choice *any* does (cf. Kadmon & Landman 1990) (see also Srivastav 1991a and Grosu 1996).

2.2. The Semantic Properties of FRs in MG

Iatridou & Varlokosta (1995) argue that the FR pronoun *o,ti* in MG behaves not like *what* but like *whatever* and hence with universals with respect to the aforementioned diagnostics:
i) *o,ti* does not participate in the formation of specificational pseudo-clefts, although it can form predicational speudoclefts:

(14) a. *O,ti ine o Janis ine arostos
whatever is John-NOM is sick-Masc
'What John is is sick' (*specificational*)

[7] (12a) can mean either ' on most occasions when I go to the store, I buy potatoes' or 'on occasions I go to the store, most of what I buy is potatoes'. (12b) has only the latter interpretation.

[8] According to Tredinnick (1995) the ungrammaticality of (13) indicates that *whatever* can never appear in non-quantificational environments, such as those of epistemic modality.

b. O,ti ine o Janis ine spanio
whatever is John is rare
'What John is is rare' (*predicational*)

ii) *o,ti* cannot restrict adverbs of quantification:[9]

(15) *O,ti agorazi o Yanis ine spania akrivo
whatever buy-3SG John is rarely expensive

iii) *o,ti* is incompatible with epistemic modality:

(16) a. *Kani o,ti prepi na ine dhiskolo
(s/he) does whatever must be difficult

b. *O,ti prepi na simveni eki ine fovero
whatever must happen-3Sg there is horrible

To these diagnostics we also add that FRs in MG seem to be able to license NPIs:

(17) a. Thavune opjus pune kamja kali kuvenda
burry-3PL whoever-ACC say-3PL any good word-ACC
ja to Jani
about John-ACC

b. O,ti ithele pote i Maria to agoraze
whatever wanted ever Mary-NOM it bought-3S

Examples (14) to (17) show that MG FRs pattern distributionally with *whatever* and not with *what* with respect to a number of diagnostics, i.e. a universal reading is strongly preferred with MG FRs. Does this mean that MG FRs lack definite readings altogether? We would like to point out that *o,ti/opjos* are in fact compatible with the definite reading. Consider for example the following situation, where John went to the bookstore and the speaker utters (18):

(18) O Janis agorase o,ti tou protine i Maria
John-NOM bought FR cl-Gen suggested Mary-NOM

The continuation of this sentence could be: namely, any book that Mary likes. (18) can also result in the speaker's ignorance reading: but I don't know what exactly it was that he bought. However, the continuation of (18) could also be: namely, War and Piece. In other words, (18) is also compatible with a definite reading (i.e. a reading where the speaker knows the identity of the thing John bought).[10]

---

[9] The ungrammaticality of the example simply indicates the inability of the *o,ti*-clause to restrict the adverb of quantification, that is the unavailabilty of the reading in which the adverb quantifies over instances of buying.

[10] In MG the definite reading is also expressed by a contrsuction which is headed by the demontrative pronoun *aftos/i/o* 'this' and the relative complementizer *pou*, i.e by a headed relative:

(i) O Yanis efage afto pou mageirepse i mitera tou
John ate this that cooked his mother
'John ate what his mother cooked'

In (18) both the verb of the FR and the verb of the main clause is in the past tense and marked with perfective aspect. If both the main verb and the verb of the FR are in the present tense, as in (19), only the universal reading arises (note that the present tense in Modern Greek is always marked with the imperfective stem). (19) means that John buys anything or the things that Mary suggests to him:

(19)	O Janis	agorazi	o,ti	tou	protini	i Maria
	John-NOM	buys	FR	cl-Gen	suggests	Mary-NOM

Similarly, different combinations of tense and aspect in the FR and in the main verb result in various readings:

(20)	O Janis	tha agorasi	o,ti	tou	protini	i Maria
	John	FUT buys-Perf	FR	cl-Gen	suggests	Mary-NOM
	--> both definite and universal readings					

(21)	O Janis	agoraze	o,ti	tou	protine	i Maria
	John	bought-IMP	FR	cl-Gen	suggested	Mary
	--> universal					

It seems therefore that the **tense-aspectual** properties of both the matrix and the FR sentence play a role in the interpretation of the FR clause. This is reminiscent of Srivastav's (1991a) claim that universality effects arise when the tense-aspectual-modal properties of the clause (the FR and the main clause) allow the FR to be evaluated in a plurality of worlds, whereas definiteness effects arise when a multiple world evaluation is incompatible with the tense-aspect-mood properties of one of the clauses. In (18) perfective aspect forces evaluation at a single worde, while in (19) imperfective aspect allows a universal like construal.[11]

To conclude, Modern Greek FRs appear to behave distributionally like *whatever* in English (cf. Iatridou & Varlokosta 1995), however, they result not only in universal interpretations but are compatible with definite interpretations too. Crucially, MG FRs exhibit both 'definite' and 'universal' force.[12] Thus, they seem to behave like indefinites in the sense of Heim (1982)[13] in that they get their quantificational force from their environment.

---

[11] Grosu (1996), following Srivastav (1991a), shows that universality effects in English also arise when the context (in particular generic or modal operators found in both the relative and the matrix) allows the FRs to be evaluated at a plurality of words; definiteness effects arise when a multiple-world evaluation is inconcistent with the tense-aspect-mood properties of one of the clauses:

(i) a. I'll visit who/whoever you visited yesteray at exactly 5 p.m
b. I'll visit who/whoever you visit

In (ia), Grosu argues a 'definite' reading is present, while in (ib) due to the generic specidications in both clauses a 'universal' construal is established. Thus, English FRs seem to behave similarly to MG FRs in this respect. A more careful examination of all factors that affect the quantificational nature of (MG) FRs awaits for further research.

[12] Potentially the force of the FR is not really that of a universal but that of a generic nominal which is responsible for the 'on most occasions' interpretation (see Grosu 1996 for discussion).

[13] See however Srivastav (1991a) for arguments against an 'indefinite' type approach.

In the next section we turn to the syntactic properties and the structure of FRs. The various combinations of tense-aspect-mood operators in the FR and the matrix ought, in principle, to have the same semantic effects whether the wh-phrase is in external head position or it is clause internal.

3. The Structure of FRs

One of the most controversial issues concerning the structure of FRs has been whether they have the internal structure of an NP or their internal structure is similar to that of other wh-constituents. There are two main proposals concerning the internal syntax of FR constructions. According to the first one put forth in Bresnan & Grimshaw (1978), the wh-phrase is the head of the construction. According to the second proposal, the wh-phrase is found in Spec,CP of a clause right adjoined to an NP (see Groos and van Riemsdijk 1979).

Larson (1987) points out that, if Bresnan & Grimshaw are correct in analysing the FR pronoun as the external head of the construction, then the burden of supplying the quantificational force of an FR is borne by the lexical meaning of the free relative wh-word in head position. Similarly to ordinary headed NPs, where it is uncontroversial that the definite or universal meaning is supplied by the lexical meaning of the Determiner *the* and *every*, English FRs are assumed to derive their universal force from the presence of *-ever* in the external head position of the clause and their definite reading from the presence of *what* in the head position (see Larson 1987 and Kayne 1995). Larson claims that Groos and van Riemsdijk's account cannot capture the quantificational properties of FRs, since these are related to the lexical items and cannot be assigned by higher predicates. Yet, Larson is based on the assumption that definite and universal readings are related to the presence of *what* and *whatever* respectively.

Leaving the status of the English FR pronouns aside, we have illustrated in the previous section, MG FRs exhibit both definite and universal readings with the same pronoun. Seeing this as evidence that it is not the external head that supplies the definite or universal readings of MG FRs but rather these readings are determined by other factors, the variability exhibited should in principle be able to arise irrespectively of the actual structure of the FR clause. To account for this variability either type shifting operations such as the ones proposed in Jacobson (1995) and Rullmann (1995) or a clear specification of the conditions under which the notion of *maximalization* (cf. Grosu 1996) can be maintained are needed.

In the following sections we will present syntactic evidence that the head-analysis is not tenable and discuss briefly the syntactic role of the external head, leaving the exact semantic formalization for further research.

3.1. LCA and the DET-hypothesis

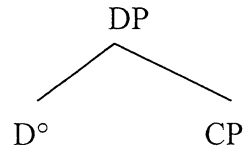
Before we turn to the structure of FRs, let us outline our assumptions concerning phrase structure and briefly discuss the structure of 'headed' relatives, since our claim is that FRs should be analysed in a similar manner.

The standard view on the structural representation of relative clauses is that they are right adjoined to an XP. Since one consequence of the *Linear Correspondence Axiom*[14] (LCA cf.

[14] The essence of Kayne's proposal is that hierarchical structure fully determines linear order, according to the LCA. The Axiom can be stated as follows: For any two non-terminals X, Y, if X asymmetrically c-commands

Kayne 1995) is that right adjunction is prohibited, relative clauses cannot be right adjoined to a maximal projection: if Y is adjoined to X, Y asymmetrically c-commands X, the terminals of Y may only precede those of X in the string. A relative clause string typically follows the string it is supposed to be adjoined to. Hence, the right-adjunction analysis is excluded. Thus, relative clauses must be reanalysed as complements of D° or complements of N°. The latter solution, Kayne argues, seems implausible, as the clause does not seem to function as a complement of a lexical predicate and does not capture certain facts concerning the interpretation of gaps in relative clauses.[15] (22) illustrates the structural configuration we will assume.[16]

(22)



3.2. FRs and Matching

3.2.1. General Facts

According to Bresnan and Grimshaw (1978), a FR is matching if the syntactic category of the wh-phrase is of the same category as the whole FR. A FR is non-matching when the wh-

---

Y then all terminals x dominated by X precede all terminals dominated by Y.

[15] For instance the adjunction hypothesis cannot capture facts involving idiom expressions:

(i) a. The headway that we made was insufficient
b. *The headway was insufficient

The nominal part of the idiom must be generated as the complement of the verb of the expression. Under the head raising analysis the idiom N head of the relative has raised from the object position of made. A second argument which has been identified as a problem for the base generated external head hypothesis is the lack of definiteness effects on the trace of wh-movement:

(ii) a. *there were the men in the garden
b. the men that there were in the garden

(iib) shows that it is not a definite DP that is interpreted in the position of the gap. See also Carlson (1977) for more arguments in favor of the head-raising and the determiner complementation hypothesis.

[16] In support of this, note that MG in general permits CPs to appear as complements of D°, having the distribution of DPs (see Roussou 1991). In other words, MG has nominalized clauses (cf. i). Furthermore, only the definite singular article can be prefixed, as we see in (ii):

(i) a. To ti vivlia grafi mu kani endiposi
the what books writes me makes impression
b. To na agosume aftokinito den ine kali idea
the SUBJ buy-1PL car-ACC NEG is good idea
c. me stenahori to pu ise makria
me upsets the that are-2S away
d. apo to oti kokkinise katalava tin tarahi tu
from the that blushed-3S understood-1S the excitement his

(ii) *ena oti efige
a that left-3S

phrase is different from the category corresponding to the syntactic position associated with the FR relative in the matrix. In languages with overt case marking, matching requires the case of the wh-word/FR pronoun to be identical to that of the position the FR clause occupies, i.e., the case of the element is determined by the matrix verb.[17]

There are three language types with respect to matching (cf. also Grosu 1994):

I) *strictly matching* languages like English:

(23) a. John loves whom you despise
b. *John loves with whom you go for walks

II) *strictly non-matching languages* like Gothic (cf. Harbert 1983), Classical Greek (cf. Harbert 1983, Stavrou & Philippaki 1987) or Medieval Greek (cf. Chila-Markopoulou 1991). We observe in (24) that although the syntactic position of the FR is an NP position, the wh-phrase is a PP:

(24) a. ushafjands [NP [PP ana pammei] lag] (*Gothic*)
picking up on which he-lay
'picking up (that) on which he lay...'

b. aras [NP [PP eph'ho] katekeito] (*Classical Greek)*
lifting on what he-lay
'picking up (that) on which he lay...'

III) *position-dependent non-matching languages* like Modern Greek, or Spanish. In these languages matching is obligatory in some contexts but not in others, as we will show in the next subsection for MG.

3.2.2. MG

MG requires matching FRs in **object position**, as illustrated in (25a, b) (cf. Philippaki & Stavrou 1986):

(25) a. Agapo opjon/*opjos me agapa
love-1S whoever-ACC/NOM me loves
'I love whoever loves me'

[17] Interestingly enough identification of morphological appearance suffices, i.e. it is sufficient that the relative pronoun is marked for a case that is not overtly different from the case assigned to the whole FR as the following German facts (from Groos & Riemsdijk 1979) show:

(i) [was Du mir gegeben t_{ACC} hast]$_{NOM}$ ist prächtig
what you me given have-2S is wonderful

b. Tha voithiso opjon tu dosis to onoma mu
FUT help-1S whoever-ACC cl-GEN give-2S the name my
*opjou 'whoever-GEN'
*s'opjon 'to whoever'
*opju tu 'whoever him-GEN'
'I will help whoever you give him my name'

Observe in (25b) that the presence of a genitive clitic in the FR clause is obligatory in order for the sentence to be grammatical. We will come back to these facts when presenting our account for Case Matching.

Matching is also required with **postverbal subjects**, as shown in (26):

(26) Tha timorithi opjos / * opjon piaso
FUT be punished-3SG whoever-NOM/-*ACC catch-1Sg
'Whoever I catch will be punished'

On the other hand, in **non-subcategorized and in dislocated positions** MG permits non-matching FRs. In other words, in (preverbal) subject (cf. 27a) and in dislocated positions (cf. 27b) both matching and non-matching FRs can appear (cf. Philippaki & Stavrou 1986):

(27) a. Opjon / opjos piaso tha timorithi
whoever-ACC /-NOM catch-1S FUT be punished-3PL
'Whoever I catch will be punished'

b. Opjos / opjon argisi ton timorun
whoever-NOM / -ACC is late-3Sg him-ACC punish-3Pl
'Whoever is late they punish him'

Notice the minimal pair in (26/27a). Postverbal FR subjects are obligatorily matching and thus always marked with Nominative whereas preverbal FR subjects can also be non-matching and thus marked with either Nominative or Accusative.

Furthermore, observe the presence of the clitic in the matrix clause in (27b). The presence of the clitic is obligatory in (27b). In the absence of the clitic the non-matching option (*Nominative*) is ungrammatical, whereas the matching option (*Accusative*) can be grammatical only with heavy stress. We will return to this point later.

There is further evidence from pied-piping for the pattern just described. In general, pied-piping is not allowed when the FR is in a subcategorized position. However, when the FR appears in a dislocated position then pied-piping is obligatory, as the contrast in the following strings shows:

(28) a. *Kerdize m' opjon epeze mazi
won-3S with whoever-ACC played-3SG together

b. M' opjon epeze mazi ton kerdize
with whoever-ACC played-3SG together him won-3SG
'Whoever he/she played with, he/she won against him'

(29) a. *Tha voithiso s' opjon dosis to onoma mou
FUT help-1SG to whoever give the-name my

b. S'opjon dosis to onoma mu tha ton voithiso
to whoever-ACC give-2SG the-name my FUT him help-1sG
'Whoever you give my name to, I will help him'

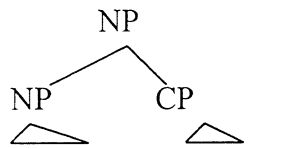
3.3. Previous Analyses

In what follows we will review the main analyses that have been proposed in the literature concerning the Matching Effects and the internal structure of FR constructions attempting to reformulate them in the spirit of Kayne (1995).

3.3.1. The Wh-Head Hypothesiss

The first attempt to account for the properties of FRs was presented in Bresnan & Grimshaw (1978). According to these authors, matching FRs are constructions with the wh-element base generated in the head position and a CP adjoined to the wh-element:

(30)



Let us assume in a Kaynian reformulation of their proposal that the wh-element is base generated in the Determiner head position, as proposed for MG independently in Horrocks & Stavrou (1987) and in Philippaki-Warburton & Spyropoulos (1996). In that case a *pro* form is assumed to be in clause-internal position. This analysis, if tenable, accounts for the matching effects in a straightforward way, because a head is expected to agree in Case and Category with the construction it heads. However, there exist arguments based on a number of languages which show that a 'head' analysis is not possible (for a thorough discussion on German and Dutch see Groos & Riemsdijk 1979, Pittner 1995, and Grosu 1994 for Romanian, Afarli 1994 for Norwegian among many others).

In this section we will present some of the arguments against the Head-Hypothesis. First of all, as Bonneau (1990) points out, if the Head-analysis was on the right track, we would not expect FRs to allow parasitic gaps and to show WCO effects. However, the prediction is not borne out, as shown in the following examples:

(31) a. *Ida opjon-$_i$ ide i adelphi tu-$_i$
saw-1S whoever-ACC saw-3S his sister

b. aperripsa opjon fititi edose eksetasis horis na eksetaso
rejected-1SG whoever student gave exams without examine-1S

A further argument against the head proposal can be constructed from word order alternations in MG. SVO and VSO are equally possible in MG. If the wh-phrase was base generated in D°,

one would expect that it would be insensitive to these alternations. However, this is not the case as the ungrammaticality of (32b) indicates:

(32) a. O,ti ithele i Maria to ihe
whatever wanted Mary-NOM it had-3S

b. *O,ti i Maria ithele to ihe

c. *Opjos ton Petro ton ide mu to ipe
whoever the-Peter-ACC him saw-3S me it said

The above facts and the claim that preverbal subjects are topics in MG (cf. Philippaki 1985, Tsimpli 1990, Alexiadou 1994, Anagnostopoulou 1994, Alexiadou & Anagnostopoulou 1995, 1996a among others) illustrate that we are dealing with a movement dependency. That prevebal subjects are left-dislocated in (32) is shown by the parallel behavior of (32b & 32c), the latter involves a clitic-left dislocated DP)

Another agrument against the head-hypothesis exploits the constraints imposed by the focus position of a cleft construction in English is given in Grosu (1994, 1996):

(33) a. I wonder what it is e that you saw
b. *Bob, who it is e that you saw
c. Whatever it is e that you saw must have been scarey

Grosu assumes that focused phrases (in general, and in cleft-constructions in particular) must include an emphatically stressed element and that focused phrases in clefts have the force of a comment rather than of a topic. The latter assumption is based on the observation that a phrase in cleft-focus position may not be manipulated in ways that would force on it a topic/independent variable construal. For example, it may not be reordered by topicalization (cf. 33b). Wh-movement is of course permitted (cf. 33a). The grammaticality of (33c) is accounted for under an analysis which places the wh-phrase in Spec,CP and not in the head position.

Furthermore, if the wh-phrase was generated in head position, one could not account for the fact that in some languages, as for instance English and MG, overt complemetizers cannot co-occur with the overt head.

Finally, if the whole wh-phrase was base-generated in initial position we would not expect (34) to be grammatical, where the reflexive can be bound by the NP 'Bill'. Assuming Chomsky's theory (1993) of reconstruction, which only applies to A'-movement, the reflexive after having been moved overtly to Spec, CP can be reconstructed in its initial position, i.e. the complement of 'take', where it is bound by the NP 'Bill':

(34) Mary gave Jane whatever pictures of himself Bill had taken

With respect to non-matching FRs, Bresnan & Grimsaw (1978) allow for the possibility that at least some of these constructions are derived by movement of the initial wh-phrase to Spec,C'. For instance, in Moroccan Arabic, the FR fails to exhibit the matching effect and allows for pied-piping with the relative morpheme. As Bresnan & Grimshaw point out

themselves, in cases of pied-piping a movement analysis may lead to the simplest grammar, as one could not possibly argue that the preposition is base generated in the head position, at least for the cases where the preposition is not selected by the matrix clause:

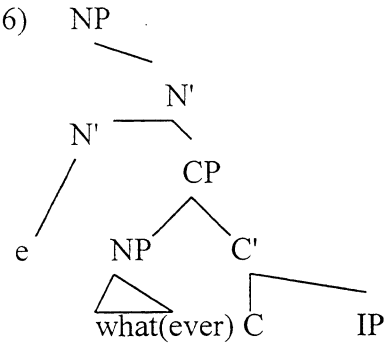
(35) ja: m'a mn dwiti
came with whom talked you

To conclude, we consider the crosslinguistic facts as evidence that a Head-analysis for FRs is not tenable.

3.3.2. The Wh-in-Spec,CP Hypothesis (Groos & Riemsdijk)

Bresnan & Grimshaw's proposal was challenged by Groos & Riemsdijk (1979) who argued that the wh-element of the FR is in Comp adjoined to a null head:

(36)



Let us assume in a Kaynian reformulation of this proposal that the CP is a sister of a null D head.

Groos & van Riemsdijk (G&R) point out that in languages like German and Dutch, FRs appear in contexts of extraposition where simple NPs do not occur, but where clauses do. Thus, they assume that extraposed restrictive relatives and FRs should be analysed on a par, and that in (37b) the clause has been extraposed leaving a null head behind:

(37) a. Hans hat den Boten empfangen [den Gretchen ihm geschickt hat]
Hans has the messenger receive who Gretchen him sent has
b. Hans hat empfanged [wen Gretchen ihm geschickt hat]
Hans has received who Gretchen him sent has

To account for the matching effects, the authors propose that in some languages the null head of the FRs can be, as put in Grosu (1994), by-passed, making the lower Comp accessible to government from the higher verb. The result is that the wh-phrase is treated as being the head of the construction with respect to case and subcategorisation properties.

A variety of the G&R proposal is found in Suñer (1984) who proposes that the empty head of all free relatives is *pro*. *Pro* needs to be licensed and identified (cf. Rizzi 1986) and this is achieved through case-matching according to the case-matching condition which states that *pro* must be non-distinct in case from the wh-phrase in Spec,CP. In languages such as Spanish, when the free relative is already in subject position, *pro* is determined by Infl, so the

case-matching does not apply (see Chila-Markopoulou 1991 for an analysis of MG FRs along the lines of Suñer 1983). In English, Infl does not determine *pro*, thus case-matching must apply.

Grosu (1994/6) proposes that the null element *pro* plays the role of an anaphor. The clause itself serve as a sort of an antecedent to the external nominal. Anaphora in this case is characterized as follows: the antecedent and the anaphor combine together to form a single mention of a set. The antecedent is seen to be discourse novel. As Grosu argues, *pro* has to be identified FR-internally. The basic mechanism for the licensing of the FR head is Case. The domain of *pro* identification is the minimal domain of the head which includes its complements and the constituents adjoined to it and its projections.

This wh-in-Spec,CP analysis captures the pied-piping facts and the movement dependencies being able to account for all the problems that we have pointed out for B&G's approach, namely the WCO, the parasitic gaps and the reconstruction. It is considered as the most appropriated one for the non-matching cases. Hence, we will assume it throughout.

However, Bonneau (1990) points out several theoretical problems within the GB framework which this analysis faces. Namely, it is not clear how the governing head would govern inside S' when this S' is not an argument of the head of the relative nor of the governing head. Additionally, this analysis entails that in matching cases the category-requirement of the V must be satisfied after wh-movement to COMP. These problems do not arise with the Kaynian structure. In section 4 we will present a way in which such theoretical problems can be dealt with and how Matching can be accounted for in a more straightforward way. In our alternative analysis, we will not appeal to *pro* but rather to the observation in both Suñer and Grosu that matching is a property of the morphological component and does not involve syntactic identity. Note also that an analysis which uses *pro* cannot straightforwadly capture the quantificational properties of FRs, since *pro* does not support universal readings.

3.3.3 Mixed Analyses

In order to account for the matching effects, Borsley (1984), Hirschbuehler (1976) and Vergnaud (1974), have proposed that the wh-phrase moves first to Comp and then to the head position.[18] Crucially, both structures are exploited: Bresnan and Grimshaw's structure for completely matching cases and G&R's structure for non-matching cases. A version of this approach has been proposed for MG by Philippaki & Stavrou (1986). They argue that in the matching cases the phrase raises into head position, whereas in the non-matching ones, it remains in COMP. The basic problem an analysis along these line faces is that it seems to involve improper movement from an A' to an A position (cf. Chila-Markopoulou 1991).

A version of these mixed proposals is put forth in Kayne (1995). In his brief discussion of English FRs, he suggests that *-ever* is in D°. The wh-phrase raises from inside its clause first to Spec,CP and subsequently incorporates into the D°. This is a case of N-to-D movement, which is obligatory since *-ever* has a clitic nature and for reasons of Case licensing, though the latter notion is not further specified. According to Kayne, this analysis explains the impossibility of (38), where *-ever* cannot co-occur with an overt determnier:

[18] Also Haider (1988) proposes a kind of mixed analysis where the wh-phrase is both the head of the NP and the specifier of CP.

(38) *We will hire the people whoever you choose

However, the 'cleft-focus' data presented above indicate that such an analysis cannot be along the right lines.

4. Matching and Positions

4.1. MG

Before turning to the internal syntax of the free relatives in MG let us first deal with matching vs. non matching relatives in subject/object position.

With respect to matching FRs in object positions and non-matching FRs as the ones in (28&29b), the account given in Hirschbuehler & Rivero (1981) can in principle be maintained. A number of qualifications with respect to the former will follow in the section dealing with the internal structure of FRs.

Let us now have a closer look at subject and dislocated FRs. As we have seen in section 3.2, the generalization that *pro-drop* languages allow for non-matching relatives in subject position is not correct. By this, however we do not imply that the pro-drop nature of the language is not a factor determining the form of FRs. What is meant is that the data are more subtle than originally assumed. Thus, there appear to exist cases where FRs in subject position are matching. Below we repeat the relevant cases. (39a) is an example with a optionally matching FR in preverbal subject position, (39b) shows that a matching FR is obligatory in post-verbal subject position. (Note that MG does not stand alone in this contrast: similar facts are reported in Grosu (1994) for Romanian and Izvorski (1996) for Bulgarian):

(39) a. Opjon / opjos piaso tha timorithi
whoever-ACC /-NOM catch-1S FUT be punished-3PL

b. Tha timorithi opjos / *opjon piaso
FUT be punished-3SG whoever-NOM/-*ACC catch-1Sg

How is this contrast to be accounted for? First of all with respect to the non-matching FRs in preverbal subject position, we would like to propose that they involve left dislocation. Crucially, FRs -which are DPs- behave like the other DP preverbal subjects in languages like MG, a *pro-drop* language, (see Philippaki-Warburton 1985, Tsimpli, 1990, Alexiadou & Anagnostopoulou 1995, 1996a a.o. for discussion). Left-dislocated DPs are base generated in initial position and thus always non-matching.[19] The fact that in languages like German and English matching FRs appear in preverbal position FRs has to do with the unavailability of pro-drop in these languages. In these languages but not in MG or Spanish the subject DP has to move from its base position to Spec,IP to check the EPP feature in I (see Chomsky 1995 and Alexiadou & Anagnostopoulou 1995, 1996a for a comparative study of subjects in Null Subject Languages and Germanic). Our proposal follows the intuition in Hirschbuehler and Rivero (1983) unifying dislocated and preverbal subject positions. Supporting evidence for our claim is presented below. As (40) shows, left- dislocated FRs precede wh-constituents:

[19] Usually in these cases co-indexation between the left-dislocated FR and *pro* inside the IP is assumed.

(40) opjon nikisume stus telikus ti tha kerdisi
whoever-ACC win-1PL in the finals what will he win

As discussed in Alexiadou (1994) for MG, topics precede wh-constituents (see also Tsimpli 1990). (40) illustrates precisely this point. Therefore, the behavior exhibited by non-matching subject FRs is essentially the same as the one of dislocated FRs in general. The only difference between dislocated object FRs (which can be matching (cf. 41a)) and non-matching subject FRs is the presence of an overt clitic in the former which pattern similarly to left-dislocated object NPs:

(41) a. Opjon argisi ton timoroun
whoever-ACC is late cl-ACC punish-3PL

b. to Jani ton timorisan
the-John-ACC cl-ACC punished-3PL

Let us turn now to matching FR in preverbal subject (27a) as well as object (27b) position. The matching effect exhibited in these cases is a characteristic of focused constituents (see Tsimpli 1990 and Aggouraki 1990 on Focus). One major difference between dislocated and focused noun phrases concerns the type of case assigned. Dislocated noun phrases bear the case assigned to the resumptive clitic they are linked to (instances of Left Dislocation (cf. 42b)) or the default Nominative case (instances of Hanging Topics (cf. 42a)). For discussion on the differences between Left-Dislocation and Hanging Topics in MG see Alexiadou (1994), Anagnostopoulou (1994), and generally Cinque (1990) a.o. Focused noun phrases bear the case assigned to the argument position they are linked to (cf. Tsimpli 1990 and 43b below):

(42) a. I fitites, oli i kathigites tous ipostirizoun
the students-NOM all the professors cl-ACC support-3PL
'The students all the professors support them'

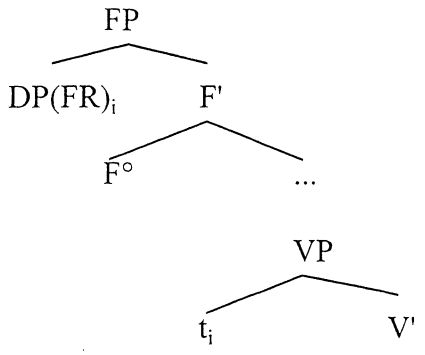
b. Tus fitites, oli i kathigites tus ipostirizoun
the-students-ACC all the professors cl-ACC support-3PL
'The students all the professors support them'

(43) a. * I FITITES ipostirizoun oli i kathigites
the students-NOM support-3PL all the professors

b. TOUS FITITES ipostirizoun oli i kathigites
the-students-ACC upport-3PL all the professors

This is exactly the pattern exhibited by matching preverbal subject FRs; they bear the case assigned to the argument position they are linked to. We would like therefore to argue that matching subject FRs are instances of focus, at least some of them (see also Izvorski 1996 for a similar conclusion independently). These FRs are sharply different from the ones that we proposed to analyse in terms of left dislocation. Rather, these are moved to clause initial position in a manner parallel to the movement of focused constituents in MG. Crucially, these FRs are arguments and are linked to an argument position through a movement chain. This is illustrated in (44):

(44)



We will come back to matching subject cases shortly, after we examine the non-matching preverbal object FRs, like (27b) repeated here as (45):

(45) Opjos argisi ton timoroun
Whoever-NOM is late cl-ACC punish-3PL

These are clearly not instances of focus. First, as noted, a typical characteristic of focus is the absence of a resumptive clitic pronoun and in (45) a clitic is present. Second and most importantly, Focus preverbal object FRs are possible in Modern Greek, but they are always matching and bear heavy/focal stress as the contrast in (46a&b) indicates. This is expected under the assumption that focused constituents are fronted from their base position to Spec,FP:

(46) a. OPJON ARGISI timoroun
Whoever-ACC is late punish-3PL

b. *OPJOS ARGISI timoroun
Whoever-NOM is late punish-3PL

What about (45) then? We propose that (45) is an instance of a Hanging Topic, also base generated in initial position. The default Nominative case and the presence of a resumptive clitic are characteristics of Hanging Topics. Furthermore, these cases pattern like Hanging Topics with respect to two more diagnostics. Hanging Topicalization is a root phenomenon, as indicated by the ungrammaticality of (47). Moreover, Hanging Topics are characterized by the presence of an emphatic pronoun, as shown in (48).

(47) *o Janis ipe oti o Nikos den ton andehi
the John-NOM said that the-Nikos-NOM NEG cl-ACC stand-3S

(48) O Janis, afton den ton andeho
the-John-NOM him NEG cl-ACC stand-1S

This is exactly the behavior we observe with object non-matching FRs in preverbal position:

(49) O Janis ipe oti opjon/*opjos argisi
the-John-NOM said that whoever-ACC/whoever-NOM is late
ton timoroun
cl-ACC punish-3PL

(50) Opjos/*Opjon argisi, afton ton timoroun
whoever-NOM/whoever-ACC is late him cl-ACC punish-3PL

Returning now to the matching preverbal subject cases like (27a/39a), we would like to make a few clarifying points. We proposed that these cases are instances of focus. In fact there are two varieties of matching preverbal subject FRs. Those that are focused and which are characterized by a heavy/focal stress. FRs of this sort are essentially answers to the question "Who will be punished" (cf. 51). But there is another variety of matching preverbal subject FRs, those that do not bear heavy stress but are characterized by an intonational break (cf. 52):

(51) OPJOS PIASO tha timorithi
whoever-NOM catch-1S FUT be-punished-3S
'Whoever I catch will be punished'

(52) Opjos piaso, tha timorithi
whoever-NOM catch-1S FUT be-punished-3S
'Whoever I catch will be punished'

We propose that the latter are Hanging Topics. They bear the default Nominative case and they are not allowed in embedded contexts (cf. 53). Moreover, they do permit an emphatic pronoun (cf. 54):

(53) O Janis pistevi oti *opjos/OPJOS piaso
the John-NOM believes that whoever-NOM catch-1S
tha timorithi
FUT be punished-3S

(54) Opjos/*OPJOS piaso aftos tha timorithi
whoever-NOM catch-1S him FUT be punished-3S

Let us conclude this section by discussing postverbal FRs which are also matching as we have shown above (cf. 26/39b). Postverbal subject in general in a language like MG are either focused or part of the focus (see Alexiadou 1995 for discussion). However, one could not possibly attribute the appearance of matching relatives in these positions to their 'focus' nature. What seems to be essential for their matching properties is the syntactic position they occupy which is an argument position. In these cases, the FR remains in Spec,VP as all subjects in inverted constructions in MG (see Alexiadou & Anagnostopoulou 1995, 1996a for discussion). In support of this, consider the following strings:

(55) a. ihe fai kala opios/*opion ihame kalesi sto parti
has eaten well whoever-NOM/whoever-ACC had-1PL invited to-the-party
b. ihe fai kala o Janis
has eaten well the-John-NOM

(55a) is parallel to (55b). The order of the elements in the above examples, is participle, light manner adverb and subject. In Alexiadou (1994) the relative order of the participle, and the light manner adverb which marks the left edge of the VP, was taken as evidence for arguing that the participle has moved out of the VP to the AspP (and see Varlokosta, Vainikka and

Rohrbacher 1996 for a similar proposal on the basis of acquisition data). In both cases the subject follows the adverb. Hence, we can conclude that the subject (the FR and the DP) is VP internal. Thus, what seems to be crucial for the matching factor is the argument vs. non-argument position. From the above facts we can conclude that FRs in argument position are necessarily matching (see also Izvorski 1996 for similar ideas). Subject FRs which are left dislocated need not be matching. Moreover, object and subject Hanging left dislocated FRs which are base generated in initial position are also expected to be non-matching.

4.2. Some Comparative Remarks

Strictly matching languages such as German allow for non-matching FRs in dislocated positions (data from Grosu 1994). However, languages such as English and French have matching FRs even in contexts of left-dislocation. As known, pied-piping is generally banned in English (cf. 56b&c [c from Grosu 1994]).

(56) a. wonach man eifrig strebt, das bleibt oft unerreicht
what-after one eagerly aspires, that remains often unattained'
'That towards which one eagerly aspires that remains often, beyond reach'

b. ?*To whatever place you go, I do not care

c. *With whom you spoke, I do not want to see him any more

For the German cases an analysis along the lines of our proposal for dislocated FRs in MG is in order. English and French pose a problem for such an approach. However, witness the following example which show that dislocated FRs in English at the left edge are not that bad:

(57) In whatever state he is, just ignore him

If the judgements in (57) turn out to be widely accepted, then even in English in dislocated positions non-matching FRs are possible. Thus, their treatment can be parallel to the Greek cases.

Languages such as Classical Greek, Latin and Gothic permit non-matching FRs in object position as well. As Grosu (1994) points out, in those cases what seems to be pied-piping is nothing other than what he calls *Kase*. Under his view both Prepositions and Case are viewed as special instances of a more general category called *Kase*. In other words, Prepositions are regarded as a sort of Case (see also Suñer 1984). *Kase* is assumed to be the highest functional category in a sequence of projections of a nominal extended projection. Grosu argues that universally material that it is not included in the Extended Projection of the wh-phrase cannot be pied-piped. Also Emonds (1993) proposes that prepositions and morphological case markings actually play the same role in case-assignment. This property is open to linguistic variation. If this is true, and in order to be able to reach a conclusion a more careful and detailed study of corpora of the above mentioned 'dead' languages is needed, then these cases can be straightforwardly accounted for.

Having dealt with the matching/non-matching FRs with respect to the positions they occupy, let us turn to some details of their internal syntax and to the issue of Case-Matching.

4.3. D-CP and Case Matching

As mentioned, we assume that FRs are nominal constructions. Their clausal type internal syntax is linked to the presence of a CP which is embedded to the nominal head responsible for the nominal properties of the constructions. We take this nominal head to be a D head. That a nominal head must be assumed to occupy the head position follows from the fact that these construction show exactly the distribution of uncontroversial nominal constructions (cf. the discussion in section 4 and the appendix). We believe that the presence of D actually makes the clause into a nominal argument. As Borsley & Kornfilt (1996) point out clausal constructions with nominal features are a consequence of the association of verbal functional categories with one (or more) nominal fucntional categories, appearing above any verbal functional categories. Thus, the possibility of CPs to appear in positions strictly reserved for DPs is linked to presence of the determiner.[20]

Stavrou & Philippaki-Warburton (1987) argue that the suffix '*o-*' which differentiates between question wh-phrases and free relative pronouns (see footnote 3) is situtated in D° given that it is very similar to the definite article *o* 'the'.[21] If this was the case, we could in principle account for the adjacency between the 'o' in D° and the wh-word in Spec,CP and the movement dependenies observed. However, there are some problems with such a proposal. The fact that we find non-matching relatives preceded by a preposition (cf. 58), strongly suggests that the whole phrase is in Spec,CP:

(58) m'opjon epeze ton kerdize
with whoever-ACC played-3S cl-ACC won-3S
'lit- She won whoever she played against'

The light preposition that precedes the wh-pronoun could potentially be analysed as a case marker (cf. Vergnaud 1975 and the analysis of the English cases *to however many people one speaks, it is never enough* in Kayne 1995. See also Suñer 1984 and Grosu 1994). If this is the so, then the preposition must be part of the projection of the wh-phrase. Crucially, one cannot argue that the preposition is base generated in D° together with 'o'. Thus, such a proposal under which 'o-' is in D cannot be maintained.

Moreover, we proposed that the wh- pronoun obligatorily raises to Spec, CP. It is clear that the movement to Spec,CP is A'-movement due to the presence of some strong nominal (wh) feature in C (Chomsky 1995).[22] This being so, how can we account for Case Matching? Kayne (1995) implicitly proposes that Case Matching is the result of the movement of the wh-phrase from Spec,CP to D°. We will show that such a movement is not necessary.[23]

---

[20] Roussou (1991) in her discussion of MG nominalized clauses (see footnote 16) accounts for the presence of the determiner as follows: the determiner is present for reasons of case assignment to a CP, since as Kayne (1984), Scabolcsi (1987), Ouhalla (1988), among others argue the function of C is to turn the proposition into something that can function as an argument. Roussou argues that if the above proposals are on the right track, then nominalization is not due to D, since C is responsible for this role, but rather D is present for case reasons.

[21] Actually Stavrou & Philippaki-Warburton in order to derive the adjaceny propose that the wh-word subsequently right-adjoins to D°.

[22] Note that the wh-phrase in itself cannot move to check its case in a higher position as this would be an instance of improper movement. If checking of case-features takes place these would be the features of the whole DP which includes the FR.

[23] Kayne crucially follows Larson's (1987) analysis. Note that Kayne proposes that only the wh-head moves to D°.

When the FR appears in a non argument position the wh-phrase obeys the case and subcategorization requirements of the predicate of its clause. When the FR appears in argument position, the DP which includes the FR and the FR pronoun have the case that the non-complex DP arguments of the matrix predicate would have:

(59) a. agapo to Jani
love-1S the-John-ACC
'I love John

b. agapo opjon me agapa
love-1S whoever-ACC me loves
'I love whoever-ACC

In (59b) the FR pronoun shows up in accusative case, the case the whole FR clause is associated with. In the embedded CP though, the pronoun is interpreted as the subject and should be associated with Nominative case. In (60) we see that the presence of a clitic in the genitive is obligatory, but the wh-pronoun carries accusative which is associated with the matrix predicate.

(60) tha agapiso opjon tu dosi ena vivlio o pateras mu
FUT love-1S whoever-ACC cl-GEN give-3S a book-ACC the-father-NOM my
*opjou 'whoever-GEN'
*s'opjon 'to whoever'
*opju tu 'whoever him-GEN'

In the following we attempt an approach to Case matching which dispenses with the problems of the COMP Accessibility Hypothesis, following the intuitions in Suñer (1984), Grosu (1994) and Marantz's (1991) proposal concerning Case Theory. As we have already pointed out, matching is relevant for the morphological component and it does not concern abstract syntactic identity. In other words it seems to be relevant for the **PF** and **not** for the **LF** interface. As is well known, all NPs appear at PF bearing a certain case affix. Marantz (1991) argues that the licensing of arguments is not related to the presence of Case or of any morphological properties, but rather the surface apperance of arguments is linked to the relations these bear to items in whose domain they appear. Case affixation takes place **after Spell-Out** and more specifically at Morphological Structure (MS). *Case realisation* is based on what 'governs' any link in the chain NP headed by N+Case and depends on which elements at MS govern the DP that is headed by the D that governs the N to which the case affix is attached.

Let us assume that 'government' can be recasted in terms of the notion of *complement domain* of a head which includes the complement of that head and whatever this complement dominates (see Chomsky 1995: 178). In other words, let us assume that what matters for Case realisation is in whose element's complement domain the NP (or any link of its chain) will appear at MS. Now after Spell-out and thus at MS the N+Case under investigation, i.e. the wh-phrase, appears in the compement domain of D° since it appears in the Spec, of the complement of D°. D° appears in the complement domain of the higher predicate which determines the case features associated with the position of the FR and thus with the wh-phrase. The specific case requirements in a configuration like (59b) force accusative case

affixation.[24] Similar configurations do not arise in dislocated contexts, i.e. the D° does not appear in the complement domain of any predicate, thus non-matching is possible. The wh-phrase, which must enter PF with Case specification, receives the Case associated with a link of its chain.

This proposal can also account for the data in (60). However, something more needs to be said here concerning the obligatory presence of a genitive clitic. As discussed in Alexiadou & Anagnostopoulou (1996b) for Restrictive Relative Clauses with genitive clitics, in MG the Goal argument can be introduced by an overt P. Alternatively, the Goal is introduced by a covert P which is licensed by a clitic:

(61) a. edosa to vivlio sti Maria
gave-1S the-book-ACC to-the Mary-ACC
'I gave the book to Mary'

b. tis edosa to vivlio tis Marias
cl-GEN gave-1S the-book the-Mary-GEN

Relativization of goal arguments is possible in languages where a dative agreement marker, in the form of a clitic, is present IP internally. (61c) illustrates a head-raising analysis of these constructions:

c. o $[_{CP}$ anthropos$_i$ pu $[_{IP}$ tu eftiaksa ena keik $[_{PP}$ O_P $[_{NP}$ $t_i]]]]$
the person that cl-GEN made a cake

In this case, the PP remains in situ and the clitic serves to identify the empty preposition which is stranded after the NP moves to Spec,CP. More specifically, the authors follow den Dikken's (1992) proposal, according to which empty prepositions in languages with rich morphological case can be licensed by the morphological case markings obeying the principle below:

(62) An empty dative preposition is licensed iff (i) or (ii)
(i) [p0] is identified by dative case morphology
(ii) [p0] is incorporated at some level into a verb

As Alexiadou & Anagnostopoulou (1996b) point out, the genitive morphology in Greek is not sufficient to identify an empty P. Hence, to account for the Greek facts in (61c) they assume that the clitic is needed to identify the empty preposition after the NP has moved. In other words the clitic must be treated as the essential part of dative morphology in Greek. The genitive morpheme alone is not sufficient to identify an empty preposition. The same reasoning can account for the clitic in (60): it is needed to identify the empty preposition after wh-movement to Spec,CP.

5. Conclusion

In this paper we have discussed the semantic and syntactic properties of FRs in MG. We have shown that FRs in MG show quantificational variability regulated by their environment.

[24] The wh-phrase in focused matching FRs receives the case it would receive in its argument position being linked to it via a movement dependency.

Moreover, we have discussed the patterns of (non-)matching and provided an account for Case Matching exploiting theories of *Late Insertion* (cf. Marantz 1991) and the technical apparatus in Chomsky (1995).

6. Appendix: FRs are not CPs

FR clauses bear a close superficial resemblance to interrogative complements in a number of languages. Both are introduced by wh-words and both contain gaps:

(1) a. Je me demande qui tu as vu (*French*)
I me-DAT ask who you AUX seen
'I wonder who you saw'

b. J' ai vu qui tu as vu
I AUX see who you AUX seen
'I saw who you saw'

(2) a. Ich frage mich, was Du willst (*German*)
I ask myself what you want
'I wonder what you want'

b. mach was Du willst
do what you want
'Do what you want'

Hence, a number of researchers have attempted to assimilate FRs to indirect Wh-clauses (Jacobson 1988, 1995, Rooryck 1994, Afarli 1994). The main arguments used by the advocates of this approach are, first, the morphological identity of FRs and indirect Wh-questions, and second, their semantic similarity. Thus, Jacobson (1988, 1995), for example, suggests that FRs and wh-questions have a similar meaning which should be distinguished from that of a relative clause. In particular, according to Jacobson a relative clause 'which I ate' denotes a set of individuals which I ate. Therefore, relative which is an identity function on properties. On the other hand, the wh-phrase in 'what John ate' has as its predicative meaning the set of maximal plural entities that John ate.

Although FRs in some languages seem to have a close superficial resemblance to wh-complements, there is a large number of properties which distinguish the two:
(i) As we have already seen, in several languages, MG among them, FRs are introduced by morphologically distinct elements. The examples from MG are repeated below:

(3) a. Potisa pjos/*opjos irthe (*Question*)
asked-1Sg who / whoever came-3Sg
'I asked who came'

b. Opjos /*pjos theli erhete (*FR*)
whoever-NOM / who want-3Sg come-3Sg
'Whoever wants, may come'

(ii) Contra Jacobson (1988, 1995), Tredinnick (1995) points out that there are some interpretational differences between interrogatives and FRs. Crucially (4a) is equivalent to (4b) and not to (4c), whereas (5a) is equivalent to (5c) and not (5b). In other words, the interpretation of the gap in indirect questions is an answer to a question, whereas the content of the gap in FRs is the content of the FR as a whole:

(4) a. John knows what Mary ate
b. John knows the answer to the question what Mary ate
c. *John knows x. Mary ate x.

(5) a. Mary ate what John cooked
b. *Mary ate the answer to the question what did John cook
c. Mary ate x. John cooked x.

(iii) FRs and interrogatives behave differently with respect to matching effects. Wh-clauses do not seem to show matching effects:

(5) Rotise *posus / posi ithelan na erthun
asked-3Sg how many-ACC / -NOM wanted-3Pl to come

Further support comes from the fact that a kind of FR construction which has been uncontroversially analyzed as a bare CP, namely infinitival or subjunctive FRs (cf. Grosu 1989, 1994) do not exhibit matching effects, unlike the garden variety of FR constructions and similarly to interrogatives.

(iv) FRs differ from indirect wh-clauses with respect to island properties: in particular, extraction of arguments out of the wh-NP gives rise to strong ungrammaticality in the case of FRs as opposed to indirect wh-questions. If FRs were CPs then we would expect no difference in grammaticality between (6a) and (6b), since MG doesn't obey the wh-island constraint (cf. Horrocks & Stavrou 1987), and only a weak wh-island violation in English (7b), both contrary to fact:

(6) a. Aftos ine o politikos-$_i$ pu den ksero pjos-j dorodokise t-$_i$
this is the politician that NEG know-1Sg who-NOM bribed-3Sg

b. *Aftos ine o politikos-$_i$ pu miso opjon-j dorodokise t-$_i$
this is the politician that hate-1Sg whoever bribed-3Sg

(7) a. ?These are the readers to whom I know what books
the NYT recommends

b. *These are the readers to whom I buy whatever books
the NYT recommends

(v) Wh-questions in MG must be acompanied by the definite determiner when they appear in the subject position of the sentense. FRs cannot (cf. Philippaki & Stavrou 1986):

(8) To ti psemata lei den perigrafete
the what lies say-3sg not be described
'It cannot be described what lies s/he says'

(9) *To oti vivlia grafei pouliounte amesos
the whatever books write-3sg are sold immediately
'Whatever books s/he writes are sold immediately'

Further differences have been pointed out in Bresnan and Grimshaw (1978):

(vi) In English, *-ever* is always a bound form in FRs, whereas it can be unbound in interrogatives:

(10) a. *I kissed who he ever kissed
b. Who did he ever kiss?

(vii) Interrogatives are sentential constructions, whereas FRs appear in NP positions as complements of Vs and Ps:

(11) a. *Sara ate which dish John cooked
a'. Sara wondered which dish John cooked
b. Sara ate what John cooked
b.' Sara ate broccoli
c. We will live in whatever town you want
c'. We will live in Athens

(viii) Interrogatives may appear extraposed from it, FRs may not:

(12) a. It is not obvious to me whether you are tall enough
b. *It surprised John whoever came

Given this evidence, we conclude with other researchers that FRs are DPs (see Larson 1987, Hirschbuehler & Rivero 1981, Grosu 1994, among others).

References:

Aggouraki, Y. (1990) 'On the Projection of Maximal Categories: the Case of CP and FP in Modern Greek' in *UCL Working Papers in Linguistics* 2 183-200.

Afarli, T. (1994) 'A Promotion Analysis of restrictive relative clauses' in *The Linguistic Review* 11: 81-100.

Alexiadou, A. (1994) *Issues in the Syntax of Adverbs*. Ph.D. Diss. Universität Potsdam.

Alexiadou, A. (1995) 'Word Order Alternations in Modern Greek' Ms. ZAS Berlin.

Alexiadou, A. & E. Anagnostopoulou (1995) 'SVO and EPP in Null Subject Languages and Germanic', in *FASPIL* 4:1-21.

Alexiadou, A. & E. Anagnostopoulou (1996a) 'Symmetries, Asymmetries and the Role of A greement' in *GLOW Newsletter* 36: 12-13.

Alexiadou, A. & E. Anagnostopoulou (1996b) 'Clitics in Restrictives Relatives: an antisymmetric account' to appear in the Proceedings of the 17th Meeting of the Dept. of Linguistics in the University of Thessaloniki.
Anagnostopoulou, E. (1994) *Clitic Dependencies in Modern Greek*. Ph.D. Diss. Universität Salzburg.
Andriotis, N.P. (1967) Ετυμολογικο λεξικο τις κοινης Νεοελληνικης (Etymological Dictionnary of Common Modern Greek). 2nd Edition, Thessaloniki
Bonneau, J (1990) 'Logical From and an Analysis of the Matching Effect in Free Relatives' in *McGill Working Papers in Linguistics*, 6(2): 13-166.
Borsley, B. (1984) 'Free Relatives in Polish and English' in J. Fisiak (ed.) *Contrastive Linguistics: Prospects and Problems*. Berlin, Mouton 1-18.
Borsley, R. & J. Kornfilt (1996) 'Mixed Extended Projections' Ms. University of Bangor and University of Syracuse.
Bresnan, J. & J. Grimshaw (1978) 'The Syntax of Free Relatives in English', in *Linguistic Inquiry*, 9: 331-391.
Carlson, G. (1977) 'Amount Relatives', *Language* 53: 520-542.
Chila-Markopoulou, D. (1991) 'Problems of Diachronic Syntax: Free Relatives in Medieval and Modern Greek' in *Glossologia* 9-10: 1-30.
Chomsky, N. (1995) *The Minimalist Program*. The MIT Press
Cooper, R. (1983) *Quantification and Syntactic Theory*, Reidel, Dordrecht.
den Dikken, M. (1992) *Particles*. HIL Ph.D. Diss.
Elliot, D. (1971) *The Grammar of Emotive and Exclamatory Sentences in English*. Ph.D. Diss. Ohio State University.
Emonds, J. (1993) 'Projecting Indirect Objects' in *Linguistic Review* 10.
Enç, M. (1986) 'Towards a referential analysis of Temporal Expressions' in *Linguistics and Philosophy* 9: 405-426.
Giannakidou, A. (in preparation) *Negative Polarity and Semantic Licensing Dependencies*. Ph.D Diss. University of Groningen.
Grimshaw, J. (1977) *English wh-constructions and the Theory of Grammar*. Ph.D.Diss. University of Amherst.
Groos, A & H. van Riemsdijk (1979) 'Matching Effects with Free Relatives: a Parameter of Core Grammar', in *Theory of Markedness in Generative Grammar*.
Grosu, A. (1994) Three studies in Locality and Case. Routledge.
Grosu, A. (1996) 'The Proper Analysis of Missing-P Free Relative Constructions' in *Linguistic Inquiry* 27: 257-293.
Haider, H. (1988) 'Matching Projections' in *Constituent Structure: Papers from the 1987 GLOW Conference*. A. Cardinaletti, G. Cinque & G. Guisti (eds.) 101-121. Dordrecht Foris.
Harbert, W. (1983) 'On the nature of the matching parameter' in *Linguistic Review* 2: 237-284.
Hatzidakis, (1907) 'Περι της αντωνυμιας ο οποιος' (About the pronoun o opios) in *Μεσαιωνικα και Νεα Ελληνικα* τομος Β. 593-597.
Heim, I. (1982) *The Semantics of Definites and Indefinites Noun Phrases*. Ph.D. Diss. University of Amherst.
Hirschbuehler, P. (1976) 'Two Analyses of Free Relatives in French' in Papers from NELS 6.
Hirschbuehler, P. & M.L. Rivero (1981) 'A Unified Analysis of Matching and Non-Matching Free Relatives in Catalan' *NELS 9*.
Hirschbuehler, P. & M.L. Rivero (1983) 'Remarks on Free Relatives and Matching Phenomena' in *Linguistic Inquiry* 14: 505-520.

Horrocks, G. & M. Stavrou (1987) 'Bounding Theory and Greek Syntax: Evidence for wh-movement in NP' *Journal of Linguistics* 23, 79-108.
Jacobson, P. (1988) 'The Syntax and Semantics of Free Relatives'. Paper presented at the LSA.
Jacobson, P (1995) 'On the quantificational force of English free relatives' in E. Back, E. Jelinek, A. Kratzer & B. Partee (eds.) *Quantification in Natural Languages*, Kluwer Academic Publishers 451-486.
Iatridou, S & S. Varlokosta (1995) 'A Crosslinguistic Perspective on Pseudoclefts' *Proceedings of NELS 26.*
Izvorski, R. (1996) 'Non-matching effects in free relatives and pro-drop' to appear in *Proceedings of ESCOL* 12.
Kadmon, N. & F. Landman (1990) 'Polarity Sensitive Any and Free Choice Any' in *Proceedings of the Seventh Amsterdam Colloquium.*
Kayne, R. (1984) *Connecteness and Binary Branching.* Foris, Dordrecht.
Kayne, R. (1995) The Antisymmetry of Syntax. MIT Press.
Larson, R. (1985) 'Bare NP Adverbs' in *Linguistic Inquiry 16*: 595-621.
Larson, R. (1987) 'Missing Prepositions and the Analysis of Free Relative Clauses', in *Linguistic Inquiry*, 18: 239-266.
Marantz, A. (1991) 'Case and Licensing' in *Proceedings of ESCOL* 234-253.
Ouhalla, J. (1988) *The Syntax of Head Movement. a study of Berber.* Ph.D. Diss University of London.
Philippaki-Warburton, I. (1985) 'Word Order in Modern Greek' in *Transactions of the Philological Society*: 113- 143.
Philippaki-Warburton, I. & M. Stavrou (1986) 'Free Relatives in Modern Greek' in *Studies in Greek Linguistics* 7: 117-134.
Philippaki-Warburton, I. & B. Spyropoulos (1996) 'Case Theory in the Minimalist Programm'. Ms. University of Reading.
Pittner, K. (1995) 'The Case of German Relatives' in *The Linguistic Review* 12: 197-232.
Rizzi, L. (1986) 'Null objects in Italian and the theory of pro' in *Linguistic Inquiry* 17: 501-558.
Rooryck, J. (1994) 'Generalized Transformations and the WH-Cycle: Free Relatives and bare Wh-CPs' in *GAGL* 37: 195-208.
Roussou, A. (1991) 'Nominalized Clauses in Modern Greek' in *UCL Working Papers in Linguistics* 3 77-110-
Rullmann, H. (1995) *Maximality in the Semantics of WH-Constructions.* Ph.D. Diss. University of Amherst.
Srivastav, V. (1991a) *Wh-Dependencies in Hindi and the Theory of Grammar.* Ph.Diss Cornell University.
Srivastav, V. (1991b) 'The Syntax and Semantics of Correlatives' in *Natural Language and Linguistic Theory* 9: 637-686.
Stavrou, M & Philippaki-Warburton (1987) 'The Matching Parameter and Free Relatives in Greek', *Studies in Greek Linguistics* 8: 311-32.
Suñer, M. (1984) 'Free Relatives and the Matching Parameter' in *Linguistic Review* 3:363-387.
Szabolcsi, A. (1987) 'Functional Categories in the Noun Phrase' in I. Kenesei (ed.) *Approaches to Hungarian* Vol.2: 167-189.
Tredinnick, V. (1995) 'On the Distribution and Interpretation of ever in English Free Relatives' *Proceedings of CONSOLE* 2.
Tsimpli, I.M. (1990) 'The Clause Structure and Word Order in Modern Greek' in *UCL Working Papers in Linguistics.*

Varlokosta, S. (1995) 'A Free Choice Item in Modern Greek'. Ms. University of Pennsylvania.
Varlokosta, S., A. Vainikka & B. Rohrbacher (1996) 'Functional Projections and Root Infinitives in Early Child Greek' in *GLOW Newsletter* 36: 97-98.
Vergnaud, J-R. (1974) *French Relative Clauses*. Ph.D. Diss. MIT.
Williams, E. (1983) 'Semantic and Syntactic Categories' in *Linguistics and Philosophy* 6: 423-446.

On the interpretation of Spanish n-words[1]

Elena Herburger, USC/UMD 7/18/96

In some environments, it seems that n-words[2] like *nada, nadie, ningún* should be translated as the negative quantifiers (NQs) *nothing, nobody, no,* whereas in other context they pattern more closely to the negative polarity items (NPIs) *anything, anybody, any*. Thus, in the standard paradigm exemplified in (1) and (2), the n-words in the (a) sentences occur without a licensing negation, suggesting that they are NQs. At the same time, in the (b) sentences the negation is necessary for the n-word to be acceptable, which strongly recalls the behavior of NPIs:

(1) a. Nadie vino
N-body came
b. *(No) vino nadie
Not came n-body
'Nobody came'

(2) a. Yo nunca habia estado en Córdoba
I n-ever had been to Cordaba
b. Yo *(no) habia estado en Córdoba nunca
I not had been to Cordoba n-ever
'I had never been to Cordoba'/'I had not ever been to Cordoba'

On the most simple-minded analysis, (1) and (2) would indicate

---

[1]In writing this paper, I have benefitted a great deal from discussions Filippo Beghelli, Norbert Hornstein, Paco Ordoñez, Barry Schein, Juan Uriagereka, and Miriam Uribe-Etxebarría. Juan Uriagereka provided me with a crucial piece of data, at a crucial moment, when he came across the Rodoreda example cited in the text.

[2]The term is due to Laka (1990).

that n-words are lexically ambiguous between NQs and NPIs - the n-words in the (a) sentences are NQs, while the n-words in the (b) sentences are NPIs. Less simple-mindedly, but in a similar vein, it has been argued that n-words are lexically underspecified as to whether they are NQs and NPIs and receive the relevant feature from the syntax (cf. Longobardi 1987, cited after Zanuttini 1991): when they appear in preverbal position they are assigned the feature +no by Infl, when they appear in postverbal position they carry the feature +any, cf. also van der Wouden and Zwarts (1994).

Both the approach that treats n-words as lexically ambiguous and the approach that treats them as lexically underspecified have not seemed maximally elegant to researchers in recent years. It is not surprising then that several recent studies of n-words have resisted adopting such treatments, and aimed for univocal analysis of n-words instead. On the one hand, there is what I would like to call the NPI-analysis, which maintains that n-words are univocally NPIs, cf. e.g. Bosque (1980), Laka (1990), Suñer (1995). The opposite direction is taken by the NQ analysis, which uniformly analyzes n-words as NQs (cf. Zanuttini 1991).

Clearly, the univocal analyses of n-words are appealing, but they do not come without a cost. Both the NPI-analysis and the NQ-analysis have to provide some account of what from their perspective amounts to a 'atypical' behavior of n-words, that is, the NQ-like behavior of n-words in the case of the NPI analysis (cf. (a) sentences), and their NPI-like behavior, if one adopts the NQ-analysis (cf. (b) sentences). But even if accounting for the respective 'atypical' behaviors is not straight-forward, it would seem well worth the effort if the result is an empirically successful unified account of n-words.

The ambiguist approach can not only be faulted with a lack of elegance. It also seems to suffer from a serious empirical shortcoming (cf. Ladusaw 1993, Suñer 1995): If n-words are ambiguous between NQs and NPIs, then why can the n-words in the (b) sentences not occur **without** a licensor? Unless some

independent explanation for the gap in the paradigm in (1) and (2) is found, this consideration clearly poses a problem for an ambiguist approach. On the other hand, the gap is expected on the NPI-analysis, although not on the NQ-analysis. The ambiguist approach appears to have two problems then. Not only does it seem inelegant, it also offers no explanation for the ungrammaticality of the (b) sentences in (1) and (2).

This paper is an attempt to argue for an ambiguist approach to n-words, even if it is unattractive at first sight. The main empirical fact that I would like to draw attention to the fact, initially observed in Zanuttini (1991), that the gap in the paradigm illustrated in (1) and (2) is only apparent; there are in fact postverbal n-words that function as NQs, even if they are difficult to see because their distribution is limited. But their scarcity, I will argue, is ultimately due to pragmatic reasons. Consequently, in and of themselves the (b) examples in (1) and (2) are in fact grammatical, their meaning is just so bizarre that speakers normally reject them. It is also argued that it is preferable analyze n-words in the (a) examples as NQs, and not as NPIs, since this allows for a more straight-forward analysis. At the same time, I argue that the n-words in the (b) examples are successfully analyzed as NPIs. The result of this is an ambiguist analysis of n-words, they are both NPIs and NQs.

1. Initial n-words as NQs:

Beginning with the n-words in the (a) examples, the first question to ask is what is the relevant dimension along which the (a) examples differ from the (b) examples? While the contrasts in (1) and (2) might suggest that it is preverbal (NQ-like) vs. postverbal (NPI-like), the standard paradigm is in fact somewhat deceptive, as is shown in Zanuttini (1991). If we also take examples like (3) into the picture, we can see that the relevant dimension is not preverbal vs. postverbal, but initial vs. non-

initial, where 'initial' vs. 'noninitial', where initial' means preverbal and not preceded by another n-word (or licensor), and 'non-initial' stands for not preverbal or preverbal but preceded by another n-word (or licensor):

(3) Nadie nunca afirmó tal cosa
n-body n-ever confirmed such thing
'Nobody ever confirmed such thing'

In (3), the second n-word translates as the NPI *ever* rather than as the NQ *never*. Although it is preverbal, it is non-initial and it is the latter fact which is responsible for the NPI-like interpretation of *nunca* here.

Setting apart matters of elegance for the time being, the fact that initial n-words occur without a licensor suggests that they are NQs. This is also supported by their meaning, which corresponds to that of NQs in English, i.e. initial *nadie* behaves exactly like English *nobody*.

What further indicates that initial n-words are NQs is that when they co-occur with negation, which they can under certain pragmatic conditions, we get a double negation. This is expected if the n-word has negative force of its own, i.e. if it is an NQ. Consider (4):

(4) a. A Josefina, nadie no la saluda
to Josefina, n-body not her greets

(4) translates as 'Nobody doesn't greet Josefina', i.e. everyone greets her. Analogously, a sentence like (5)

(5) Ninguno no vino

is a double negation, effectively meaning 'everybody came' (cf. Laka 1990). Again, the interpretation of (4) and (5) makes sense if the initial n-word is a NQ.

Another reason for thinking of initial n-words as NQs is that if initial n-words were indeed NPIs and licensed by some abstract element, then we would expect other NPIs, such as the lexical NPIs *un real (a red cent)*, to also be licensed in initial position (cf. Zanuttini 1991). This, however, is generally not the case, as the contrast between (6a,b) and (7a,b) shows - the lexical NPIs here are not licensed in preverbal positions:

(6) a. *(No) tengo un real
Not have a red cent
'I haven't got a red cent'

b. *Un real tengo
A red cent have-I
'I've got a red cent'

(7) a. *(No) vino un alma
not came a soul
b. *Un alma vino
a soul came
'Not a soul came'

If initial n-words are NQs, then we expect that they should have a distribution that is different from that of lexical NPIs. The data in (6) and (7) thus provide a third argument for saying that initial n-words are NQs.[3]

---

[3] To be fair, we should also consider the following data, due to Bosque (1980). At first sight, they seem to suggest that at least some lexical NPIs are licensed in initial position without there being any visible licensor. If so, this could be used as an argument for saying that initial n-words are also NPI that are licensed without any visible licensor.

(i) No he estado aquí en mi/la vida
Not have been here in my/the life
(ii) En mi/la vida he estado aquí
In my/the life have been here

Aiming at a unified treatment, the NPI-analysis takes the similarity between NQs and the n-words in the (a) examples to be a superficial one, arguing that the n-words are indeed NPIs that are licensed in the legitimate way. Concentrating on the standard paradigm and not including examples like (3), Bosque (1980), for instance, proposes that preverbal n-words originate as postverbal NPIs that occur within the scope of a negation. They then move to a left-peripheral position ('tematización'), a movement which is followed by the deletion of the negation. On this view, the n-words in the (a) examples are NPIs and not NQs.

Similarly, Laka (1990) argues that preverbal n-words surface in a functional projection ('SigmaP'), which is headed by a silent negative head. Under this view, what licenses preverbal n-words as NPIs is that they stand in an agreement relation with the silent negative head, cf. (8).[4]

'I have never been here!'

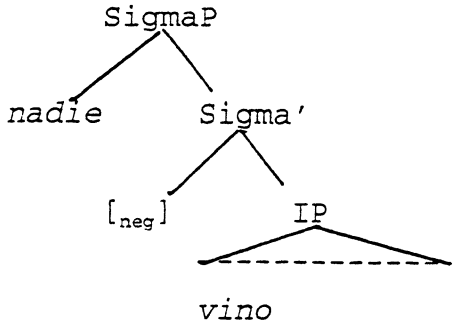
One way to make sense out of (i) and (ii) on the current account, however, is to analyze *en mi vida/en la vida* is elliptical for *nunca en mi vida/nunca en la vida*. Depending on whether it appears initially or non-initially, *nunca* will then be analyzed as 'never' or 'ever'. If this is on the right track, then the contrast between (i) and (ii) reduces to an instance of the standard paradigm.

In this context, it is also interesting to consider (iii) vs. (iv), where the negation can be elliptical.

(iii) I couldn't care less
(iv) I could care less

[4]For a more elaborate analysis along similar lines, see Suñer (1995).

(8)



= (1a) Nadie vino

One observation that is made to support the NPI-analysis of preverbal n-words is that other Romance languages (e.g. Rumanian, and high register Catalan) realize the negation overtly, as shown in (9). The same is true of medieval Spanish, cf. (10) (cf. Bosque 1980, Suñer 1995)[5]:

(9) Nimeni nu a venit (Rumanian)
n-body not has come
'Nobody has come'

(10) a. Ninguno no me quiere (Celestina)
n-body not me likes
'Nobody likes me'

---

[5]Citing a novel by Sánchez Ferlosio, Suñer also adduces the following dialectal data from the speech of Madrileño youth in the 1950's:

(i) Pues yo tampoco no te creas que habré ido más de un par de veces o tres
well me n-either not you think that have-I gone more than a couple of times or three
'Well me either, don't you believe that I have gone more than two or three times'

(ii) ...para que ya nunca nadie no venga jamás a arreglarse a mi casa..
so that n-ever n-body not come n-ever to get ready to my house
'...so that nobody never ever would come to get ready in my house anymore...'

b. Aunque esta vida de honor, tampoco no es eterna
(Manrique)
Although this life of honor, n-either not is eternal
'Although this life of honor, is not eternal either'

Although these data are obviously significant from a historical and cross-linguistic perspective, it is not clear how much weight they carry for the analysis of contemporary Spanish. Notice that we could construct a parallel argument for English: by appealing to historical and dialectal fact, we could say that modern Standard English NQs (*nobody, nothing,* etc.) are NPIs, because, historically, they had to co-occur with a negative elements, arising from 'strengthened' indefinites (cf. the Jespersen Cycle, e.g. Horn 1989). Moreover, they still do so in certain 'negative concord' dialects, cf. *No dogs didn't chase no cats* meaning 'No dogs chased cats' (cf. Ladusaw 1991). Given that we do not want to deny that *nobody* in the standard dialects of English is a NQ, it is not clear that the data in (9) and (10) can be used as argument for the NPI analysis.[6]

In favor of the NQ analysis of initial n-words, it may also

---

[6]Adopting an NPI-analysis, Suñer (1995) argues that the following examples of 'resumptive' negation independently support for the claim that preverbal n-words are NPIs. The phenomenon is shown to occur with clitic-left dislocation (i), focus movement (ii), and echo questions (iii):

(i) A ninguno de ellos quiera saber por qué Juan **no** les escribió para Navidad
to n-one of them would-I like to know why Juan not them-cl wrote for Xmas

(ii) ¿En NADIE dijo Pepe que quién **no** podría confiar?
in n-body said Pepe that who not could trust?

(iii) ¿Ninguno de los alumnos de quién **no** fueron becados?
'None of whose students were not given a fellowship

Due to limitations of space, I will leave the discussion of these interesting and potentially problematic data as an issue for future research.

be noted that the NPI analysis does not account for (3), (4), (5) and (6). Thus, it does not explain why non-initial n-words that are preverbal pattern as NPIs, cf. (3). Nor does it offer an account why initial n-words can co-occur with an overt negation, cf. (4). Finally,it predicts that lexical NPIs should be acceptable preverbally, which generally does not seem to be the case, cf. (5) and (6).

Taken on its own, perhaps none of the arguments for the NQ analysis of initial n-words may be entirely conclusive. Taken together, however, they make a convincing case for treating initial n-words as NQs. This is even more true once we will take into account the fact that their are independent reasons to assume that n-words must have one interpretation where they are NQs. This will be shown in section 3. There seems no point in investing much effort and technical apparatus to show that initial n-words can be analyzed as NPIs when the NQ-analysis of initial n-words is simple and straight-forward.

2. Standard non-initial n-words are NPIs:

2.1. N-words in NPI-environments:

Turning now to the analysis of non-initial n-words in the standard paradigm, in (1b), (2b) and (3) we find that the non-initial n-word translate as NPIs rather than NQs. The same point can be made in (11). Like true NPI's, the non-initial n-words cause the sentence to be negated only once, rather than multiply:

(11) Javier nunca le pide nada a nadie
Javier n-ever cl asks n-thing to n-body
'Javier never asks anyone for anything'

Further support for the claim that standard non-initial n-words are NPIs comes from (12), which shows non-initial n-words in

typical NPI-environments. (The examples are due to Laka 1990, cf. also Bosque 1980). They occur in the scope of a NQ (12a), an adversative predicate (12b), the complement of prepositions like *sin (without)* (12c), in comparatives (12d), and in the restriction of a universal quantifier (12e):

(12) a. Nadie le dijo nada a Juan
N-body cl said n-thing to John
'Nobody said anything to John'
b. Pedro duda que venga nadie
'I doubt that anybody will come
c. Sin nada que comer, los prisioneros murieron de hambre
'Without anything to eat, the prisoners died of hunger'
d. María canta mejor que ninguno de vosotros
'Maria sings better than any of you'
e. En esta reunión, todo aquél que tenga nada que decir, tendrá ocasión de hablar[7]
'In this meeting, everyone who has anything to say will have a chance to talk'[8]

---

[7]It should be noted that the distribution of n-words in the scope of universal quantifiers is actually limited. The best cases involve the determiner *todo aquel* with a relative clause that is in the subjunctive. Sentences with *cada (each)* and *todos los* are less acceptable, if at all.

[8]It is interesting that there are some environments where NPIs can occur in English, but where n-words are barred in Spanish. Thus, in English *any*-type NPIs can appear in both arguments of *few,* and in the restriction of *most*, but in Spanish and Italian n-words are somewhat marginal or directly impossible in these contexts. Similarly, in Spanish n-words are not generally licensed in yes-no questions, unless they are rhetorical (cf. Bosque 1980), nor are they licensed in *if*-clauses. On the other hand, both in English and also in Italian they are licensed in this environment. These differences in the licensing conditions of NPIs do not show that Spanish/Italian postverbal n-words do not function as NPIs, but they merely show that the set of environments where Spanish n-words are licensed as NPIs is smaller than the set of downward-entailing environments, which is generally considered to allow for NPIs in English, cf. e.g. van der Wouden and Zwarts (1993).

b. $\forall$(x) person(x) $\forall$(y) thing(y) $\neg$[asks (Javier, x, of y)][9]

These processes get the truth-conditions right. But they are problematic because they treat the negative component of *nadie*, for example, in two different ways, while maintaining that the treatment is unified. When *nadie* appears initially, its negative component is treated as semantically active, i.e.it behaves like a regular NQ. Yet, when *nadie* functions in an NPI-like manner, its negative component is treated as being semantically inactive, i.e. is either considered a sheer agreement marker, or it is deleted altogether. By doing so the NQ-analysis has the semantics undo what is present in the syntax, and, as a consequence it runs counter to the principle of Full Interpretation and the compositionality of interpretation.

A further difficulty that the NQ-analysis faces, and which it does not address, as far as I can see, is that n-words that function as NPIs are not only licensed by other n-words or by negation, as in the cases discussed so far, but they are also licensed in other NPI-environments, in particular by adversative predicates, prepositions like *sin* (*without*), in the scope of certain quantifiers, cf. (12). Extending negative absorption/agreement to this cases would not only face the compositionality problem, it would also require more lexical decomposition and more semantic categories than would be

---

[9]Semantically, decomposing n-words into a universal quantifier and a narrow scope negation ($\forall\neg$) is equivalent to decomposing them into a wide scope negation and an existential quantifier ($\neg\exists$). Zanuttini's reason for choosing the first option over the second one is that n-words can be modified by *quasi* (It.)/*casi* (Sp.) (*almost*), which Zanuttini, following a widely held view, takes to be an indication that they are universal rather than existential.

At the same time, it is also worth noting, however that n-words can appear in existential contexts, as in (i), which generally bars universal quantifiers (cf. Suñer 1995):

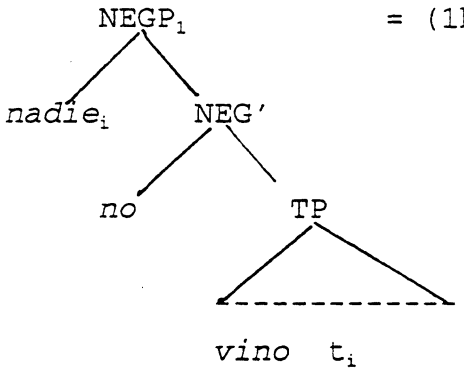
(i) No hay nada que tu puedas hacer para convencerme
not be n-thing that you can do to convince me
'There isn't anything you can do to convince me'

Since I argue that non-initial n-words in the standard paradigm are NPIs and that we therefore do not need lexical decomposition, I will not further discuss the issue here.

2.2. The NQ-analysis:

How does the NQ analysis account for non-initial n-words in the standard paradigm? In order to account for their NPI-like behavior, the NQ-analysis has to neutralize the negative of force of these n-words. Specifically, it is proposed that non-initial n-words move at LF to a negative projection where they 'agree' with the negative head. As a result of this what are two syntactic instances of negation, namely the negation and the NQ, wind up functioning semantically as one. Thus, it is then due to SPEC-head agreement that (1b) is analyzed as being a single negation, rather than a double negation:

(13)



= (1b) No vino nadie

As for examples like (11), where several non-initial n-words occur, giving rise to only one instance of negation, under the NQ-analysis, these are handled by a mechanism which decomposes each n-word in the sentence into a wide-scope negation and a universal quantifier and then deletes all instances of negation except for the one with narrowest scope.

(11) Javier nunca le pide nada a nadie
Javier never asks anything of anyone

(14) a. ∀¬∀¬∀¬ --> ∀∀∀¬

desirable. It seems fair to say then that the best way to account for non-initial n-words in the standard paradigm is to treat them as NPIs.

2.3. Cumulative Quantification:

There is one interesting possibility that I would like to consider as a way out of the compositionality problem. It consists in arguing that in examples with various n-words, as in (11) for instance, the absence of a multiple negation reading is due to the NQs being interpreted as cumulative quantifiers (cf. Déprez 1995 on French and Haitian Creole). Under this view *Nadie vió a nadie* (n-body saw n-body) is interpreted along the lines of 'nobody saw and nothing was seen'. Such an analysis would allow us to maintain that n-words in these cases function as real NQs. Since there is no decomposition and deletion of semantically relevant material, it would not face the same problems as Zanuttini's (1991) proposal.

Nevertheless, the cumulative analysis is not feasible for Spanish/Italian n-words. The problem is that cumulative quantification requires the quantifiers that are interpreted cumulatively to take the same scope at LF. Assuming that quantifier scope is essentially clause bound, we immediately run into a problem with n-words that appear several clauses deeper than their licensor. For instance, in (15), which is due to Uribe-Etxebarría (1994), the n-word occurs two embeddings down from the negation, in a context from which it presumably cannot QR out to adjoined to the matrix *nadie*:

(15) Nadie creía que María hubiese dicho que le debieras ningún dinero
Nobody believed that Mary had$_{subj.}$ said that cl. owed$_{subj.}$ n-money
'Nobody believed that Mary had said that you owed her any

money'

Based on sentences like (15), Uribe-Etxebarría argues that embedded n-words are NPIs that are licensed by the matrix negative element, rather than by a tacit intermediate 'negative complementizers' (cf. Laka (1990), Zanuttini (1991)). As she points out, since selection is local, the verb *decir* (*say*) in the intermediate clause cannot be analyzed as selecting a negative complementizer for the most deeply embedded clause containing the NPI.

What is important for present purposes is that the relevant element with which *ningún* would interact if it were a cumulative quantifier would have to be the matrix *nadie*. The interaction would not be possible, however, because the two elements are too far apart to take the same scope. In light of this, I will assume that non-initial n-words in the standard paradigm are NPIs. At the same time, I maintain that initial n-words are NQs.[10]

3. Non-initial n-words that function as NQs:

Unlike the distribution of NPIs, the distribution of NQs is not restricted by any licensing conditions, which means that NQs should occur freely. If n-words are ambiguous between NPIs and NQs, as I am arguing here, then we clearly expect to find n-words without a licensor not only in initial position, but also non-initially, and in particular, postverbally.

Building on observations of Zanuttini's (1991), I would like to show that postverbal NQs are indeed possible in Spanish but their distribution is severely limited by the fact that they are scope-rigid. What I will show is that the scope-rigidity of postverbal NQs will often (but not always!) undermine a coherent

[10]For a detailed discussions of other problems of an analysis of n-words that involves LF-movement, see Arnaiz (1993).

interpretation of the sentence. I claim that it is for this reason that the (b) examples in the standard paradigm are considered unacceptable. Strictly speaking, they are not ungrammatical, but they result is such bizarre truth-conditions, that speakers reject them.

Let's begin with some of Zanuttini's original examples:

(16) a. È rimasto con niente in mano
is left with nothing in hand
'He is left with nothing'

b. Ha detto ciò con nessuna malizia
'He said so with no malice'

c. Sono partita con nessun soldo in tasca e tornata con mille dollari
'I left with no money in my pocket and came back with $1,000'

In (16) the n-words occur without a licensor in postverbal position within an adjunct modifier. As shown by the translations, they are interpreted as NQs. Crucially, in (16) the NQs do not take scope over the entire sentence, but are limited to a narrow scope position, which I will assume translates as narrow scope with respect to a Davidsonian event operator (cf. Parsons 1990 a.o.), as in (17):

(17) a. ∃e [Agent(e, pro) & *rimasto*(e) & *con(e,* [*niente* x] in mano (x)]
'There was an event of him being left and it was a being left with nothing in his hand'
b. ∃e [Agent(e,pro) & *ha detto*(e) & Theme(e, *ciò)* & [*nessuna* x: *malizia (x)*] *con* (e,x)]
'There was an event of him saying it and it was with no malice'

c. ∃e [Agent(e,pro) & *sono partita*(e) & [*nessun* x: *soldo*(x)] *con*(e,x) & *in tasca*(x)]
'There was an event of me leaving and it was a leaving with no money in my pocket'

Since the event operator takes wide scope with respect to the NQ in the logical forms in (17), the sentences in (16) directly entail that there took place events of being left, saying, and leaving, respectively. These events are modified for being without money, and without malice. The interpretations that result from the scope-rigidity of the NQ are fully coherent because we know that events of leaving or of being left can be leavings without nothing, and events of saying do not have to be malicious. The data from Italian carry over to Spanish as well.

Another example where scope-rigidity makes pragmatic sense, and where, as a result, a postverbal NQ is acceptable is provided in (18):

(18) Pedro quiere hacer un viaje a ninguna parte
Pedro wants make a trip to n- place

(18) asserts that Pedro wants to take a trip without any specific goal, that is, he wants to just leave and see where the trip takes him. Here the n-word clearly functions as a NQ. The fact that it is scope rigid does not make the sentence incoherent because trips that are trips to nowhere (in particular) clearly exist and people do like to take such trips. (18) contrasts with (19), which contains a negation in the matrix:

(19) Pedro no quiere hacer un viaje a ninguna parte
Pedro not wants make a trip to n- place

Whereas (18) had only one reading, (19) has two, none of which coincides with that of (18). Both readings of (19) are predicted on the present analysis: on the most salient reading, the n-word

is interpreted as an NPI licensed by *no*, so that the sentence denies that Pedro wants to take any trip anywhere - it effectively asserts that Pedro wants to stay home. Along with this reading, (19) has another, less salient reading where the n-word is an NQ. Here (19) denies that Pedro wants to take a trip to nowhere, that is, it denies that he want to take a trip with no particular goal. The double-negation reading of (19) becomes salient in a context like the following, where taking a trip to nowhere is under discussion in the preceding discourse. (As in many double negation readings, the negation likes to be emphatically stressed):

(20) A pesar de que a tí te haga mucha ilusión, yo realmente NO quiero hacer un viaje a ninguna parte. Yo necesito saber a donde vamos a ir ANTES de salir'
'Even though you may love the idea, I really DON'T want to take a trip to nowhere. I need to know where we are going to go BEFORE we leave'

If n-words are ambiguous between NQs and NPIs, then the ambiguity of (19) is easily accounted for. In contrast, it is not explained on the NPI-view. Given that all n-words are analyzed as NPIs and only preverbal ones are predicted to exhibit the semblances of NQs, it can not account for the NQ interpretation of postverbal n-words and consequently also not for the double negation reading of (19).[11]

---

[11]As noted by Zanuttini (1991:175f), postverbal NQs are problematic on the NQ analysis if one assumes the so-called NEG-Criterion, whereby each negative phrase must stand in a SPEC-head relation with a negative head at LF. Given the position of negation, the NEG-Criterion forces all NQs to take sentential scope. Considering examples like (16), Zanuttini briefly suggests that perhaps the preposition *con* licenses an abstract NegP to which the NQs in these examples can move, thereby satisfying the NEG-Criterion without taking sentential scope. As the examples in the text indicate, the phenomenon is much more wide-spread and does not hinge on the presence of any one particular element.

I believe the ambiguity of examples like (19) also poses a challenge for an analysis of n-words that assumes that they are lexically underspecified as to whether they are NPIs or NQs and that they have the relevant feature filled in according to the syntactic position they occur in. Notice that for this kind of analysis to account for the two readings of (19), it would have to be proposed that the sentences has two different syntactic structures and that the assignment of the missing features is sensitive to that difference. But this seems implausible because the kind of ambiguity we see in (19) is pervasive and possible in all cases where a postverbal NQ is acceptable in the non-negated version of the sentences. Thus, the ambiguity is not only present in (19), but also in the negation of the sentences in (16), and arguably also in cases like (21):

(21) a. Es imposible que lo sepa nadie
b. Es imposible que nadie lo sepa

Whereas (21a) is interpreted as 'It is impossible that anyone knows it' (i.e. Nobody knows it), (21b) is ambiguous between 'It is impossible that anyone knows it' and 'It is impossible that nobody knows it' (i.e. Somebody must know it) (cf. Bosque 1980, Laka 1990). The reading of (21a) and the first reading of (21b) are NPI-readings of *nadie*, where the NPI is licensed by *impossible*. In contrast, the double negation reading of (21b) is the result of *nadie* being interpreted as a NQ. (21a) lacks this kind of reading for the same reason that NQ-readings are often absent in postverbal positions (see below).

Yet another example that shows how an NQ can occur postverbally is provided by (22), where the NQ takes narrow scope relative to the event described in a small clause:

(22) María vió, con sus propios ojos, a ninguno de ellos atreverse a decir nada
Mary saw, with her own eyes, n- of them dare say n-thing

The subject of (22) indeed sees an event, namely an event which is described in 'negative terms', i.e. as a situation where none of them said anything. Such a situation arises for instance when all of them stayed quiet and stared at their hands. If so, the event operator in the small clause in (22) takes scope over the NQ subject *ninguno de ellos*, cf. (23):

(23) ∃e [C(e) & saw(e) & with his own eyes(e) & Agent(e, Mary) & ∃e' [Theme(e,e') & C(e') & Agent(e', none of them) & dare say(e') & Theme(e', anything)])]
'There was a relevant seeing by Mary which was with her own eyes and which was seeing of a relevant event where nobody dared say anything'

Clearly, in (22) the n-word occurs non-initially and functions as a NQ, not as a NPI. The fact that the NQ takes narrow scope with respect to the event operator of the small clause does not interfere with a coherent interpretation of the sentence because the wide scope of the event makes sense, given that the complement of *see* is an entire small-clause that is described in 'negative terms'.

Now that we have seen that NQs can in fact occur postverbally, let's turn to (1c) now *Vino nadie*. I would like to argue that what is significant here is that a sentence like *Nobody came* only makes sense on a wide-scope interpretation of the NQ, along the lines of 'Nobody is such that there was an event of coming where they came'. A narrow scope interpretation makes no sense, since it would mean something like 'There was event of coming where nobody came', which is incoherent. If we accept this line of argument, then (1c) will not be ungrammatical, but it will be 'unsemantic', i.e. it will be so incoherent that it will be rejected. That in the right circumstances we can in fact say what would normally be considered incoherent is shown in (24):

(24) No se movía ni una brizna de hierba, ni una triste hoja.

Not a strand of grass moved, not a sad leave
Todo era tan tierno que no tenía bastantes ojos para mirar.
Everything was so touching that I didn't have enough eyes to see
Al final, con los brazos extendidos hacia adelante,
Finally, with my arms streched out in front of me
→ dije bajito **a nadie** que todo era mío.
I said softly to nobody that everything was mine.

from'Parecía de seda' by Mercè Rodoreda

The author in (24) describes an event where the narrator said something, namely that everything was hers. This event is said to be directed towards noone. By stating this explicitly, Rodoreda presumably intended to emphasize that the narrator is by herself. Normally, we do not want to add such information. It is for reasons like this that the (b) examples in the standard paradigm are generally rejected.[12]

What we have seen then is that non-initial n-words can in fact function as NQs. When they are postverbal, their distribution is severely limited by the fact that they are scope-rigid and cannot take scope over the event operator of the clause they appear in.

4. Open questions:

There remain several issues which I have not even tried to

---

[12]There is one circumstance where non-initial NQs are not scope-rigid, namely when they follow words like *exactamente* in contexts like the following: (CAPS=focus)

(i) A: ¿A cuanta gente se lo contaste?
B: ¡Se lo conté exactamente A NADIE!

This observation is due to J. Uriagereka(p.c.).

address. For instance, what is responsible for the narrow scope properties of postverbal NQs in Spanish and Italian? How does this relate to the general dislike of wide scope we find in English NQs? Can the synchroninc ambiguity of n-words be related to the diacronic phenomenon called the Jespersen Cycle? If n-words are indeed ambiguous as I have tried to argue, then these questions are important. Hopefully, future research will offer some answers.

REFERENCES:

Arnaiz, Alfredo (1993) 'On the Parallelism betwenn N-words and *Wh*-in-sity in Spanish' ms. USC.

Bosque, Ignacio (1980) *Sobre la negacion* Ediciones Cátedra, Madrid.

Déprez, Viviane (1995) 'The Roots of Negative Concord in French and French Based Creoles' to appear in M. DeGraff, ed. *Creole, Diachrony and Language Acquistion* MIT Press.

Ladusaw, William (1991) 'Interpreting Negative Concord Structures' paper presented at the LSA conference

Ladusaw, William (1993) 'Expressing Negation' in *Proceedings of SALT II,* Ohio State University, p. 237-259.

Laka, Itziar (1990) 'Negation in Syntax: On the Nature of Functional Categories and Projections' MIT PhD thesis.

Suñer, Margarita (1995)'Negative elements, island effects and resumptive *no' The Linguistic Review* 12,p. 233-273

Uribe-Echebarría, Miriam (1994) 'Interface Licensing Conditions on Negative Polarity Items: A Theory of Polarity and Tense Interactions' UConn PhD thesis.

Van der Wouden, T. and F. Zwarts (1994) 'A Semantic Analysis of Negative Concord' in Lahiri, U. and A. Wyner (eds.) *Proceedings of Salt III,* Cornell University.

Zanuttini, Raffaela (1991) 'Syntactic Properties of Sentential Negation. A Comparative Study of Romance Languages' UPenn PhD thesis.

On the adjacency constraint on Case-assignment

Paul Law
Zentrum für Allgemeine Sprachwissenschaft, Berlin

0. Introduction

It is a fact about English that an adverbial may not intervene between a verb and its direct object (DO) (Keyser 1968:361):

(1) *He gave her immediately the money.

Stowell (1981:113) thus noted the contrast in (2) and (3), and claimed that the grammatical difference relevant here bears on Case theory:

(2) a. Paul quickly walked [to the door].
Jenny quietly talked [to Bill].
b. Paul walked [to the door] quickly.
Jenny talked [to Bill] quietly.
c. Paul walked quickly [to the door].
Jenny talked quietly [to Bill].

(3) a. Paul quickly opened [the door].
Jenny quietly opened [the door].
b. Paul opened [the door] quickly.
Jenny opened [the door] quietly.
c. *Paul opened quickly [the door].
*Jenny opened quietly [the door].

since the category NP that follows the adverbs *quickly* and *quietly* is in need of Case in (2), and the category PP in (3) is not. He proposed that an adjacency constraint be incorporated into the rule of Case assignment, as in (4):

(4) Case Assignment under Government
In the configuration [α β ...] or [... β α], α Case-marks β, where
(i) α governs β and
(ii) α is adjacent to β, and
(iii) α is [–N]

Subsequent work on syntactic theory has widely assumed some version of (4) for Case assignment, especially the adjacency constraint in (4ii). Whenever there is a grammatical contrast between a configuration like that in (5a) where X assigns Case to YP and one like that in (5b), it is taken to be evidence that the presence of YP interferes with Case-assignment from X to YP:

(5) a. X YP
b. *X ZP YP

The relation between the configurations in (5) has also be taken one step further. That is, if YP is an NP that may cooccur with a verbal category X as in (5a) but the two may not be

separated by another category ZP as in (5b), then the category X is taken to be a Case-assigner, even though there might be no firm independent evidence for the Case-assigning property of X. Thus, Lasnik (1992) argued that facts like those in (6) are evidence that the verb *be* assigns partitive Case to the NP *a man* (cf. Belletti 1988) since the two are apparently separated by the adverb *usually*:

(6) a. ?*There will be usually a man here.
There will usually be a man here.
b. *There will be not a man here.
There will not be a man here.
c. *I believe there to be usually a solution.
?I believe there usually to be a solution
d. *I believe there to be not a solution.
I believe there not to be a solution.

Some interesting consequences about Universal Grammar (UG, Chomsky 1957) and language acquisition follow, if it is true that the adjacency constraint holds of Case-assignment and that the verb *be* indeed assigns Case. As the child is not likely to be explicitly instructed that the DO must be adjacent to the verb assigning Case to it, it must be that the adjacency constraint is part and parcel of the rule for Case-assignment that need not be learned but is "hard-wired" into our language faculty. Thus, claims about the property of Case-assignment are not only claims about facts like those in (1)-(3), but also about some very fundamental property of language. It is in this sense that an inquiry into the principles of Case-assignment is an enterprise worth taking. The claim that the verb *be* is a partitive Case-assigner is even more interesting since apart from examples like those in (6) there is little independent evidence for neither partitive Case in English, nor Case-assigning property of the verb *be*.

I would like to re-examine Stowell's (1981) claim that the adjacency effect has to do with Case- assignment. I will consider the issue within the set of assumptions about phrase structure that were assumed at the time, and also in the light of recent work on Case theory. However, I argue that the adjacency effect has no bearing on Case theory, but has to do with the syntax of verbs and adverbs. If my arguments are correct, then facts like those in (6) would be no evidence for the verb *be* as Case-assigner.

The paper is organized as follows. In section 1, I discuss some issues in Case theory and problems for the view that the adjacency constraint is a condition on Case-assignment in constructions where the adjacency effect apparently does not hold. I consider adverb placement in the passive sentences of the verb-particle, double-object and Exceptional Case-marking (ECM) constructions in section 2 to show the irrelevance of the adjacency constraint to Case-assignment. I discuss the syntax of adverbs and the locality constraint on adverb modification in section 3, and conclude the paper in section 4 with an account for the facts in (6) independently of Case.

1. On the adjacency effect and Heavy NP Shift

As is well-known, a complication in the investigation of the position of the DO is the fact that an NP may under some circumstances appear separated from the verb from which it receives Case. As illustrated respectively in (14) and (15), a phonologically heavy NP or an indefinite NP need not occur adjacent to the verb in the Heavy NP Shift (HNPS) (Ross 1967) or Focus

NP Shift (FNPS) constructions (Rochemont 1978) (where #* indicates marginally acceptable as HNPS constructions, from Stowell 1981:106):

(7) a. Paul retrieved [the book] from the trash can.
Neil donated [ten dollars] to the fund.
b. Paul retrieved from the trash can
[the book that his mother gave him when he was 10]
Neil donated to the fund
[the last ten dollars that were left over from his bank account]
c. #*Paul retrieved from the trash can [the book]
#*Neil donated to the fund [ten dollars]

(8) a. Kevin gave [a new book] to his mother
Brian brought back [a priceless treasure] from America
b. Kevin gave to his mother [a new book]
Brian brought back from America [a priceless treasure]

Three questions immediately arise in the examples in (7) and (8). How are the a- and b-examples to be related? and how is the difference between (7a) and (7b) on the one hand, and (7c) on the other to be accounted for? and if the grammar is to provide a syntactic explanation for it, and how can the difference be related to Case theory?

For our discussion here, we can schematically represent the configurations in which the adjacency effect might arise as in (9) where XP is an NP category, and YP any non-NP category like PP and adverbs like *quickly* and *quietly*:

(9) a. ... V XP YP ...
b. ... YP V XP ...
c. *... V YP XP-light...
d. ... V YP XP-heavy/indefinite ...

We will consider the configurations in (9) in various theories of phrase structure and Case, and see that in all these cases the adjacency constraint plays no role in Case-assignment.

1.1. Adverb placement and phrase structure

In theories of phrase structure where a constituent may dominate more than two daughters (Chomsky 1965, Jackendoff 1977), the structures for the configurations in (16) would be like those in (10):

(10) a. ... [$_{VP}$ V DO XP] ...
b. *... [$_{VP}$ V XP DO-light] ...
c. ... [$_{VP}$ V XP DO-heavy/indefinite] ...

To exclude the structure in (10b) with the adjacency constraint on Case-assignment, one must assume that Case cannot be assigned to the light DO, if it is not adjacent to the verb. An issue that immediately arises is that how Case is assigned in (10c) to the heavy DO in the HNPS in (7) and the FNPS constructions in (8). As the configuration is possible, it must be that Case-assignment to the the heavy DO need not obey the adjacency constraint. But why

should the phonological heaviness or the definiteness of an NP be relevant to Case-assignment? The question does not seem to have an obvious answer.

A more plausible explanation for the syntactic difference between heavy and indefinite NPs on the one hand and light as well as definite ones on the other is that the difference is related to their inherent property and the structural positions in the sentence in which they NP occurs. Specifically, heavy and indefinite NPs introducing new information may be interpreted as focus (Rochemont 1978), while light and definite NPs having little new information may not. Now, it is a fact about English that the focus position is at the end of the clause.[1] If this is so, then the fact that a heavy or indefinite NP may appear in the focus position at the end of the clause, but light or definite NP may not, follows from the inherent property of the NPs: only NPs introducing new information may be focused.

From the initial D-structure as in (11a), one can derived a structure for the HNPS/FNPS construction with a heavy or indefinite NP as in (11b) if movement within the same projection is allowed, or as in (11c) if the movement is to an adjoined position:[2]

(11) a. ... $[_{VP}$ V DO XP] ...
b. ... $[_{VP}$ V t_i XP DO_i] ...
c. ... $[_{VP}$ $[_{VP}$ V t_i XP] DO_i] ...

Now, once we have a constraint barring rightward movement of a light or definite NP, there is no need for a special condition on Case-assignment like the adjacency constraint. In fact, if a heavy DO in (11b) and (11c) is assigned Case (under government) either in their derived position or via the position t, then it is difficult to see how a light or definite NP is prevented from being assigned Case the same way.

Furthermore, given that no Case problem arises when an NP undergoes *Wh*-movement (to the left), even when it is light:

(12) a. What$_i$ did you see t_i?
b. What$_i$ did you say t_i was on the shelf?
c. Who$_i$ do you expect t_i to win?

it is not clear why specifically a Case problem arises when a light or definite NP moves to the right. One can of course appeal to the distinction between leftward movement and right movement in that the former is unbound but the latter is clause-bound (cf. Ross's (1967) Right-Roof Constraint), but the bearing of left/right distinction on Case-assignment is unclear. There is the problem of why such a left/right distinction should be irrelevant to a heavy or indefinite NP.

Under some independently motivated assumptions about phrase structure, the adjacency effect can readily be accounted for. The configurations in (9c) and (9d) are automatically excluded under the view that phrase-structure is strictly binary branching (Kayne 1984), and that the complement and the verb are sisters. As shown in (13), the sequence of categories in (9c) and (9d) with an XP intervening between the verb and the DO gives rise to a non-binary-branching structure:

(13) a. ... $[_{VP}$ XP $[_{VP}$ V DO]] ...
b. *... $[_{VP}$ V XP DO]] ...
c. ... $[_{VP}$ $[_{VP}$ V DO] XP]

Given that adjuncts and arguments exhibit different property with respect to extraction (Huang 1982), and that even internal arguments of a verb stand in a certain asymmetric hierarchical relation (Larson 1988), it seems quite plausible that the XP in (13) must not be included within the same bar-level projection of the verb and the DO. Under this conception of arguments and adjuncts, it is simply impossible for the XP to intervene between the verb and the DO.

On this view of phrase structure, then, the HNPS/FNPS construction can only have the structure in (21) where the DO has been moved rightward to an adjoined position (Rochemont and Culicover 1990:118):

(14) ... $[_{XP}\ [_{VP}\ [_{VP}\ V\ t_i\ ]\ XP\ ]\ DO_i\ ]$ ...

The question now is how to exclude the movement in (14) when the DO is light or definite. As already mentioned in discussion of the structures in (10), the movement is barred for interpretive reasons. That is, moving of a light or definite NP to the focus position would require that it introduce new information, a property that it does not have. It is therefore not necessary to add a separate condition like the adjacency constraint on Case-assignment.

To control for the effect of HNPS/FNPS, Stowell (1981:108) suggested to consider the adjacency effect in gerunds. Since gerunds presuppose the propositions they express, they are thus incompatible with focus. He notes the following NP versus PP contrast in gerunds (Stowell 1981:110):

(15) a. The notoriety resulting from [Kathy's exposure in the Washington Post
[of Nixon's war crimes]] led to her new assignment.
The notoriety resulting from [Kathy's exposure [of Nixon's war crimes]
in the Washington Post] led to her new assignment.
b. The notoriety resulting from [Kathy's exposing [Nixon's war crimes]
in the Washington Post] led to her new assignment.
*The notoriety resulting from [Kathy's exposing in the Washington Post
[Nixon's war crimes]] led to her new assignment.

As can be seen from the insertion of a dummy Case-marker *of*, the NP does not receive Case from the derived nominal, and hence need not be adjacent to it. By contrast, the NP complement must be adjacent to the gerundive head in order to receive Case from it.

Even here, evidence for the bearing of the adjacency constraint on Case-assignment is rather weak. There are several problems with the example in (15b). First, the NP is not of the type that can appear non-adjacent to the verb in other contexts, like the HNPS/FNPS construction; it is light and definite. Therefore, the NP would not be able to move, even if it were possible for it to do so. Second, if rightward movement the point here is that gerunds do not allow HNPS/FNPS because of its presupposition property, then the NP would not be able to move in the first place. Third, the questions that one would ask is how the examples in (15b) are to be derived, and why the NP may not be separated from the gerundive head by a PP. If it is correct that an adjunct PP cannot occur in the same bar-level projection with the gerundive head and its complement, then it must be that the constituent *Nixon's war crimes* has moved to a right-adjoined position:

(16) ... [[[exposing t_i] [in the Washing Post]] [Nixon's war crime $]_i$]...

The problem that we saw in connection with the structures in (11) and (14) and the examples in (12) emerges again. Short of stipulation, there is no natural to prevent to moved NP from being assigned Case via its trace.

Fourth, there is also the empirical question of whether gerunds do not allow HNPS/FNPS because of its presupposition property. The examples in (17) and (18) sound quite good, if not perfect:

(17) a. ?Jenny was surprised at Paul's retrieving from the trash can
[the book that his mother gave him when he was 10]
?The chairman was happy about Neil's donating to the fund
[the last ten dollars that were left in his bank account]

(18) a. ?Sue mentioned Kevin's giving to his mother [a new book]
as an indication that he still thinks of her from time to time.
b. ?Everyone was looking forward to
Brian's bringing back from America [a priceless treasure]

Although the ungrammaticality of the example in (15b) needs to be attended to, it is clear that appeal to the adjacency constraint on Case-assignment to account for it is conceptually unwarranted and empirically problematic. It not only would introduce a complication to Case theory that is otherwise unnecessary, but also would incorrectly rule out the examples in (17) and (18) as ungrammatical.

1.2. VP-shell

There are of course other conceivable analyses of the HNPS/FNPS construction. Larson (1989) suggested that the examples in (19b) is to be derived from those in (19a) in the manner shown in (20):

(19) a. Mary gave everything that he demanded to John.
Max put all the boxes of home furnishings in his car.
b. Mary gave to John everything that he demanded.
Max put in his car all the boxes of home furnishings.

(20) Mary $[_{VP}$ [[gave+[to John]]$_i$ [$[_{VP}$ everything that he demanded [t_i]]]]]
Max $[_{VP}$ [[put+[in his car]]$_i$ [$[_{VP}$ all the boxes of home furnishings [t_i]]]]]

That is, the structure of a ditransitive verb is a double VP-shell, with the lower VP containing the verb in the head position, the indirect object (IO) in the complement position, and the DO in the Spec position (cf. Larson 1988). An optional process of V′-reanalysis applies to the verb and the IO to form a complex predicate V°, which subsequently raises to the empty head position of the upper VP.

If V′-reanalysis does not apply, then the verb alone raises, giving the order in (19a), as shown in (21):

(21) Mary $[_{VP}$ [gave$_i$ [$[_{VP}$ everything that he demanded [t_i to John]]]]]
Max $[_{VP}$ [put$_i$ [$[_{VP}$ all the boxes of home furnishings [t_i in his car]]]]

Most relevant to our concern here is the assumption that the DO is assigned Case under government by either the verb itself or the V+IO complex predicate when it raises to the head position of the upper VP shell.

Consider now the examples in (22) when the DO is a light or definite NP:

(22) a. Mary gave ten dollars to John.
Max put the book in his car.
b. *Mary gave to John ten dollars.
*Max put in his car the book.

Given that the DO can be assigned Case under government in the Spec of the lower VP shell, as shown in (23):

(23) Mary [$_{VP}$ [gave$_i$ [[$_{VP}$ ten dollars [t_i to John]]]]]
Max [$_{VP}$ [put$_i$ [[$_{VP}$ the book [t_i in his car]]]]

it is hard to see why the DO should fail to be assigned Case when the V+IO raises to the upper VP shell:

(24) *Mary [$_{VP}$ [[gave+[to John]]$_i$ [[$_{VP}$ ten dollars [t_i]]]]]
*Max [$_{VP}$ [[put+[in his car]]$_i$ [[$_{VP}$ the book [t_i]]]]]

An obvious way to rule out the structures in (24) would be to postulate some constraint that prevents V′-reanalysis from applying when the DO is light or definite. Although it is not entirely clear how a constraint on V′-reanalysis is to be stated to give precisely the right results ruling out the structures in (24), it seems clear that the constraint does not concern the adjacency of the DO to the verb. However one is to render V′-reanalysis inapplicable when the DO is light or definite, the word-order in (22b) would never arise. Again, there is no need to assume the adjacency constraint as a condition on Case-assignment.

1.3. AgrO

Chomsky (1991) suggested that the Case of the DO be assigned or checked in the same manner as that of the subject (S). In particular, the Case-assigning head and the category receiving Case are in the Spec-head relation. Languages vary according as the level of representation where Case is assigned or checked, deriving the different word-orders cross-linguistically (Chomsky and Lasnik 1993). Languages with the surface SOV order would assign or check the Case for the DO in overt syntax, but those with the surface SVO order like English does it at LF:

(25) a. SOV languages
S [$_{AGRP}$ DO$_i$ [[$_{VP}$ V t_i]]] overt syntax
b. SVO languages
S [$_{AGRP}$ [[$_{VP}$ V DO]]] overt syntax
S [$_{AGRP}$ DO$_i$ [[$_{VP}$ V t_i]]] LF

We will see presently that the adjacency effect has no bearing on Case.

Keeping the assumption that phrase structure is binary branching and the DO is a sister of the verb in the VP (cf. section 1.1), then it is simply impossible for a manner adverb like *quickly* and *quietly* to intervene between the verb and the DO inside the VP:

(26) *S [$_{AGRP}$ [[$_{VP}$ V XP DO]]]

Even if the structure in (26) were possible at S-structure or at Spell-out, it does not have anything to do with Case, since the DO would be assigned or check its Case in Spec of AgrO (at LF in English).

Other options for the position of manner adverbs are available. They either adjoin to the left to VP as in (27a) or to the right of VP as in (27b) (cf. section 3):

(27) a. [$_{AGRP}$ [[$_{VP}$ quickly [$_{VP}$ opened the door]]]]
b. [$_{AGRP}$ [[$_{VP}$ [$_{VP}$ opened the door] quickly]]]

Thus, the word-order where the manner adverb intervenes between the verb and the DO can be derived by either moving the verb leftward in structure in (27a), or moving the DO in structure in (27b) rightward. As their precise landing sites are irrelevant, let us assume for concreteness that they respectively move to AgrO and a VP-adjoined position, as in (28a) and (28b):

(28) a. *[$_{AGRP}$ [opened$_i$ [$_{VP}$ quickly [$_{VP}$ t_i the door]]]]
b. *[$_{AGRP}$ [[$_{VP}$ [$_{VP}$ [$_{VP}$ opened t_i] quickly] the door$_i$]]]

An issue that we can immediately resolve is that the structures in (28) cannot be excluded for Case reason, since the DO is assigned or checks its Case in the Spec of AgrO, at LF in English:

(29) a. *[$_{AGRP}$ the door$_j$ [opened$_i$ [$_{VP}$ quickly [$_{VP}$ t_i t_j]]]]
b. *[$_{AGRP}$ the door$_i$ [[$_{VP}$ [$_{VP}$ [$_{VP}$ opened t_i] quickly]]]]

There is still a further possibility of the position of manner adverbs, namely, they occur left-adjoined to the VP as in (27a), but not right-adjoined as in (27b). On this view, then, when the adverb precedes both the verb and the DO at S-structure, the latter two stay in their base-positions as shown in (29a), and the two raise at LF respectively to AgrO and Spec of AgrO to be in a Spec-head relation for Case-assignment or Case-checking as in (30b) (the verb presumably raises further, not represented here):

(30) a. [$_{AGRP}$ [[$_{VP}$ quickly [$_{VP}$ opened the door]]]] (S-structure)
b. [$_{AGRP}$ the door$_j$ [opened$_i$ [$_{VP}$ quickly [$_{VP}$ t_i t_j]]]] (LF)

When the adverb follows both the verb and the DO it must be that both the verb and the DO have moved leftward, as shown in (31a) (cf. Costa 1996 for the adverb *well*). To exclude the structures in (31b) and (31c) that give the impossible surface word-orders, it must be assumed that for some reason the DO may not stay in the base-position when the verb moves out of its base-position, and that the verb may not stay in AgrO when the DO moves to Spec of AgrO.

(31) a. opened$_i$ [$_{AGRP}$ the door$_j$ [t_i [$_{VP}$ quickly [$_{VP}$ t_i t_j]]]]
b. *opened$_i$ [$_{AGRP}$ [t_i [$_{VP}$ quickly [$_{VP}$ t_i the door$_j$]]]]
c. *[$_{AGRP}$ the door$_j$ [opened$_i$ [$_{VP}$ quickly [$_{VP}$ t_i t_j]]]]

Although this view of one fixed position for manner adverbs remains to be justified, the same point about Case holds, namely, the intervention of the adverb between the verb and the DO in the structure in (31c) has no bearing on Case, since the DO would be assigned or checks its Case covertly at LF, just like it does in the structure in (30b).

We thus see that in a variety of views on phrase structure and Case, the adjacency effect really has nothing to do with Case, but is a consequence of independently motivated assumptions about what phrase structure should look like, and how Case is assigned or checked. The fact that nothing may occur between a verb and its DO is a reflection of the fact that it may not appear inside the same bar-level projection of the verb and the DO in the first place, or is due to a constraint on HNPS/FNPS, construed either as a process of rightward movement or as the result of raising of a light predicate.

Insofar as it does not follow from any general principle, nor is it related to the rest of the grammar, the adjacency constraint is at best a restatement of the facts. The elimination of the constraint from the grammar as irrelevant to Case-assignment is thus a welcome result.

2. Adverb placement in passives of multiple complement constructions

A syntactic context that bears on Case is the passive construction. It is standardly assumed that Case is absorbed by the passive morphology, and that the DO moves to the subject position to get nominative Case (Jaeggli 1980, Chomsky 1981):

(32) a. The Romans destroyed the city.
b. The city$_i$ was destroyed t_i by the Romans.

In principle, we can test the relevance of the adjacency constraint on Case-assignment by placing in the passive construction an XP between the verb and the position of the trace where an NP receives Case in the active sentence. Since there is no Case assigned to the position of the trace, it should be possible for an XP to intervene between it and the verb:

(33) NP$_i$ V XP t_i

However, as manner adverbs like *completely*, *quickly* and *quietly* may appear on the surface in different positions, either preverbally or sentence-finally, but not between the verb and the DO, as shown in (34):

(34) a. The Romans completely destroyed the city.
John quickly opened the door.
b. *The Romans destroyed completely the city.
*John opened quickly the door.
c. The Romans destroyed the city completely.
John opened the door quickly.

it is not obvious in which post-verbal position the adverb occurs in the passive examples in (35a); it could be in the same position as that in (34b) or that in (34c):

(35) a. The city was destroyed completely by the Romans.
The door was opened quickly by John.
b. The city$_i$ was destroyed completely t_i by the Romans.
The door$_i$ was opened quickly t_i by John.
c. The city$_i$ was destroyed t_i completely by the Romans.
The door$_i$ was opened t_i quickly by John.

The examples in (35c) is unproblematic since the DO moves from a position it can otherwise occur in; the manner adverb in (34c) plausibly appears as a (right) VP-adjunct. The structure for the example in (35b) is also consistent with the idea that nothing may appear between a verb and the DO that it assigns Case to. Since the verb does not assign Case to its DO in passive, an adverb may intervene in a VP-internal position. Thus, when a sole complement of a verb is extracted, it is impossible to tell which post-verbal position the manner adverb appears in.

It is for this reason that we have to consider cases where more than one category follow the verb, and see the intervening effect of adverb placement. That is, in a configuration as in (36a) where both the XP and YP are in the VP and the XP is Case-marked, the adjacency effect that shows up when a ZP intervenes between the verb and the XP as in (36b) should disappear when XP is not assigned Case in its base-position and has to move to the subject position to get Case:

(36) a. V XP YP
b. *V ZP XP YP
c. XP$_i$ V ZP t_i YP

As YP is part of the VP, ZP cannot possibly occurs outside the VP, but in an intervening position between the verb and the trace of XP, ie, the same position as in (36b).

It is therefore the reason for our discussion of the various constructions that have the configuration in (z2a): the double object, the verb-particle, and the ECM constructions. We will see from the interactions between adverb placement and passive that there is no need to incorporate the adjacency constraint on Case-assignment into Case theory.

2.1. The verb-particle construction

Consider the familar variants of the verb-particle constructions exhibited in (37) and (38):

(37) a. Kevin turned [the light] [on]
b. Janice cut [the cabbage] [up]

(38) a. Kevin turned [on] [the light]
b. Janice cut [up] [the cabbage]

Given that the bracketed NPs in (37)-(38) must undergo NP-movement to subject position under passive, it must be that they receive Case from the verb in the active sentence, and not from the particle:

(39) a. The light was turned on by Kevin.
b. The cabbage was cut up by Janice.

If this is correct, then the bracketed NPs in (38) are apparently non-adjacent to the verb *turn* and *cut* respectively, which assign them Case. We thus have an apparent violation of the adjacency constraint on Case assignment.

Stowell (1981:298-301) suggested that the structure of the verb-particle construction be like (40), where the verb forms some sort of a complex predicate with the particle by some sort of word-formation rule, and the whole complex assigns Case to the following NP, observing the adjacency constraint:

(40) $[_V$ V - PRT] NP

On this view, the ungrammaticality of the examples in (41) is entirely expected, since the bracketed NP object is not adjacent to the verbal complex Case-assigner:

(41) a. *Kevin $[_V$ turned - on] quickly [the light]
b. *Janice $[_V$ cut - up] carelessly [the cabbage]

The word-order in (37), however, is derived by incorporating the particle into a verbal complex, which itself has an incorporated NP, as in the structure in (42a):

(42) a. $[_V [_V$ V - NP] PRT]
b. Kevin $[_V [_V$ turned - the light] - on]

In the substructure $[_V$ V - NP], which was also argued to have independent motivation (cf. the section 2.2 below on the double object construction), the NP is said to absorb Case.

However, there are several problems with this analysis of the verb-particle construction. First, although the ungrammaticality of the examples in (43) and (44) follows from the fact that the specific word-formation rules in (40) and (42a) do not sanction the occurrence of an adverb:

(43) a. *Kevin $[_V$ turned - quickly - on] the light.
*Janice $[_V$ cut - carelessly - up] the cabbage.
b. *Kevin $[_V$ turned - on - quickly] the light.
*Janice $[_V$ cut - up - carelessly] the cabbage.

(44) a. *Kevin $[_V [_V$ turned - quickly - $[_{NP}$ the light]] - on]
*Janice $[_V [_V$ cut - carelessly - $[_{NP}$ the cabbage]] - up]
b. *Kevin $[_V [_V$ turned - $[_{NP}$ the light]] - quickly - on]
*Janice $[_V [_V$ cut - $[_{NP}$ the cabbage]] - carelessly - up]

this explanation is unsatisfactory since it does not explain why some otherwise imaginable word-formation rules that allow an adverb inside the verbal complex do not exist, or why there does not seem to be word-formation rules incorporating subjects (Baker 1988). The impossible occurrence of an adverb in the verbal complex further suggests that one cannot maintain like Stowell (1981:306) did that incorporation of the an NP of the sort in (42a) is analogous to incorporation of pronominal clitics in Romance languages, since in these languages locative adjunct clitics may form a syntactic unit with the verb.

Second, the word-structure in (40) largely correctly predicts that the verb-particle complex would pattern like a syntactic unit with respect to gapping. As shown in (45), a verb may be gapped, leaving the DO intact (∅ represents a phonetically empty segment):

(45) a. John kissed Mary, and Sam [∅] Sue.
(=John kisssed Mary, and Sam kissed Sue)
b. Bill wrote a letter, and Fred [∅] a note.
(=Bill wrote a letter, and Fred wrote a note)
c. Jane ate a sandwich, and Robin [∅] a hotdog.
(=Jane ate a sandwich, and Robin ate a hotdog)

In the word-structure in (40), both the verb and the particle may be gapped, while gapping of the verb alone is slightly less good:[3]

(46) a. Kevin [turned on] the light, and Sue [∅ ∅] the radio.
b. Janice [cut up] the cabbage, and Fred [∅ ∅] the cucumber.

(47) a. ??Kevin [turned on] the light, and Sue [∅] off the radio.
b. ??Janice [cut up] the cabbage, and Fred [∅] up the cucumber.

Nevertheless, the expected patterns of gapping for the word-structure in (42a) are not entirely borne out. As illustrated in (48)-(49), while the verb itself may be gapped, the verb-NP complex may not:[4]

(48) a. ?Kevin [turned] the light on, and Bill [∅] the radio off.
b. ?Janice [took] the garbage out, and Mary [∅] the laundry in.

(49) a. *Kevin [turned] [the light] on, and Bill [∅] [∅] off.
b. *Janice [took] [the garbage] out, and Mary [∅] [∅] in.

The ungrammaticality of the examples in (49) can be accounted for on the assumption that the sequence verb-NP is not a syntactic unit, in contrast to the verb-particle sequence in (46).

Suppose the verb in the verb-particle construction takes a PP complement headed by the particle, and the word-order V-particle-NP is derived from the word-order V-NP-particle by syntactically incorporating the particle into the verb, as shown in (50):[5]

(50) a. V $[_{PP}$ NP P]
b. V+P_i $[_{PP}$ NP t_i]

The NP in (50) would receive Case under government[6] either from the verb alone, or from the verb-particle complex. The structure in (50a) accounts for the fact that the V and the NP may not be gapped since they do not form a syntactic constituent, and that in (50b) explains why the verb and the particle forming a syntactic unit may be gapped.

If an adverb were to occur in a position between the matrix verb and the NP in the structures in (50), where could that position be? It could be as sister to both the V and the PP complement as in (51a), or an adjunct to the PP complement as in (51b), or a right-adjunct to the matrix VP and the PP complement appears in a right-adjoined position as in (51c):

(51) a. $[_{VP}$ V adv $[_{PP}$ NP P]]
b. $[_{VP}$ V $[_{PP}$ adv $[_{PP}$ NP P]]]
c. $[_{VP}$ $[_{VP}$ $[_{VP}$ V t_i] adv] $[_{PP}$ NP P $]_i]$

(51a) would be excluded if phrase structure is binary branching, as discussed. We will see in section 3 that an adverb generally may not appear in the indicated position in (51b) for principled reason having nothing to do with Case. (51c) is ruled out because the NP is inside an adjunct, and would fail to be Case-marked, whether or not there is an adverb between the verb and the PP complement. Evidently, there is no need to incorporate a separate adjacency constraint on Case-assignment.

With the structures in (50), we can now proceed to see whether the adjacency constraint on Case-assignment bears on adverb placement in the verb-particle construction under passive. The answer is negative.

If the reason for the ungrammaticality of the examples in (52b) is that the objects *the light* and *the cabbage* fail to be assigned Case because of an intervening adverb:

(52) a. Kevin quickly turned the light on.
Janice carelessly cut the cabbage up
b. *Kevin turned quickly the light on.
*Janice cut carelessly the cabbage up.

then the adjacency effect should disappear when the verb does not assign Case. That is, we should expect the passive examples in (53b) to be grammatical, contrary to fact:

(53) a. The light$_i$ was quickly turned t_i on (by Kevin).
The cabbage$_i$ was carelessly cut t_i up (by Janice).
b. *The light$_i$ was turned quickly t_i on (by Kevin).
*The cabbage$_i$ was cut carelessly t_i up (by Janice).

Adverb placement in both active and passive sentences is the same; therefore, there is no particular reason why the adjacency constraint on Case-assignment should be invoked just to rule out the example in (52b), while the ungrammaticality of the example in (53b) is left unaccounted for.

2.2. The double-object construction

In a V NP NP double-object construction as in (54), the DOs *a telegram* and *a record* are apparently not adjacent to the verb:

(54) a. Wayne sent Robert a telegram.
b. Debbie gave Anne a record.

Stowell (1981:298-301) suggested that verbs that take double objects have the word-structure similar to that in (40), where the verb forms some sort of complex predicate with the IO, and the whole complex assigns Case to the DO, observing the adjacency constraint:

(55) $[_V$ V - NP] NP

More precisely, the IO absorbs the Case features within the verbal complex, just as a clitic in a language such French or Italian (Stowell 1981:304).

The ungrammaticality of the examples in (56b) is to be expected, since the DO is separated from the verb by an adverb, violating the adjacency constraint on Case-assignment:

(56) a. John quickly [$_V$ gave - Mary] the book.
Bill quietly [$_V$ sent Sue] the letter.
b. *John [$_V$ gave Mary] quickly the book.
*Bill [$_V$ sent Sue] quietly the letter.

In addition, since the first NP is part of a verbal complex in the word-structure in (55), one would expect that it may not move away from the complex, leaving the verb behind. The expectation is apparently confirmed in the interrogative. While questioning of the DO is possible, that of the IO is rather marginal in many dialects:

(57) a ?*Who$_i$ did John give t_i the book?
?*Who$_i$ did John send t_i the letter?
b. What$_i$ did John give Mary t_i?
What$_i$ did John send Sue t_i?

The extraction pattern is exactly the reverse in passive, however. As shown in (58), while passivization of the DO is quite possible, that of the DO sounds quite odd:

(58) a. Mary was given the book.
?Sue was sent the letter.
b. ?*The book was given Mary.
?*The letter was sent Sue.

Stowell (1981:305) therefore claimed that in fact the structure of a double object construction is slightly more elaborated than what is expressed in (55). Specifically, the IO in the verbal complex is related to a position in the V′ where a theta-role is assigned, as in (59):

(59) [$_V$ V - IO$_i$] DO- [e]$_i$

That is, while Case of the IO is absorbed in the verbal complex, the theta-role is assigned to the *e* position outside of the complex. Thus, what happens in the passive in (58a) is that the IO moves from the *e* position, not from within the verbal complex. The IO would thus get Case from the subject position, and a theta-role from the *e* position. The marginality of the examples in (58b) is attributed to an arbitrary constraint on word-structure to the effect that an NP may not be incorporated into the participial form of the verb.

As was with the case of the verb-particle construction discussed in section 2.1, there are several problems with this account of the double object construction. First, insofar as there is no principled reason why word-formation rules cannot be otherwise, explanations for syntactic facts based on these rules are not very satisfactory. There is no explanation for why there are no rules that incorporate a subject or an adverb into the verbal complex, or for a rule that having an incorporated DO, and relating it to position in the V′ as in (61):

(60) *John [$_V$ gave - quickly - Mary] the book.
*Bill [$_V$ sent - quietly - Sue] the letter.

(61) [$_V$ V - DO$_i$] [e]$_i$ - IO

Second, although the difficulty of questioning the IO in overt syntax as shown in (57) follows from the assumption that it is part of the verb, it is not clear how multiple-*wh* questions is to be analyzed, if in-situ *wh*-phrases must move at LF (Huang 1982),:

(62) a. Who gave who a book?
b. Who sent who a letter?

The examples in (62) would all end up having the representations in (63):

(63) a. Who$_j$ who$_i$ t_i gave t_j a book?
b. Who$_j$ who$_i$ t_i sent t_j a letter?

One would then have to make the provision that part of a word may not move overtly in syntax, but may do so covertly at LF (cf. Hoeksema 1987 on this issue).

In fact, with verbs that take double NP complements but do not permit a variant with an NP and a PP complement, questioning the IO is quite possible:[7]

(64) a. John gave Mary a headache.
Bill spared Sue the trouble.
Fred asked Jane a question.
Bob envied Rebecca her fortune.
b. *John gave a headache to Mary.
*Bill spared the trouble to Sue.
*Fred asked a question to Jane.
*Bob envied her fortune to Rebecca.

(65) ?Who$_i$ did you say John give t_i a lot of a headache?
?Who$_i$ did Bill claim to have spared t_i the trouble of going throught the red tap?
?Who$_i$ would you never bother to ask t_i any question?
?Who$_i$ did Bob envy t_i her fortune?

If the relative movability of the IO in the (65) indicates that it is not part of the verbal complex, then a problem arises for Case-assignment to the DO, since it is not adjacent to the verb.

Third, the idea that passive morphology absorbs Case may explain why the IO cannot occur in the verbal complex. As the Goal theta-role is assigned to the *e* position in (59), the IO may be generated there, and moves to subject position under passive to get Case. However, it is not clear how the Case for the DO is assigned. The problem is especially acute since the DO is assigned Case structurally by a complex verbal head, just like it is in cases involving non-complex transitive verbs.

Fourth, like in the analysis of the verb-particle construction, gapping facts show that the verb and the IO do not form a syntactic unit in the double object construction. Gapping in a

double object construction can only give rise to a reading where the verb is gapped, to the exclusion of the IO:

(66) a. John gave Mary a book, and [∅] Sam a record.
(=John gave Mary a book, and John gave Sam a record.
≠John gave Mary a book, and Sam gave Mary a record)
b. Bill sent Sue a letter, and [∅] Fred a note.
(=Bill sent Sue a letter, and Bill send Fred a note.
≠Bill sent Sue a letter, and Fred sent Sue a note)

Facts about adverb placement of course hinge on the structure of the double object construction. On the one hand, if tertiary branching phrase structure is allowed, then the VP of a double object construction might have a structure like that in (67a):

(67) a. $[_{VP}$ V IO DO]
b. $[_{VP}$ V (*adv) IO (*adv) DO]

The fact that an adverb may not appear between the verb and the IO, or between the IO and DO follows from the assumption that non-complements may not occur in the same projection of the verb and its complements.

On the other hand, suppose that ditransitive verbs have a double-VP structure, with the V IO DO word-order derived from the V DO P-IO word-order where the IO is the complement of the preposition P as illustrated with the verb *give* in (68) (Larson 1988):

(68) a. give$_i$ $[_{VP}$ the book [t_i $[_{PP}$ to Mary]]]
b. give$_i$ $[_{VP}$ Mary$_j$ $[_{V'}$ $[_{V'}$ t_i t_j] the book]]

The assumption that non-complements cannot occur within the same projection of the verb and its complements would then exclude an intervening adverb. As shown in (69), a manner adverb like *quickly* may appear as a left or right adjunct to the VP, but not within the VP projection (the subject is not represented here):

(69) $[_{VP}$ (quickly) $[_{VP}$ [give$_i$ $[_{VP}$ (*quickly)
$[_{VP}$ Mary$_j$ $[_{V'}$ (*quickly) $[_{V'}$ $[_{V'}$ t_i t_j] the book]]]]] (quickly)]

The impossibility of the examples in (56b) and (60) now follows directly.

If Larson (1988) is correct in that the DO in the double object construction receives Case from the V′ reanalyzed as a verb, then the difficulty of passivize the DO as shown in (58b) might be due to the fact that the passive morphology attaches to the verb, not to the reanalyzed V′. That is, since the passive morphology on the verb absorbs the Case assigned to the IO, the IO in (45a), not the DO which receives Case from the V′, must move to subject position to receive Case. As a result, the ungrammaticality of the examples in (58b) is due to the IO having no Case.

We can now further test the relevance of the adjacency constraint on Case-assignment to adverb placement. If the grammaticality of the examples in (70) is due to the failure of Case-assignment to the IO, then when the IO moves to the subject position under passive, the adjacency effect should disappear:

(70) a. *John gave quickly Mary the book.
b. *Bill sent quietly Sue the letter.

But as shown in (71), the examples remain ungrammatical when the IO undergoes NP-movement to subject position under passive:

(71) a. *Mary$_i$ was given quickly t_i the book (by John).
b. *Sue$_i$ was sent quietly t_i the letter (by Bill).

Since no Case issue is at stake in (71), and given that the grammatical examples in (72) differ from those in (71) only in the position of the manner adverb, it must be that it is the position of the manner adverb that is responsible for the impossibility of the examples in (71):

(72) a. Mary$_i$ was quickly given t_i the book (by John).
b. Sue$_i$ was quietly sent t_i the letter (by Bill).

Similarly, since the examples in (73) are grammatical, which differ from those in (70) only in the position of the manner adverb, it must be, again, that it is the position of the manner adverb is responsible for the impossibility of the examples in (70), quite independently of Case:

(73) a. John quickly gave Mary the book.
b. Bill quietly sent Sue the letter.

If one is to explain the contrast between (70) and (73) by appeal to the adjacency constraint on Case-assignment, then the contrast between (71) and (72) would be left unaccounted for since Case is not at issue in both instances.

2.3. The ECM construction

The ECM construction is also a good testing ground for the interaction between passive and adverb placement. As shown in (74), an adverb may occur before the matrix verb, but not between it and the embedded subject:

(74) a. John (seriously) considered (*seriously) Bill intelligent.
b. The police (finally) let (*finally) John go.
c. Mary (accidentally) found (*accidentally) the house deserted.
d. Fred (quickly) hammered (*quickly) the metal flat.
e. Jane (carefully) painted (*carefully) the house red.
f. Sue (rigorously) proved (*rigorously) the report wrong.

However, the adverb still cannot appear after the matrix verb, even when the embedded subject moves to the matrix subject position under passive:

(75) a. Bill$_i$ was (seriously) considered (*seriously) t_i intelligent (by John).
b. John$_i$ was (finally) let (*finally) t_i go (by the police).
c. The house$_i$ was (accidentally) found (*accidentally) t_i deserted (by Mary).
d. The metal$_i$ was (quickly) hammered (*quickly) t_i flat (by Fred).
e. The house$_i$ was (carefully) painted (*carefully) t_i red (by Jane).

f. The report$_i$ was (rigorously) proved (*rigorously) t_i wrong (by Sue).

There is clearly no issue about Case here, since the trace of the moved embedded subject is not assigned Case. The intervening adverb should not interfere with Case-assignment, if the adjacency constraint is at all relevant.

The structure for an ECM construction is commonly assumed to be something like (76), where the ECM verb takes a small clause complement:

(76) $[_{VP}$ V $[_{SC}$ NP XP]]

Again, if non-complements are assumed to appear outside of the projection of the verb and its complements, then the fact that an adverb may occur before the matrix verb, but not between the verb and the embedded subject is just as expected:

(77) $[_{VP}$ (adv) $[_{VP}$ V (*adv) $[_{SC}$ NP XP]]

The assumption about the position of the adverb not only explains the impossibility of the adverb intervening between the matrix verb and the embedded subject, but also for the exclusion of the post-verbal adverbs in (75). These latter examples involve passive, and thus have nothing to do with Case-assignment.

To conclude this section, I would like to point out that it would be impossible to bring facts about adverb placement to bear on Case-assignment if all Cases are assigned or checked in a Spec-head configuration, covertly at LF for English:[8]

(78) a. $[_{AGRP}$ NP$_i$[$[_{VP}$ [V $[_{PP}$ t_i [P]]]]] (the verb-particle object construction)
b. $[_{AGRP}$ DO$_i$[$[_{AGRP}$ IO$_j$[$[_{VP}$ [V $[_{VP}$ t_i [t_j]]]]] (the double object construction)
c. $[_{AGRP}$ NP$_i$[$[_{VP}$ [V $[_{SC}$ t_i [XP]]]]] (the ECM construction)

The adjacency effect would then have to be accounted for by some principled constraint sanctioning adverbs in some positions but not in others. Since these adverbial positions appearing below the verb at S-structure or Spell-out are nowhere near the Spec positions of agreement projection above the verb where NPs are assigned or checked their Case, it follows that the constraint has no bearing on Case-assignment. We will see what this constraint on adverb positions might be in the next section where we discuss a syntactic analysis of adverbs.

3. On the syntax of adverbs

In this section, we will discuss the syntax of adverbs. I concentrate on two issues: the specific positions for adverbs (section 3.1), and the locality constraint on adverb modification (section 3.2). I argue that these two issues are independent from Case-assignment. I will also discuss some problems of adverb placement with respect to PP-complements (section 3.3).

3.1. Specific positions for adverbs

Let us first consider the positions of the adverbs *just* and *almost* in examples in (79) and the ungrammaticality of the examples in (80):[9]

(79) a. *Just the dog barked.
*Just the demonstrators dispersed.

b. The dog just barked.
The demonstrators just dispersed.
c. *The dog barked just.
*The demonstrators dispersed just.

(80) a. *Almost the building collapsed.
*Almost the child cried.
b. The building almost collapsed.
The child almost cried.
d. *The building collapsed almost.
*The child cried almost.

These examples show clearly that the adverbs *just* and *almost* occur just before the verb, but not elsewhere.

Thus, the fact that a DO may not follow these adverbs as shown in the ungrammatical examples in (81) is not evidence for the adjacency constraint on Case-assignment, but rather is a reflection of the fact that there are specific positions where these adverbs appear:

(81) a. *The dog bit just the cat.
*The demonstrators resisted just the police.
b. *The building lost almost its balance.
*The child grasped almost the icecream.

As shown in the examples in (82) and (83), the distribution of these adverbs is exactly the same as that in (79) and (80):

(82) a. *Just the dog bit the cat.
*Just the demonstrators clashed with the police.
b. The dog just bit the cat.
The demonstrators just clashed with the police.
c. *The dog bit the cat just.
*The demonstrators resisted the police just.

(83) a. *Almost the building lost its balance.
*Almost the child grasped the icecream
b. The building almost lost its balance.
The child almost grasped the icecream
c. *The building lost its balance almost.
*The child grasped the icecream almost.

In fact, the adverbs *just* and *almost* also appear in the same positions in examples where some other categories than an NP follow the verb:

(84) a. *Just John felt tired.
*Amost Mary's face turned blue.
b. John just felt tired.
Mary's face almost turned blue.

c. *John felt tired just.
*Mary's face turned blue almost.

(85) a. *Just Bill returned from the trip.
*Almost Sue went to the office.
b. Bill just returned from the trip.
Sue almost went to the office.
c. *Bill returned just from the trip.
*Sue went almost to the office.
d. *Bill returned from the trip just.
*Sue went to the office almost.

(86) a. *Just Fred got there.
*Almost Jane drove home.
b. Fred just got there.
Jane almost drove home.
c. *Fred got just there.
*Jane drove almost home.
d. *Fred got there just.
*Jane drove home almost.

(87) a. *Just Dick said that Henry was in charge.
*Almost Bob claimed that Jack was incompetent.
b. Dick just said that Henry was in charge.
Bob almost claimed that Jack was incompetent.
c. *Dick said just that Henry was in charge.
*Bob claimed almost that Jack was incompetent.
d. *Dick said that Henry was in charge just.
*Bob claimed that Jack was incompetent almost.

Clearly, there is no point in claiming that the ungrammaticality of the examples in (9) is due to violations of the adjacency constraint on Case-assignment, as it would simply miss all the grammatical facts in (79)-(80) and (82)-(87).

Manner adverbs like *quickly* and *quietly* contrast with the adverbs *just* and *almost* in that they can appear either before or after the main verb:

(88) a. John quickly ran.
Bill quietly wept.
b. John ran quickly.
Bill wept quietly.

The two types of adverbs may co-occur, but the adverbs *just* and *almost* must precede, or more plausibly c-command, manner adverbs:

(89) a. John just quickly left.
Bill almost quietly wept.
b. *John quietly just left.
*Bill quickly almost wept.

c. John just left quickly.
   Bill almost quietly wept.
d. *John quietly left just.
   *Bill quickly wept almost.
e. *John left just quietly.
   *Bill wept almost quickly.
f. *John left quietly just.
   *Bill wept quickly almost.

While it is unsurprising that the examples in (89d), (89e) and (89f) are ungrammatical, given that the adverbs *just* and *almost* may not appear post-verbally, the grammatical contrast between the examples in (89a) and (89c) on the one hand, and those in (89b) on the other hand is revealing. It shows that there are specific positions for particular types of adverbs (Jackendoff 1972). As all the examples in (89) involve intransitive verbs, there is no issue about Case-assignment to a DO.

The distribution of the adverbs remains largely the same when the verb in the sentence is transitive, as shown in (90):

(90) a. Mary just quickly painted the house.
   Jane almost quietly trashed the newspaper.
b. *Mary quickly just painted the house.
   *Jane quietly almost trashed the newspaper.
c. *Mary just painted quickly the house.*
   *Jane almost trashed quietly the newspaper.
d. Mary just painted the house quickly.
   Jane almost trashed the newspaper quietly.
e. *Mary painted just quickly the house.
   *Jane trashed almost quietly the newspaper.
f. *Mary painted quickly just the house.
   *Jane trashed quietly almost the newspaper.
g. *Mary painted the house just quickly.
   *Jane trashed the newspaper almost quietly.
h. *Mary painted the house quickly just.
   *Jane trashed the newspaper quietly almost.

The presence of a DO would give rise to a position between the verb and the DO, which is lacking in the intransitive sentences in (89). Apart from this difference, the distributions of adverbs are exactly the same. We will see in the next subsection that the adjacency effect is a consequence of the locality constraint on adverb modification independently from Case-assignment.

3.2. The locality constraint on adverb modification

The analysis of the syntax of adverbs must explain why the adverb *seriously* modifies the verb *consider* in the examples in (91a), attributing the property of being serious to the consideration, but it modifies the predicate *sick* in (91b), attributing the property of being serious to the degree of sickness:

(91) a. Mary seriously considered Dick sick.
b. Mary considered Dick seriously sick.

Before we tackle this problem of adverb modification, let us consider some examples of intransitive verbs to see which structural position adverbs should be taken to occur in.

On one widely assumed view (Holmberg 1986, Chomsky 1986, Ernst 1994 among others), adverbs are adjoined to VPs they modify. Manner adverbs are thus either left-adjoined to the VP, deriving the order Adv-V-NP or right-adjoined to the VP, deriving the order V-NP-Adv:

(92) a. John [$_{VP}$ often [$_{VP}$ cried]]
Fred [$_{VP}$ rarely [$_{VP}$ speaks]]
b. John [$_{VP}$ [$_{VP}$ cried] often]
Fred [$_{VP}$ [$_{VP}$ speaks] rarely]

If the argument/adjunct distinction is to be captured structurally (Huang 1982) in that arguments occur either in the complement position (for objects) or in the Spec position (for the subjects, or objects cf. Larson 1988) and adjuncts appear in an adjoined position, then the structures in (93) in which the adverb appears in a complement position would be excluded (exception to this view of adverbs is Larson 1988):

(93) a. *John [$_{VP}$ often cried]
*Fred [$_{VP}$ rarely speaks]
b. *John [$_{VP}$ cried often]
*Fred [$_{VP}$ speaks rarely]

Non-strictly subcategorized adverbs thus contrast with strictly subcategorized adverbs, which must appear postverbally (Jackendoff 1972:68), further supporting the view that mobil manner adverbs are as adjuncts:

(94) a. John worded the letter carefully.
The job paid us handsomely.
Steve dresses elegantly.
b. *John carefully worded the letter.
*The job handsomely paid us.
*Steve elegantly dresses.

Suppose the locality constraint on adverb modification is that the adverb must adjoined to the projection of the predicate it modify, then the structures in (93) are excluded since the adverbs are not adjoined to the projection of the verb. In addition, we can account for the interpretation of the examples in (91). In their structures in (95), the adverb *seriously* modifies the verb *consider* in the structure in (95a) since it is adjoined to the VP-projection headed by the verb *consider*, and it modifies the predicate *sick* in the structure in (95b) since it is adjoined to the AP-projection headed by the predicate *sick*:

(95) a. Mary [$_{VP}$ seriously [$_{VP}$ considered [$_{SC}$ Dick sick]]]
b. Mary [$_{VP}$ considered [$_{SC}$ Dick [$_{AP}$ seriously [$_{AP}$ sick]]]]

The adverb *seriously* can modify neither the predicate *sick* in (95a) nor the verb *consider* in (95b) since it is not adjoined to the relevant projection in the respective structures. The adjacency effect that shows up in (96) is due to the fact that the adverb adjoins to the small clause, which has no lexical head:[10]

(96) *Mary [$_{VP}$ considered [$_{SC}$ seriously [$_{SC}$ Dick [$_{AP}$ sick]]]

If it is correct to take adjunction to the projection of a predicate as the locality condition on adverb modification, then we would expect the adverb to follow the complements of a transitive verb, since it would be left- or right-adjoined to the VP. The expectation is borne out:[11]

(97) a. John [$_{VP}$ often [$_{VP}$ reads newspapers]]
Fred [$_{VP}$ rarely [$_{VP}$ watches television]]
b. John [$_{VP}$ [$_{VP}$ reads newspapers] often]
Fred [$_{VP}$ [$_{VP}$ watches television] rarely]

(98) a. Mary [$_{VP}$ often [$_{VP}$ gives John a book]]
Sue [$_{VP}$ rarely [$_{VP}$ sends Bob a letter]]
b. Mary [$_{VP}$ [$_{VP}$ gives John a book] often]
Sue [$_{VP}$ [$_{VP}$ sends Bob a letter] rarely]

Now, the impossible word-orders where the adverb intervenes between the verb and the DO or the IO, or between the IO and DO are automatically excluded since the adverbs are not adjoined to the projection of the predicate it modifies:

(99) a. *John [$_{VP}$ reads often newspapers]
*Fred [$_{VP}$ watches rarely television]

(100) a. *Mary [$_{VP}$ gives often John a book]
*Sue [$_{VP}$ sends rarely Bob a letter]
b. *Mary [$_{VP}$ gives John often a book]
*Sue [$_{VP}$ sends Bob rarely a letter]

The ungrammaticality of the examples thus has the same explanation as that for those in (93) in which there is no issue about Case. The intervening effect of adverbs is but a reflection of the fact that they occur in a non-adjoined position.

In the same vein, we can account for adverb placement in the verb-particle and double object constructions. On the one hand, if the verb and the adjacent particle in the verb-particle construction is a syntactic unit (ie a complex verb), then the adverb may adjoin to the VP headed by the complex verb, but there would be no XP-adjunction site within the complex for the adverb to occur:

(101) a. Kevin [$_{VP}$ quickly [$_{VP}$ [$_{V}$ turned on] the light]]
Janice [$_{VP}$ carelessly [$_{VP}$ [$_{V}$ cut up] the cabbage]]
b. *Kevin [$_{V}$ turned quickly on] the light.
*Janice [$_{V}$ cut carelessly up] the cabbage.

c. *Kevin [$_V$ turned on quickly] the light.
*Janice [$_V$ cut up carelessly] the cabbage.
d. Kevin [$_{VP}$ [$_{VP}$ [$_V$ turned on] the light] quickly]
Janice [$_{VP}$ [$_{VP}$ [$_V$ cut up] the cabbage] carelessly]

On the other hand, in the structure where the verb takes a PP-complement headed by the particle, the adverb has to adjoin to the PP-complement in order to intervene between the verb and the NP:

(102) a. Kevin [$_{VP}$ quickly [$_{VP}$ turned [$_{PP}$ the light [on]]]]
Janice [$_{VP}$ carelessly [$_{VP}$ cut [$_{PP}$ the cabbage [up]]]]
b. *Kevin turned [$_{PP}$ quickly [$_{PP}$ the light [on]]]
*Janice cut [$_{PP}$ carelessly [$_{PP}$ the cabbage [up]]]
c. *Kevin turned [$_{PP}$ quickly [$_{PP}$ the light [on]]]
*Janice cut [$_{PP}$ carelessly [$_{PP}$ the cabbage up]]]
d. Kevin [$_{VP}$ [$_{VP}$ turned [$_{PP}$ the light [on]]] quickly]
Janice [$_{VP}$ [$_{VP}$ cut [$_{PP}$ the cabbage [up]]] carelessly]

Although the adjunction of the adverb to the PP-complement itself conforms to the locality constraint on modification, the examples in (102) are impossible on semantic grounds, the same way the examples in (s11) are:[12]

(103) a. The light was (*quickly) on.
b. *The cabbage is (carelessly) up.

The same explanation can also be given to account for the ungrammaticality of the examples in (104), even if adjunction to P′ were possible:

(104) a. *Kevin turned [$_{PP}$ the light [$_{P'}$ quickly [$_{P'}$ on]]]
*Janice cut [$_{PP}$ the cabbage [$_{P'}$ carelessly [$_{P'}$ up]]]
b. *Kevin turned [$_{PP}$ the light [$_{P'}$ quickly [$_{P'}$ on]]]
*Janice cut [$_{PP}$ the cabbage [$_{P'}$ carelessly [$_{P'}$ up]]]

The distribution of adverbs in the ECM construction falls entirely under the same account. As shown in (105), the intervention of an adverb between the matrix verb and the embedded subject is ruled out since the adverb would be adjoined to the small clause, which lacks a lexical head for it to modify:

(105) a. John ([$_{VP}$ seriously) [$_{VP}$ considered (*[$_{SC}$ seriously) [$_{SC}$ Bill intelligent]]
b. Mary ([$_{VP}$ accidentally) [$_{VP}$ found (*[$_{SC}$ accidentally) [$_{SC}$ the house deserted]]
c. Fred ([$_{VP}$ quickly) [$_{VP}$ hammered (*[$_{SC}$ quickly) [$_{SC}$ the metal flat]]
d. Jane ([$_{VP}$ carefully) [$_{VP}$ painted (*[$_{SC}$ carefully) [$_{SC}$ the house red]]
e. Sue ([$_{VP}$ rigorously) [$_{VP}$ proved (*[$_{SC}$ rigorously) [$_{SC}$ the report wrong]]

As we saw in section 2, the fact that the adjacency effect induced by the intervention of an adverb between a verb and its DO has no bearing on Case-assignment is most evidenced in passive. Adverb placement in passive now has a straightforward account in terms of the locality constraint on adverb modification. As shown in (106)-(107), the distribution of

adverbs in passives of the verb-particle, double object and ECM constructions is the same as that in active sentences:

(106) a. The light$_i$ was [$_{VP}$ quickly [$_{VP}$ turned [$_{PP}$ t_i [on]]]
The cabbage$_i$ was [$_{VP}$ carelessly [$_{VP}$ cut [$_{PP}$ t_i [up]]]
b. *The light$_i$ was turned [$_{PP}$ quickly [$_{PP}$ t_i [on]]]
*The cabbage$_i$ was cut [$_{PP}$ carelessly [$_{PP}$ t_i [up]]]
c. *The light$_i$ was turned [$_{PP}$ t_i [$_{P'}$ quickly [$_{P'}$ on]]]
*The cabbage$_i$ was cut [$_{PP}$ t_i [$_{P'}$ carelessly [$_{P'}$ up]]]
d. The light$_i$ was [$_{VP}$ [$_{VP}$ turned [$_{PP}$ t_i [on]]] quickly]
The cabbage$_i$ was [$_{VP}$ [$_{VP}$ cut [$_{PP}$ t_i [up]]] carelessly]

(107) a. Mary$_i$ was [$_{VP}$ quickly [$_{VP}$ given t_i the book]] (by John).
Sue$_i$ was [$_{VP}$ quietly [$_{VP}$ sent t_i the letter]] (by Bill).
b. *Mary$_i$ was [$_{VP}$ given quickly t_i the book]] (by John).
*Sue$_i$ was [$_{VP}$ sent quietly t_i the letter]] (by Bill).
c. *Mary$_i$ was [$_{VP}$ given t_i quickly the book] (by John).
*Sue$_i$ was [$_{VP}$ sent t_i quietly the letter] (by Bill).
d. Mary$_i$ was [$_{VP}$ [$_{VP}$ given t_i the book] quickly] (by John).
Sue$_i$ was [$_{VP}$ [$_{VP}$ sent t_i the letter] quietly] (by Bill).

(108) a. Bill$_i$ was ([$_{VP}$ seriously) [$_{VP}$ considered (*[$_{SC}$seriously) [$_{SC}$ t_i intelligent (by John)]]
b. The house$_i$ was ([$_{VP}$ accidentally)
[$_{VP}$ found (*[$_{SC}$ accidentally) [$_{SC}$ t_i deserted (by Mary)]]
c. The metal$_i$ was ([$_{VP}$ quickly) [$_{VP}$ hammered (*[$_{SC}$ quickly) [$_{SC}$ t_i flat (by Fred)]]
d. The house$_i$ was ([$_{VP}$ carefully) [$_{VP}$ painted (*[$_{SC}$ carefully) [$_{SC}$ t_i red (by Jane)]]
e. The report$_i$ was ([$_{VP}$ rigorously) [$_{VP}$ proved (*[$_{SC}$ rigorously) [$_{SC}$ t_i wrong (by Sue)]]

The adverbs in these examples would conform to the locality constraint on modification if they are adjoined to the small clause predicate as shown in (109), but they are deviant on semantic grounds, the same way that the corresponding examples in (110) are:

(109) a. Bill$_i$ was [$_{VP}$ considered [$_{SC}$ t_i [$_{AP}$ seriously [$_{AP}$ intelligent]]] (by John)]
b. The house$_i$ was [$_{VP}$ found [$_{SC}$ t_i [$_{AP}$ accidentally [$_{AP}$ deserted]]] (by Mary)]
c. The metal$_i$ was [$_{VP}$ hammered [$_{SC}$ t_i [$_{AP}$ quickly [$_{AP}$ flat]]] (by Fred)]
d. The house$_i$ was [$_{VP}$ painted [$_{SC}$ t_i [$_{AP}$ carefully [$_{AP}$ red]]] (by Jane)]
e. The report$_i$ was [$_{VP}$ proved [$_{SC}$ t_i [$_{AP}$ rigorously [$_{AP}$ wrong]]] (by Sue)]

(110) a. Bill was seriously intelligent.
b. The house was accidentally deserted.
c. The metal was quickly flat.
d. The house was carefully red.
e. The report was rigorously wrong.

We thus see clearly that the adjacency effect induced by the intervention of an adverb between a verb and an NP to which it assigns Case in fact has no bearing on Case-assignment. One notable exception to the adjacency effect is the case of PP-complements, which we will consider in the next section.

3.3. Adverb placement and PP-complements

As the examples in (111) show, a PP-complement may be separated from the verb that selects it, as is well-known:

(111) a. John quietly talked to Mary.
Fred recently met with Sue.
b. John talked quietly to Mary.
Fred met recently with Sue.
c. John talked to Mary quietly.
Fred met with Sue recently.

Given that extraction out of adjuncts is barred by Huang's (1982) Condition on Extraction Domain (CED):

(112) a. *Which city$_i$ did Mary visit John [before t_i]?
*What$_i$ did Bob buy books [more often than Bill read t_i]?
b. *What$_i$ did Jane see the man [who bought t_i]?
*Who did Fred read the review [that criticized t_i]?
c. *Who$_i$ did Jack see Sue [before Al talked to t_i]?
*Which book$_i$ did Robin speak to Max [after reading t_i]?

the fact that the NP in the PP-complement may be extracted even when it is separated from the verb by an adverb seems to show that the PP is not in an adjoined position but is in argument position:

(113) a. Who$_i$ did John quietly talk to t_i?
Who$_i$ did Fred recently met with t_i?
b. Who$_i$ did John talk quietly to t_i?
Who$_i$ did Fred met recently with t_i?
c. Who$_i$ did John talk to t_i quietly?
Who$_i$ did Fred met with t_i recently?

It was precisely the NP/PP distinction with respect to adverb placement that led to the conclusion that the adjacency effect has to do with Case: PPs needing no Case, in contrast with NPs, they therefore need not be adjacent to the verb. We will discuss in this section the various issues that arise in some analyses of extraction out of PP-complements.

3.3.1. Adverbs as complements

Larson (1988:345, footnote 11 and 384, footnote 49) suggested that adverbs are on a par with other verbal complements in that they are base-generated in complements positions, as in (114):

(114) a. John [$_{V'}$ put$_i$ [$_{VP}$ a fly [$_{V'}$ t_i in the soup]]]
b. John [$_{V'}$ talked$_i$ [$_{VP}$ to Felix [$_{V'}$ t_i about Mary]]]
c. John [$_{V'}$ saw$_i$ [$_{VP}$ Mary [$_{V'}$ t_i recently]]]
d. John [$_{V'}$ sent$_i$ [$_{VP}$ a note [$_{V'}$ t_i [$_{VP}$ to Max [$_{V'}$ t_i on Tuesday]]]]]

Along these lines, the word-order in (113b) may be derived by raising the verb alone as in (115a), and the word-order in (113c) by first reanalyzing the V′ as a complex verb, and then raising the complex to the empty head position of the upper VP-shell as in (115b):

(115) a. $[_{VP}$ [talked$_i$ $[_{VP}$ to Mary $[_{V'}$ t_i quietly]]
$[_{VP}$ [met$_i$ $[_{VP}$ with Sue $[_{V'}$ t_i recently]]
b. $[_{VP}$ [$[_{V}$ talked+quietly]$_i$ $[_{VP}$ to Mary t_i]]
$[_{VP}$ [$[_{V}$ met+recently]$_i$ $[_{VP}$ with Sue t_i]]

In these structures, the PP is not in an adjoined position, but in argument position, from which the object of the preposition may be freely extracted.

There are at least two problems with this analysis. The first problem is that some additional assumption must be made in order to derive the preverbal position of the adverb in the examples in (113a). One possibility is that the preverbal adverb is adjoined to the upper VP-shell. Depending on whether the complement PP is always in [Spec, VP] or may sometimes be complement position, we will get the structures in (1116a) or (116b) (in the latter case, there may not even be a double-VP structure):

(116) a. $[_{VP}$ quietly $[_{VP}$ [talked$_i$ $[_{VP}$ to Mary [t_i]]]]
$[_{VP}$ recently $[_{VP}$ [met$_i$ $[_{VP}$ with Sue [t_i]]]]
b. $[_{VP}$ quietly $[_{VP}$ [talked to Mary]]
$[_{VP}$ recently $[_{VP}$ [met with Sue]]]

Alternatively, if there is no particular ordering imposed on the position of the adverb in the complement position, then the adverb may appear to the left of the verb and forms with the verb a complex predicate when the process of V′-reanalysis applies. Raising of the complex verb would then give rise to the order where the adverb occurs preverbally:

(117) a. $[_{VP}$ [talked$_i$ $[_{VP}$ to Mary $[_{V'}$ quietly t_i]]
$[_{VP}$ [met$_i$ $[_{VP}$ with Sue $[_{V'}$ recently t_i]]
b. $[_{VP}$ [$[_{V}$ quietly+talked]$_i$ $[_{VP}$ to Mary t_i]]
$[_{VP}$ [$[_{V}$ recently+met]$_i$ $[_{VP}$ with Sue t_i]]

Various issues arise, however. If one is to assume the option in (116), then one must isolate a specific property of adverb that allows them to appear in complement positions or adjoined positions, but other categories lacking that property may not. It is not clear what this property might be. If one is to assume the suggestion in (117), then one has to explain why adverbs like *yesterday* or *afterward* must appear to the right of the verb in the complement position, as an incorrect word-order would arise when the complex verb consisting of the verb and the adverb is reanalyzed and raised to the empty head position of the upper VP-shell:

(118) a. $[_{VP}$ [talked$_i$ $[_{VP}$ to Mary $[_{V'}$ yesterday t_i]]
$[_{VP}$ [met$_i$ $[_{VP}$ with Sue $[_{V'}$ before t_i]]
b. *$[_{VP}$ [$[_{V}$ yesterday+talked]$_i$ $[_{VP}$ to Mary t_i]]
*$[_{VP}$ [$[_{V}$ before+met]$_i$ $[_{VP}$ with Sue t_i]]

The second problem with Larson's analysis is that there does not appear to be a natural way to make NP/PP distinction with respect to adverb placement. Specifically, if in the

HNPS/FNPS construction, the DO receives Case in [Spec, VP] from the verb+PP complex reanalyzed as a complex verb as shown in (20), repeated here as (119):

(119) Mary [$_{VP}$ [[$_{V}$ gave+[to John]]$_i$ [[$_{VP}$ everything that he demanded [t_i]]]]]
Max [$_{VP}$ [[$_{V}$ put+[in his car]]$_i$ [[$_{VP}$ all the boxes of home furnishings [t_i]]]]]

then there is no reason why the reanalyzed complex verb consisting of a V and an adverb should not be able to assign Case to the NP in SpecVP (cf. the structures in (105)):[13]

(120) a. John [$_{VP}$ [read$_i$ [$_{VP}$ the book [t_i carefully]]]]
Fred [$_{VP}$ [met$_i$ [$_{VP}$ Sue [t_i recently]]]]
b. *John [$_{VP}$ [[read+carefully]$_i$ [$_{VP}$ the book [t_i]]]]
*Fred [$_{VP}$ [[met+recently]$_i$ [$_{VP}$ Sue [t_i]]]]

3.3.2. Verb movement to μP

Johnson (1991:584-585) proposed that the English verb in fact always moves out its own projection to a functional category μ, and the PP is in complement position. Adverbs are assumed to be left- or right-adjoined to V′:

(121) a. [$_{\mu P}$ talked$_i$ [$_{VP}$ [$_{V'}$ slowly [$_{V'}$ t_i to Gary]]]]
b. [$_{\mu P}$ talked$_i$ [$_{VP}$ [$_{V'}$ [$_{V'}$ t_i to Gary] slowly]]]

As in Larson's analysis, the PPs in the structures in (n8) are in complement position. The object of preposition can thus be freely extracted.

Case-assignment to the DO is suggested be to [Spec, VP] under government by the verb in the head position of μP, accounting for why the DO always occurs to the left of the adverb:

(122) [$_{\mu P}$ [hit$_i$ [$_{VP}$ the dog$_j$ [$_{V'}$ quickly [$_{V'}$ t_i t_j]]]]

Despite its merits of being able to account for facts about extraction out of complement PPs, many issues remain. For instrance, it is not clear whether one can show that the functional category μ has independent motivation, as Johnson noted. Moreover, in order to allow for the adverb to occur preverbally, one must assume that besides the two V′-positions in (121), the adverb may also be adjoined to a position at least as high as μ′:

(123) a. [$_{\mu P}$ [$_{\mu'}$ slowly [$_{\mu'}$ talked$_i$ [$_{VP}$ [t_i to Gary]]]]]
b. [$_{\mu P}$ [$_{\mu'}$ quickly [$_{\mu'}$ hit$_i$ [$_{VP}$ the dog$_j$ [t_i t_j]]]]

Crucially, adjunction to VP must be excluded; otherwise, an incorrect word-order would arise. Thus, apart from the motivation of deriving the correct word-order, there appears to be no principled reason why adverbs may sometimes be adjoined to V′, sometimes as high as to μ′, but not to VP.

3.3.3. Revising the CED

The analysis of adverbs as VP-adjuncts in the structures in (92) has no problem in accounting for the preverbal and sentence-final positions of the adverb. However, the occurrence of the PP after the adverb as in (111b) must be taken to be an instance of moving of the PP to the right past the adverb:

(124) a. $[_{VP}\ [_{VP}$ talked $t_i\ ]$ quietly $]\ [_{PP}$ to Mary $]_i]$
b. $[_{VP}\ [_{VP}$ met $t_i\ ]$ recently $]\ [_{PP}$ with Sue $]_i]$

To reconcile the structures in (124) with the extraction facts, one might contemplate the possibility that the CED is not entirely based on the structural position where the extraction domain is located, but rather on the complementation relationship with a lexical head. That is, while the standard cases of CED violation clearly involve domains that are adjuncts from both the syntactic and the semantic perspectives, PP-complements remain semantic arguments, even though they might syntactically be in an adjunct position.

Extraction of the object in the instrumental and accompaniment PPs seems to support this view of PP-complements:

(125) a. Which knife$_i$ did you cut the salami [with t_i]?
What$_i$ can you see the stars [with t_i]?
b. Who$_i$ did you go to the movie [with t_i]?
Who$_i$ did you see Bill [with t_i]?

These PPs appear to be semantic arguments in that they introduce a participant in the event expressed by the main verb, but are syntactic adjuncts in that they need not be present syntactically.

From this perspective of PP-complements, the problem of adverb placement that bears on the NP/PP distinction is now reduced to the question of why (light/indefinite) NPs may not be moved to an adjoined position the way that PPs may. The distinction might have to do with constraint on the landing site. Specifically, if a category may only move to a position where the same category can be independently generated as suggested by Emonds (1976), then the NP/PP distinction with respect to adjunction to VP follows. PPs can be independently generated as adjoined positions, but NPs may not.[14]

Admittedly, this view of PP-complements needs to be worked out in more detail in light of the many facts that Larson brought up to argue for adverbs being in complement positions, eg coordination. In spite of its speculative nature, this alternative view of PP complements seem to hold out some promise that a compromise might be possible, reconciling the CED and extraction out of PP complements in adjoined positions.

4. Conclusion

In the foregoing sections, we see ample evidence that there is no reason to suppose that adjacency effect has anything to do with Case-assignment. In a variety views of phrase structure and Case, the effect is but a reflection of the syntax of adverbs quite independently of Case theory. If this is so, then the adjacency constraint on Case-assignment plays no role in the grammar.

With in absence of the adjacency constraint on Case-assignment, the adjacency effect that shows up in the existential *there* construction in (6), repeated in (126), is by itself no evidence for Case-assignment by the verb *be*:

(126) a. ?*There will be usually a man here.
There will usually be a man here.
b. *There will be not a man here.
There will not be a man here.

c. *I believe there to be usually a solution.
?I believe there usually to be a solution
d. *I believe there to be not a solution.
I believe there not to be a solution.

In fact, the grammatical contrasts in (126) bear resemblance to those in (127), where there is no question about Case since the examples do not involve a nominal category:

(127) a. ?*John will be usually around at five.
?John will usually be around at five.
b. ?*Fred will be not mad.
Fred will not be mad.
c. ?*I believe John to be usually available for consultation.
?I believe John usually to be available for consultation.
d. ?*I believe John to be not stupid.
I believe John not to be stupid.

The two sets of examples can be accounted for by the assumption that auxiliary and modal verbs appear in the INFL-head position of the IP projection, while other verbs and all non-finite verbs are in the V-head position of the VP (Emonds 1978, Pollock 1989). The presence of an auxiliary or modal verb in INFL would block movement of the verb *be* in (126a), (126b), (127a) and (127b), and non-movement of the non-finite verb *be* to INFL explains why it must occur after the adverb:

(128) a. [$_{IP}$ [auxiliary/modal [$_{VP}$ adv [$_{VP}$ V/V$_{non\text{-}finite}$ XP]]]
b. [$_{IP}$ [auxiliary/modal [$_{VP}$ adv [$_{VP}$ *be* XP]]]
(* movement of *be* to auxiliary/modal position)

Although the adjacency effect has no bearing on Case-assignment and hence the effect as exhibited by the verb *be* does not show that the verb *be* is a Case-assigner, we have yet found proof that the verb *be* is not a Case-assigner. Nevertheless, unless there is evidence for it, we have no reason to suppose that the verb *be* is a Case-assigner.

Acknowledgement
I am indebted to Alan Munn, Chris Piñon, Chris Wilder for sustaining my pestering for their judgments as well as for very helpful discussion on various aspects of this paper. All inadequacies are my responsibilities.

Notes
[1] How to syntactically define the focus position and link it up with the semantics of focus is an interesting question. One can assume an abstract focus projection with some syntactic features driving movement of the focused constituent. These features would then be interpreted as focus by some interpretive rules. Alternatively, one can do away with the abstract projection and the syntactic features by defining a specific position, eg a VP-adjoined position (cf. the structure in (14) below), and give a semantic rule interpreting that position as focus. It would not affect our discussion here how the syntax and semantics of focus is properly defined.
[2] An alternative derivation of the V XP DO order would be to move the XP leftward. The D-Structure V XP DO is also logically possible. The order V DO XP would be derived by moving either the DO leftward or the XP

rightward. The question raised with respect to the bearing of the heaviness or the definiteness of the NP on the various movement and Case-assignment still holds.

[3] The less than perfect status of the examples in (47) might be due to the parsing expectation that the whole verbal+particle complex would be gapped in the second conjunct.

[4] The examples in (49) are of course grammatical on the readings where Bill is the NP between the verb and the particle, respectively meaning *Kevin turned the light on, and he turned Bill off* and *Janice took the garbage in, and she took Mary in.*

[5] den Dikken (1992:87) gave two arguments against syntactic incorporation of the particle into the verb. First, the verb+particle would fail to observe Williams' (1981) Right-hand Head Rule according to which the head of a X°-complex is the right member of the complex, which contributes the categorial features of the whole complex. Since the right-hand member of the verb+particle complex is the particle, not the verb, the verbal feature of the whole complex would thus not be accounted for. Second, the verb+particle complex exhibits neither compound stress nor the stressless ending typical of English inflection. The two arguments do not hold, however. To the extent that the Right-hand Head Rule is correct, it is for compounds formed by lexical word-formation rules. If the particle incorporates syntactically into the verb by head-adjunction, then the category of the whole verb+particle complex would be verbal. Although the direction of adjunction is irrelevant to the category of the complex, it must be explained, apart from word-order, why the adjunction must be to the right. The lack of compound stress in nouns and the end-stress observed in the verb+particle complex is just as expected of the verbal category (cf. the nouns *tránsfer*, *pérmit* and *rérun* versus the verbs *transfér*, *permít*, *rerún*). The stress pattern of the verb+particle combinations thus constrasts with their nominalized counterparts: *turn ón,hand óut, break úp* versus *túrn-on*, *hánd-out*, *bréak-up*. As there is no reason to suppose that the particle is an inflectional element on a par with *-s* or *-ed*, it is therefore not expected that the particle should lack stress.

[6] Cf. section 1.3 for the possibility that the NP receives Case in the Spec of AgrO, and the implications for the adjacency constraint on Case-assignment.

[7] The examples in (i) seem less good than those in (65):

(i) a. ??Who did John give a lot of headache?
b. ??Who$_i$ has Bill spared t_i the trouble of going throught the red tap?
c. ??Who$_i$ would you never ask t_i any question?
d. ??Who$_i$ did Bob envy t_i her fortune?

I have no explanation for why there should be a difference between (65) and (i).

[8] The Agr-projections in (78b) are assumed here for presentation purposes. Their exact positions do not matter to our concerns here.

[9] The adverb *just* is here intended to be the temporal one, not the one that has a close meaning to*only*. Thus, the example in (79a) is grammatical if it is taken to mean that only the dog barked, and not that the dog barked a few seconds ago.

[10] The adjunction to the small clause in (96) might also be excluded if adjunction to arguments is not allowed (Chomsky 1986).

[11] If the double object construction has a VP-shell structure, then we must take adjunction of an adverb to the projection of a predicate to mean adjunction to the whole double VP-shell structure, ie the upper VP. We will return to the problem of adverb placement with respect to PP-complements in section 3.3 below.

[12] The impossibility of the example in (103b) with or without a modifying adverb is probably due to the aspectual particle *up* lacking thematic property. Apart from a few cases of idiiomatic use as in*your time is up*, the particle *up* needs the presence of a thematic predicate to which it can aspectually modify.

[13] The structures in (109) are not without problems. If the PP and the verb forms a complex predicate V°, then one would expect that the object of the preposition not to be able to move. The expectation is not borne out, as shown in (i):

(i) a. Who$_i$ did Mary gave to t_i everything that he demanded?
b. Which car$_i$ did Mary put in t_i all the boxes of home furnishings?

In addition, structures with multiple adverbs are also problematic. Where should the first adverb be located if the second one is a complement:

(ii) a. John often carefully read the book.
b. Mary rarely sloppily did her homework.

One possibility is to assume that the first adverb is adjoined to the upper VP-shell in (110). But this would have weaken the claim that adverbs appear in complement position.

[14] This view is obviously incompatible with the analysis of HNPS/FNPS as involving rightward movement of an NP, adjoining it to VP. An alternative is to assume that HNPS/FNPS moves an NP to a position focus position where an NP can be independently generated, cf. footnote 1. The difficulty that immediate arises is how one is to go about showing that an NP may be independently generated in the focus position

References

Baker, Mark. 1988. Incorporation. Chicago, IL: University of Chicago Press.

Belletti, Adriana. 1988. The Case of Unaccusatives. Linguistic Inquiry 19:1-34.

Chomsky, Noam. 1957. Syntactic structures. The Hague: Mouton.

Chomsky, Noam. 1965. Aspects of the theory of syntax. Cambridge, MA: MIT Press.

Chomsky, Noam. 1981. Lectures on government and binding. Dordrecht: Foris.

Chomsky, Noam. 1986. Barriers. Cambridge, MA: MIT Press.

Chomsky, Noam. 1991. Some notes on the economy of derivation and representation. In Robert Freidin, ed., Principles and parameters in comparative grammar. Cambridge, MA: MIT Press.

Chomsky, Noam, and Howard Lasnik 1993. The theory of principles and parameters. In Joachim Jacobs, Arnim von Stechow, Wolfgang Sternefeld, and Theo Vennemann, Syntax: An international handbook of contemporary research. Berlin and New York: Walter de Gruyter.

Costa, João. 1996. Adverb positioning and V-movement in English: Some more evidence. Studia Linguistica 1: 22-34.

Dikken, Marcel den. 1992. Particles. Doctoral dissertation, University of Leiden.

Emonds, Joseph. 1976. A transformational approach to English syntax. New York: Academic Press.

Emonds, Joseph. 1978. The verbal complex V'-V in French. Linguistic Inquiry 9:151-175.

Ernst, Thomas. 1994. M-command and precedence. Linguistic Inquiry 25:327-335.

Hoeksema, Jack. 1987. Relating word-structure and logical form. Linguistic Inquiry 18:119-126.

Huang, James C-T. 1982. Logical relations in Chinese and theory of grammar. Doctoral dissertation, MIT.

Holmberg, Anders. 1986. Word order and syntactic features in the Scandinavian languages and English. Doctoral dissertation, University of Stockholm.

Jackendoff, Ray. 1972. Semantic interpretation in generative grammar. Cambridge, MA: MIT Press.

Jackendoff, Ray. 1977. X'-syntax. Cambridge, MA: MIT Press.

Jaeggli, Osvaldo. 1980. Topics in Romance syntax. Doctoral dissertation, MIT.

Johnson, Kyle. 1991. Object positions. Natural Language and Linguistic Theory 9:577-636.

Kayne, Richard. 1984. Connectedness and binary branching. Dordrecht: Foris.

Keyser, Samuel. 1968. Review of Sven Jackobson, Adverbial positions in English. Language 44:357-374.

Larson, Richard. 1988. On the double object construction. Linguistic Inquiry 19:335-391.

Larson, Richard. 1989. Light predicate raising. Ms, MIT.

Lasnik, Howard. 1992. Case and expletives: Notes toward a parametric account. Linguistic Inquiry 23:381-405.

Pollock, Jean-Yves. 1989. Verb movement, Universal Grammar, and the structure of IP. Linguistic Inquiry 20:365-424.

Rochemont, Michael. 1978. A theory of stylistic rules in English. Doctoral dissertation, University of Massachusetts, Amherst.

Rochemont, Michael and Peter Culicover. 1990. English focus constructions and the theory pf grammar. Cambridge: Cambridge University Press.

Ross, John. 1967. Constraints on variables in syntax. Doctoral dissertation, MIT.

Stowell, Timothy. 1981. Origins of phrase structure. Doctoral dissertation, MIT.

Williams, Edwin. 1981. On the notions "Lexically realted" and "Head of a word". Linguistic Inquiry 12:245-274.

ZAS
Jägerstr. 10/11
10117 Berlin
Germany
law@fas.ag-berlin.mpg.de

First conjunct agreement without government*

Alan Munn
MPG-ASG/Michigan State University

1. Introduction

Aoun, Benmamoun and Sportiche (1994) (henceforth ABS) propose an analysis of agreement in various dialects of Arabic which attempts to account for 2 types of asymmetries in agreement, listed in (1):

(1) a. SV vs. VS agreement
b. 1st conjunct agreement

The basic facts they wish to account for are the following: (i) while SV agreement is 'full' agreement, VS agreement is often impoverished in some way; (ii) first conjunct agreement is only possible with VS order; it is impossible with SV order.

ABS treat (1a) and (1b) as separate issues because they want to defend the theory of agreement stated informally in (2). In particular, they argue against a theory such as that stated informally in (3):

(2) A subject NP can only agree in a Spec/Head relation with its verb.

(3) A subject NP can agree with its verb if either:
(i) V and NP are in a Spec/Head relation
or (ii) V governs NP

Clause (ii) of (3) describes the phenomenon of Agreement under Government (henceforth AuG), commonly found in many languages.

One striking property of AuG is that it allows first conjunct agreement as in (4):

(4) First conjunct agreement
If V governs [NP_1 and NP_2], V may/must agree with NP_1

Coordinate NPs usually trigger plural agreement in subject position. Under government, however, they may show singular agreement (for example) if the first conjunct is singular.

First conjunct agreement is well attested in languages which exhibit AuG, as the examples from English, Irish (McCloskey and Hale 1984, McCloskey 1986, 1989), Portuguese (Munn 1993) and Arabic (Mohammed 1987, Benmamoun 1992, Aoun, Benmamoun and Sportiche 1994) given in (5-8) show. Although more common in VSO languages, AuG, and therefore first conjunct agreement, is not limited typologically, but rather arises whenever the correct configurations occur.

* Parts of this paper have been presented at NELS 25, the University of Maryland, Wayne State University and the Max-Planck-Gesellschaft, Berlin. I would like to thank Jamal Ouhalla, Cristina Schmitt and Chris Wilder for providing me with data, and Cristina Schmitt and Chris Wilder for much helpful discussion.

Phonetic transcription note: ? = ʔ , ʕ = ʕ , s̲, t̲ = ṣ, ṭ S = Ɣ, H = ħ @ = ə .

(5) a. There is a man and a woman in the room. (English)
b. *There are a man and a woman in the room.

(6) a. Bhíos *pro*-féin agus Eoghan i láthair. (Irish)
be-PAST.1SG EMPH. and Owen present
'Owen and I were present.'
b. *Bhi *pro*-féin agus Eoghan i láthair.
be-PAST EMPH. and Owen present
'Owen and I were present.'

(7) a. Estava aberta a janela e o portão. (Brazilian Portuguese)
be-PAST.SG open-F.SG the window.F.SG and the door.M.SG
'The window and the door were open.'
b. ??Estavam abertos a janela e o portão.
be-PAST.PL open-M.PL the window.F.SG and the door.M.SG
'The window and the door were open.'

(8) a. qara?a ¿umar wa ¿aliyaa? l-qissa (Standard Arabic)
read.3MS Omar and Alia the-story
'Omar and Alia read the story.'
b. qara?at ¿aliyaa wa ¿umar l-qisssa
read.3FS Alia and Omar the-story
'Alia and Omar read the story.'

It should be clear from the data above that first conjunct agreement can be simply accounted for with the theory given in (3) with the assumption that the first conjunct of a set of conjoined NPs is, in fact governed by a verb that governs the conjoined set as a whole. On a theory such as that in (2), however, the first conjunct agreement is on the surface a puzzling problem. In denying AuG, ABS lose the generalisation that first conjunct agreement is available only under government configurations. If all agreement is Spec/Head agreement, first conjunct agreement is a serious problem. ABS's position on first conjunct agreement is to deny its very existence. Instead, they claim that first conjunct agreement is actually derived from a biclausal coordinate structure wherein the "first" conjunct is the subject of the first clause and the "second" conjunct is the subject of the second clause. The second clause, under their analysis, has undergone rather radical deletion, since all that remains of it is its subject. Schematically their solution can be shown in (9), where Ø stands for some sort of deleted element. I will call this rule Conjunction Reduction, although, like ABS, I will not commit to any particular instantiation of it.

(9) *Conjunction Reduction*
$[V\ NP_1]_S$ and $[V\ NP_2]_S \rightarrow V\ NP_1$ and $Ø\ NP_2$

In (9), V and NP_1 agree unexceptionally and some form of deletion takes place to transform the structure into its surface form.

ABS deny the existence of AuG because they argue that allowing only a single relation for agreement is conceptually simpler. They argue that the difference in VS vs. SV agreement in Standard Arabic (SA) cannot be the result of agreement with some higher expletive element, and so argue that the agreement is with the post verbal subject, and that agreement is lost under head movement. They leave unanswered the question of how and why the agreement is

lost, since it is not lost, for example by verb raising to Comp in English. In order to maintain their proposal, however, they lose completely a very strong cross-linguistic generalisation about languages that exhibit AuG: if a language has AuG it will also show first conjunct agreement in exactly those places that AuG holds.

ABS deal only with varieties of Arabic, but if their analysis is correct, they are implicitly making a much wider claim: all first conjunct agreement is biclausal, and there is no correlation between AuG and first conjunct agreement.

In these remarks, I will show that the biclausal analysis of first conjunct agreement is untenable, and that first conjunct agreement is possible (and in fact sometimes obligatory) in cases where a biclausal analysis is impossible. If agreement under government is allowed, first conjunct agreement will follow from the phrase structure of coordinate structures without further stipulation. In addition, I will show that there are certain differences between governed agreement and Spec-head agreement that mitigate against the two being assimilated completely.

I agree, however, with ABS's conclusion that agreement is best explained by the theory in (2) rather than the theory in (3). In the last section of the paper I will address the issue of how to account for agreement under government without government and argue that a feature checking account can allow for two slightly different configurations for agreement, and these can account for the differences between Spec-head agreement and governed agreement, without the need for government as a relation in the grammar.

2. ABS's arguments for a biclausal analysis

The core of ABS's argument for a biclausal analysis of first conjunct agreement cases lies in showing that the conjoined subject in first conjunct agreement does not behave like a plural subject semantically, i.e. they argue (correctly) that if first conjunct agreement was simply a surface syntactic fact, there should be no difference semantically between first conjunct agreeing subjects and regular plural subjects, since the conjoined NPs should denote a (semantic) plural. There are five basic cases they discuss where the conjoined subject with first conjunct agreement is incompatible with various kinds of other elements in the sentence which require plurality. In each of these cases, I will show that, although ABS are correct in showing that a plural is required to license the extra element, they fail to show that a *semantic* plurality is sufficient to license the extra element. If a syntactically singular semantic plural does not license the extra element, then we can assume that there is some *formal* licensing requirement which requires a *syntactic* plural. This will not be satisfied in first conjunct agreement cases, which show non-plural agreement.

The other side of the argument is as follows: if first conjunct agreement is biclausal, then any elements that require a semantic plural to be licensed, but have no *syntactic* requirement for plurality, should not be permitted. I will show that such elements exist, and are allowed with first conjunct agreement, which thus cannot be biclausal.

2.1 Semantic vs. syntactic plurality

ABS's analysis rests on the claim that first conjunct agreement subjects behave like semantic singulars, i.e. although on the surface they look like plurals, each conjunct is a singular subject of its own clause. Before proceeding, it will be useful to review the distinction between semantic and syntactic plurality, and their interaction.

The independence of syntactic and semantic plurality can be easily demonstrated by the existence of semantic plurals like *group* which behave syntactically as a singular, and the existence of *pluralia tantum* expressions such as *scissors* which are semantically singular but

syntactically plural. Consider now a predicate like *meet* in English, which requires only a semantic plural subject when used intransitively. Because of this, both syntactically singular or syntactically plural subjects can appear as in (10a/b). The syntactically plural, but semantically singular *scissors* can not appear as the subject of *meet* as in (10c). The unacceptability of (10b) is not merely pragmatic, as (10d) shows.

(10) a. The men are meeting tomorrow.
b. The group is meeting tomorrow.
c. *The scissors are meeting tomorrow.
d. A group of scissors is meeting tomorrow.

Not all predicates that require semantic plurals are like *meet*, however. Some may require both syntactic plurality and semantic plurality The predicate *be similar* is one such predicate and as a result neither singular semantic plurals nor plural semantic singulars are permitted as its subject as the data in (11) show.[1]

(11) a. The men are similar.
b. *The group is similar.
c. *The scissors are similar.

There also exist syntactic elements that require syntactic plurality to be licensed, but which do not require semantic plurality. Reflexive pronouns fall into this category, as the examples in (12) show. In (12a), the semantically plural *group* can not bind a plural reflexive, while in (12c) the semantically singular *scissors* can bind a plural reflexive.

(12) a. *The group is keeping themselves in shape.
b. The group is keeping itself in shape.
c. The scissors are by themselves on the table.
d. *The scissors are by itself on the table.

Finally, there are elements that require a semantic plural to be licensed, but are not sensitive to the syntactic plurality of their licenser. Elements such as *together* and *same/different* fall into this category as the data in (13) and (14) show.[2]

(13) a. The group wore different hats.
b. The men wore different hats.
c. *The man wore a different hat.
d. *The scissors were different colours.

(14) a. The group left at the same time.
b. The men left at the same time.
c. *The man left at the same time.
d. *The scissors fell at the same time.

With these differences in mind, we can now examine the data that ABS give to show that first conjunct agreement is not semantically plural.

---

1 Note that *similar* has a discourse linked reading which is not relevant here, as in *That tree has an interesting pattern on its bark. This tree is similar.*

2 Note that *same/different* also have a discourse linked reading as described in fn. 1 above.

2.2 *together*

ABS show that the modifier *sawa* 'together' in Lebanese Arabic can only modify a conjoined SV subject (15a) but not a conjoined VS subject with first conjunct agreement (15b). Since Lebanese Arabic allows full agreement in VS order, plural agreement is obligatory with *sawa* (15c).

(15) a. Kariim w Marwaan raaHo sawa (Lebanese Arabic)
Kareem and Marwaan left.PL together
b. *RaaH Kariim w Marwaan sawa
left.3M.SG Kareem and Marwaan together
c. RaaHo Kariim w Marwaan sawa
left.PL Kareem and Marwaan together

What ABS do not show is a singular subject that is semantically plural. If we examine such cases, as in (16) we find that the modifier *sawa*, unlike the English *together* requires a syntactically plural antecedent.

(16) a. el jamaa raaHet (LA)
the group left.F.SG
b. *el jamaa raaHet sawa
the group left together
c. el rijat raaHu sawa
the men left.M.PL together

In (16a) *el jamaa* 'the group' controls singular agreement, yet when it appears with *sawa* 'together' it cannot appear with singular agreement as in (16b). This shows that 'together' in Arabic clearly requires syntactic as well as semantic plurality to be licensed, and so does not constitute an adequate test to show that first conjunct agreement is biclausal.

2.3 Reflexives and reciprocals

A similar case arises with reflexives and reciprocals. A reflexive object must have a plural antecedent, and here, plural agreement is obligatory in Lebanese Arabic even with VS order (i.e. first conjunct agreement is impossible.)

(17) a. kariim w marwaan biHibbo Haalun (LA)
Kareem and Marwaan love themselves
b. kariim w marwaan biHibbo ba¿dun
Kareem and Marwaan love each other

(18) a. biHibbo kariim w marwaan Haalun (LA)
Kareem and Marwaan love.3PL themselves
b. biHibbo kariim w marwaan ba¿dun
Kareem and Marwaan love.3PL each other

(19) a. *biHibb kariim w marwaan Haalun (LA)
love.3S Kareem and Marwaan themselves
b. *biHibb kariim w marwaan ba¿dun (LA)
love.3S Kareem and Marwaan each other

Again in these cases, ABS merely show that plural reflexives must be licensed by syntactically plural antecedents. The examples they give are not sufficient to show that the first conjunct agreement case which shows singular agreement is not semantically plural. If we assume that reflexives are licensed via agreement rather than simply through coreference with an antecedent, then the fact that first conjunct agreement is not sufficient to license a plural reflexive is unsurprising.

2.4 *meet*

ABS also show that first conjunct agreement subjects can not appear with intransitive *meet* in Arabic. However, the data in (20) show that with a semantic plural as its subject, *lta?a* 'meet' cannot control singular agreement, thus only plural agreement is possible, even though *el jamma* 'the group' can control singular agreement with other verbs as shown in (16) above. *Meet* in English is different in this respect as (20c/d) show.

(20) a. el jamaa lta?o (LA)
the group met.PL
b. *el jamaa lta?a
the group met.SG
c. The group is meeting at 3:00.
d. *The group are meeting at 3:00.

3. Against a biclausal analysis

The data above have shown that the inability of first conjunct agreement subjects to license elements such as *sawa* 'together', reflexives and reciprocals is not sufficient to show that such subjects are not conjoined and therefore not semantic plurals. Instead, the data simply show that many elements are sensitive to syntactic plurality, and this is not present when first conjunct agreement arises. In this respect, the data is somewhat equivocal: it is perhaps consistent with the biclausal analysis, but is also consistent with a phrasal coordination analysis with first conjunct agreement.

In order to show that first conjunct agreement is not biclausal, we need to provide examples which *do* require semantic plurality to be licensed, but do not require syntactic plurality. If such examples exist, the two theories make opposite predictions: if first conjunct agreement is biclausal, it should be impossible with these elements; if it is phrasal, the elements should be licensed.

One of the clearest cases of an element that is licensed by semantic plural[3] is *same/different* (see Carlson 1987, Moltmann 1992). As discussed above for English, adverbials such as *at the same time* are insensitive to the syntactic plurality of their licenser, but require a semantic plural to be licit. If first conjunct agreement is biclausal, then

[33] This statement is not quite accurate. As Carlson (1987) showed, *same* and *different* are licensed semantically by a group of events. One way to form such groups is by having a semantically plural subject.

same/different adverbials should be impossible with it. In English this is not the case, as the acceptability of both (21a) and (21b) show.

(21) a. There was a man and a woman in the room at the same time.
b. There was a man and a woman in the room at different times.

If conjunction were biclausal then (21) should be uninterpretable since *There was a man in the room at the same time/at different times* is unacceptable. The same kind of examples can be constructed for Arabic as (22) shows. In (22), first conjunct agreement is possible, despite the requirement of *bi nefs lwa?at* 'at the same time' or *nfs l-ktab* 'the same book' to have a semantically plural subject.[4]

(22) a. bi nefs lwa?at raaH Kariim w Marwaan (LA)
at same time left.SG Kareem and Marwaan
'Karim and Marwan left at the same time.'
b. qra-t Alia w Omar nfs l-ktab (Moroccan Arabic)
read.F.SG. Alia and Omar same the.book
'Alia and Omar read the same book.'

3.1. Cross-linguistic considerations

As mentioned in the introduction, ABS's analysis is surely not simply an analysis of first conjunct agreement in Arabic, since by adopting the agreement theory in (2) they are denying first conjunct agreement altogether. I now turn to some more crosslinguistic data which shows that first conjunct agreement cannot be biclausal, and if the theory of agreement posited in (2) is correct, an alternative account of the facts must be given.

First consider the Irish examples discussed in McCloskey (1986, 1989). The basic facts about Irish first conjunct agreement are the following: when an agreeing head is present, the NP it agrees with must be *pro*. In conjoined VS structures then, the first conjunct must be obligatorily null. If the order of the conjuncts is reversed, the sentence is unacceptable unless an overt pronoun is present.

(23) a. Bhíos *pro*-féin agus Eoghan i láthair. (Irish)
be.PAST.1SG EMPH. and Owen present
'Owen and I were present.'
b. Bhí Eoghan agus *(mé) féin i láthair.
be.PAST Owen and me EMPH present
'Owen and I were present.'

The distribution of *pro* in Irish is linked directly to the presence of agreement. If first conjunct agreement is biclausal, as ABS claim, then they are claiming for Irish that an agreeing verb is allowed in the first clause of a clausal coordination, but not in the second clause. It is not clear how such a condition should be stated in the grammar.

---

[4] Arabic seems to impose a syntactic plurality requirement for 'different'. Jamal Ouhalla (personal communication) informs me that (22a-b) require plural agreement in Moroccan Arabic when 'different times' or 'different books' is used.

On the other hand, the data in (23) receive a straightforward analysis if the first, but not the second conjunct is governed by the verb, and thus must be realised as *pro* when the verb shows agreement.[5]

McCloskey (1986:275) explicitly mentions that group readings are allowed with conjoined PP objects, one of which is a pronoun, and the following example from McCloskey (1989) clearly shows a group reading of the predicate, and provides further evidence against the biclausal analysis.

(24) An ndéanfá-féin agus Liam an dinnéar anocht? (Irish)
Q do-Cond.2Sg.-Emph. and Bill the dinner tonight
'Would you and Bill make the dinner tonight?'

3.2 Relative clauses

ABS also argue that relative clauses provide support for the biclausal analysis. They show that a relative clause with a conjoined head such as (25) cannot take part in first conjunct agreement.

(25) *raaH l-walad w l-mu¿allim yalli lta?o ¿ala-l-madrase (LA)
went.3MS the-boy and the-teacher who met.PL at-the-school

The unacceptability of (25) does not conclusively show that first conjunct agreement is biclausal. First of all, consider a corresponding English example:

(26) a. There is a dog and a cat that hate each other in the next room.
b. *There are a dog and a cat that hate each other in the next room.
c. There are two dogs and a cat that hate each other in the next room.

Here, first conjunct agreement is obligatory despite the presence of the relative clause and the reciprocal inside it. This example clearly shows that the first conjunct agreement does not entail lack of semantic plurality.

Relative clauses in Irish also provide an argument against treating coordination as biclausal. In Irish, resumptive pronouns are disallowed in the subject position of the clause subjacent to the head of a relative clause, as in (27a/b)

(27) a. *an fear a raibe sé breoite (Irish)
the man comp be.PAST he ill
'the man who was ill'
b. *na daoine a rabhadar *pro* breoite
the people comp be.PAST.3.PL pro ill
'the people who were ill'

[5] A further problem for a biclausal analysis of first conjunct agreement in Irish is the fact that in conjoined subjects, only the first NP in the conjuncts receives nominative case, while the other conjuncts receive accusative (default) case. Again, if first conjunct agreement is biclausal, then somehow accusative case must be stipulated to be assigned in the second clause. It is again unclear how this could be effected.

If first conjunct agreement were biclausal, then a resumptive pronoun in the subject position of a relative clause should be ruled out as it is in (27). This is not the case, however, as (28) shows.

(28) nadaoine a rabhadar *pro* féin agus a gclann mhac ábalta ar isach
the people COMP be.PAST.3.PL *pro* emph and their family sons.GEN able on fishing
'the people that they and their sons were capable of fishing' (Irish)

Portuguese also shows first conjunct agreement with relative clauses. While the verb inside the relative clause is plural and has a reflexive clitic, the matrix verb must agree with the first conjunct. The contrast between (29b/c) shows that this is a case a first conjunct agreement, rather than singular agreement with a null expletive subject.[6]

(29) a. É o homem e a mulher que se detestam (Brazilian Portuguese)
is-3SG the.M.SG and the.F.SG who SE hate-PL
(It) is the man and the woman who hate each other
b. São os homens e a mulher que se detestam
are-3PL the men and the woman who hate each other
(It) is the men and the woman who hate each other
c. *É os homens e a mulher que se detestam
is-3SG the men and the woman who hate each other
(It) is the men and the woman who hate each other

It is clear that the data from English, Irish and Portuguese cannot be accounted for with a biclausal analysis, and thus the generality of ABS's solution is clearly compromised.. What accounts for the lack of first conjunct agreement in the Arabic cases is unclear, however, but it is not definitively due to the purported biclausal nature of first conjunct agreement.

3.3. Mixed agreement

A major prediction of the biclausal analysis of first conjunct agreement is that 'mixed' agreement should never occur, since both clauses contain singular verbs. In fact these are the cases that ABS show to be ungrammatical in Arabic. Again, Irish provides a counterargument to the generality of the claim. McCloskey (1986) shows that first conjunct singular agreement can coocur with plural agreement in certain Irish predicative constructions. These predicative constructions are formed by prefixing a possessive clitic onto a noun or verbal noun as shown in (30).

(30) a. Tá mé 'mo dhochtúir. (Irish)
am I 1.SG doctor
'I am a doctor.'
b. Tá mé 'mo sheasamh.
am I 1.SG stand VN
'I am standing.'

6 This is not to say that there is no expletive. There may well be, but the agreement is with the first conjunct. ABS (p. 200) make the same point in their discussion of Arabic.

With a conjoined subject, the verb agrees with the first conjunct in the singular, while the predicate shows up with the plural clitic, as in (31).

(31) a. Tá mise agus mo dheartháir 'nár ndochtúirí. (Irish)
am I+CONTR and my brother 1.PL doctors
'My brother and I are doctors.'
b. bhínn *pro*-féin agus an seanduine 'nár suí.
be.PAST.HAB.1.SG *pro*-EMPH and the old fellow 1.PL sit
'The old fellow and I used to be sitting.'

If we were to suppose that the examples in (31) were derived from clausal paraphrases, then we would have to explain how the plural clitic in the second conjunct is sensitive to the structure after conjunction reduction, while the agreement in the first conjunct is sensitive to the agreement before conjunction reduction.

3.4 First conjunct agreement within the Noun Phrase

Further evidence against the biclausal analysis of first conjunct agreement comes from first conjunct agreement facts in NPs in Brazilian Portuguese. Brazilian Portuguese, (BP) like other Romance languages, has both prenominal and postnominal adjectives, along with prenominal determiners, all of which show agreement. Depending on the order of the adjectives, it is possible to have mixed agreement with first conjunct agreement on the determiner and the prenominal adjectives and both conjunct agreement on the postnominal adjective. An example of this is given in (32). In (32a), the first conjunct is feminine, and all prenominal elements agree with it in gender and number. The unacceptability of (32b/c) shows that the prenominal elements must agree with the first conjunct, while the acceptability of (32d) shows that the postnominal adjective *famosos* 'famous' is agreeing with both conjuncts and not simply the second conjunct.

(32) a. Eu encontrei as minhas velhas amigas e amigos famosos. (BP)
I met the-F.PL my-F.PL old-F.PL friends-F.PL and friends-M.PL famous-M.PL
'I met my famous old female freinds and male freinds.'
b. *Eu encontrei os meus velhos amigas e amigos famosos.
I met the-M.PL my-M.PL old-F.PL friends-F.PL and friends-M.PL famous-M.PL
c. *Eu encontrei os meus velhas amigas e amigos famosos
I met the-M.PL my-M.PL old-F.PL friends-F.PL and friends-M.PL famous-M.PL
d. Eu encontrei os meus velhos amigos e amigas famosos.
I met the-F.PL my-F.PL old-F.PL friends-F.PL and friends-M.PL famous-M.PL
'I met my famous old female friends and male friends'

The meaning of (32a) is that both the prenominal and the postnominal elements take scope over both conjuncts, thus the agreement pattern cannot be attributed to meaning in these cases. Nor can these NPs be interpreted as biclausal, since they can be modified by *juntos* 'together', (which agrees in the plural) or by *no mesmo dia* 'on the same day' as the examples in (33) show.

(33) a. Eu encontrei as minhas velhas amigas e amigos juntos. (BP)
I met the-F.PL my- F.PL old- F.PL friends- F.PL and friends-M.PL together- M.PL
b. Eu encontrei as minhas velhas amigas e amigos no mesmo dia.
I met the-F.PL my- F.PL old- F.PL friends- F.PL and friends-M.PL on.the same day

3.5 First conjunct agreement in participial absolutes

Schmitt (to appear) shows that first conjunct agreement effects show up in participial absolutes and *have*+agreeing participle constructions, both in Brazilian Portuguese and in Spanish. The data for participial absolutes is given in (34); similar examples exist for *have*+agreeing participles.

(34) a. Arrumadas as salas e o quarto, ... (BP)
tidied up-F.PL the-F.PL living-room-F.PL and the-M.SG bedroom-M.SG
b. *Arrumados as salas e o quarto ...
tidied up-M.PL the-F.PL living-room and the-M.SG bedroom-M.SG
c. Arregladas las salas y el cuarto, ... (Spanish)
tidied up-F.PL the-F.PL living-room-F.PL and the-M.SG bedroom-M.SG
d. *Arreglados las salas y el cuarto,...
tidied up-M.PL the-F.PL living-room-F.PL and the-M.SG bedroom-M.SG

The participial absolutes offer a striking example of how first conjunct agreement is compatible with collective predicates. Participial absolutes are permitted with transitive verbs and unaccusatives. Consider a verb like *combine*, which has only a group interpretation when used unaccusatively. First conjunct agreement is possible in these cases as (35), from Brazilian Portuguese, show shows.

(35) Combinada a prata e o ouro, a Maria tinha o suficiente para fazer um anel
combined-F.SG the.F.SG silver and the.M.SG gold, the Maria had the
sufficient for to.make a ring. (BP)
'With the gold and the silver combined, Maria had enough to make a ring.'

4. Distinctions between governed agreement and Spec-head agreement

ABS's attempt to give what is essentially a semantic account of first conjunct agreement fails when confronted with the wide array of crosslinguistic first conjunct agreement facts. Before pointing to a solution to the facts, I would like to mention an important difference between governed agreement and Spec-head agreement, which, as far as I am aware, has not been noticed before.

It is well known that conjunction usually requires some sort of default feature resolution rules, for example, in languages with gender agreement, a conjoined masculine and feminine noun will resolve to masculine plural. This constraint is clearly violated in cases of first conjunct agreement, as we have seen in both the Arabic examples and the Portuguese examples.

Another example of this agreement resolution was noted for English by Sag et al. (1985). Sag et al. show that there is a hierarchy of agreement patterns exhibited between conjoined pronouns which bind reflexives, as the data in (36) shows.

(36) a. He and she are proud of themselves.
b. You and he are proud of yourselves/*themselves.
c. You and I are proud of ourselves/*yourselves.
d. He and I are proud of ourselves/*themselves.

The generalisation needed to account for the facts is a hierarchy of 1st > 2nd > 3rd person. What is important here is that the order of conjuncts is not relevant for this kind of agreement. This sort of resolution for person seems to be universal. Given that first conjunct agreement only arises in English in *there* constructions, it is not possible to test whether the resolution holds in governed agreement configurations, since pronouns are generally not permitted in *there* constructions. However, in Portuguese, it is possible to show that in governed agreement configurations, the hierarchy is 'violated' or overridden by the first conjunct's syntactic requirements. The relevant data is given in (37).

(37) a. Eu e as meninas saímos. (BP)
I and the girls left.1PL
b. As meninas e eu saímos.
the girls and I left.1PL
c. *As meninas e eu saíram.
the girls and I left.3PL
d. Foram as meninas e eu que compramos as flores.
were.3PL the girls and I who bought.1PL the flowers
e. Fui eu e as meninas que compramos as flores.
was.1SG I and the children who left.1PL
f. *Fui as meninas e eu que comprei as flores.
was.1SG I and the girls that bought.1SG the flowers

The contrast between (37a/b) and (37c) shows that a conjoined subject containing a first person pronoun can never control third person agreement, independent of the order of the conjuncts. However, as the contrast between (37d/f) shows, when the agreement in postverbal, third person agreement is obligatory when the third person conjunct is the first one.

The examples above show that there is a fundamental asymmetry between governed agreement and Spec-head agreement. While the former seems to only 'see' the governed element (in these cases the first conjunct), Spec-head agreement is able to 'see' more than the first conjunct. In this sense, Spec-head agreement is looser than governed agreement, and thus may be affected by other factors.

To show this is so, consider the well-known, but not very well understood, phenomenon of collective noun agreement in British English. In British English, collective nouns can agree in either the singular or plural, as in (38).

(38) a. The band are going to be playing at 6:00. (Br. E)
b. The band is going to be playing at 6:00.

Although (38a) looks like *band* can be either plural or singular, as Barlow (1992) (citing Corbett 1979) shows, such nouns cannot take plural demonstratives as in (39), even when they control plural agreement on the verb.

(39) a. *These band are going to be playing. (Br. E.)
b. This band are going to be playing.
c. This band is going to be playing.

If the indefinite article is used, plural agreement is still possible on the verb as in (40).

(40) a. A band from Poland are going to be playing. (Br. E)
b. A band from Poland is going to be playing.

If governed agreement is identical to Spec-head agreement, we should expect that collective nouns in British English should control either plural or singular agreement in *there* constructions, given the data in (40). However, as the data in (41) shows, this is not the case. In an *there* construction, agreement can only be with the singular. This contrasts with the standard cases of agreement in *there* constructions given in (41c/d) which show that agreement is indeed with the postverbal subject. (I am ignoring here the contracted form *there's* which essentially shows no agreement in English at all.)

(41) a. *There are a band from Poland playing.
b. There is a band from Poland playing.
c. *There is two bands from Poland playing.
d. *There are a man from Poland arriving.

Thus, whatever accounts for the ability of collective nouns in British English to control plural agreement is not generalizable to cases of governed agreement. It also does not extend to demonstrative agreement, a point we will return to below.

The data above clearly point to a difference between governed agreement and spec-head agreement, and this difference extends beyond cases of first conjunct agreement. This is important, because ABS's account of first conjunct agreement cannot be extended to cases of governed agreement which do not involve coordination.

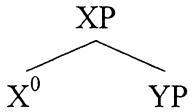
5. Analysis: first conjunct agreement with government

The survey of data thus far has shown that in a wide variety of constructions, first conjunct agreement is obligatory in constructions that either force group readings or are compatible with them. The fact that group readings are incompatible with the biclausal analysis lends support to the idea that phrasal coordination plus agreement under government is necessary to account for first conjunct agreement. In addition to being empirically more sound, it is also conceptually superior in that it preserves the strong crosslinguistic correlation that first conjunct agreement will arise whenever agreement under government is possible. The fact that governed agreement has different syntactic properties than Spec-head agreement also lends force to the argument. In this section I will show that first conjunct agreement can be accounted for straightforwardly if one assumes an adjunction structure for coordinate structures.

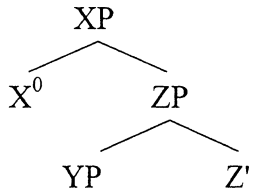
Under standard definitions of government, (e.g. Aoun and Sportiche 1981, Chomsky 1986) the complement of a head is governed by the head (I will call this government), and the specifier of the complement is governed by the head provided the complement is made transparent in some way, either by stipulation or by incorporation into the governing head (I

will call this exceptional government).[7] These two configurations are schematised in (42a/b), where in each case, X governs YP. In all of the cases discussed above, one of the two configurations in manifested.

(42) a.



b.



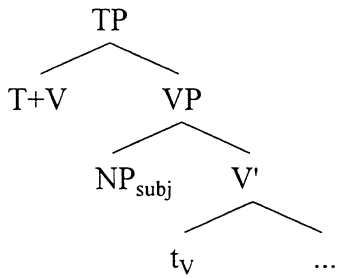
Government *Exceptional government*

Configuration (42a) is manifested in the determiner/prenominal adjective data from Portuguese, and also in the participial absolutes data, according to Schmitt (to appear). Configuration (42b) is manifested in the Arabic and Irish VS word orders. Depending on one's analysis of *there* constructions in English, either of (42a) (if the coda of the *there* construction is adjoined to VP or (42b) is realised (if a small clause analysis of *there* constructions is adopted.)

If first conjunct agreement arises under government configurations, it must be the case that the first conjunct of a conjoined set of DPs in the position of YP in (42) must be governed. One way to effect this in (42a) is to assume that conjunctions head their own phrases and the conjuncts are in the specifier and complement of the conjunction phrase.[8] Provided we stipulate that the conjunction phrase itself is transparent to government, the first conjunct will be governed.

In two other analyses of first conjunct agreement in Arabic (Bahloul and Harbert 1992 and Benmamoun 1992), the facts are accounted for in exactly this way. What is not clear from either of these analyses, however, is whether putting the first conjunct in the specifier of the conjunction phrase actually gets the facts as required. For sake of discussion, assume, as Benmamoun (1992) does, that the postverbal subject in Arabic remains inside the VP, and agrees under government with the V+T complex shown in (43).

(43)



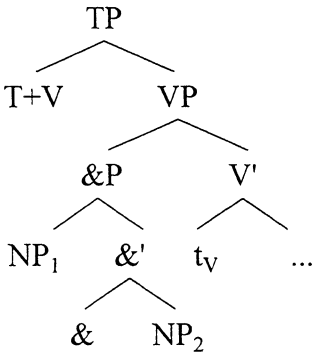
If we embed a conjunction phrase in the subject position above we get the structure in (44).

---

[7] It is not important for the present discussion what the exact definition of government is, or, in fact, whether government is abandoned altogether as in Chomsky (1993). Whatever accounts for the standard cases of exceptional government should carry over in this framework. See below for more discussion.

[8] Various arguments independent of the first conjunct agreement facts are presented in favour of treating conjunction structures as endocentric structures in which the first conjunct c-commands the second conjunct. See Munn (1992, 1993) for details.

(44)



While in (42a) we simply need to stipulate that the conjunction phrase is transparent to government, in (44) we must allow for 'exceptional' exceptional government, i.e. government into the specifier of a specifier. This amounts to allowing government to be recursively defined. There is independent evidence that such an extension of government is never permitted. [9]

If we take ECM verbs to be core cases of exceptional government, and government into the specifier of a specifier should be allowed, we should be able to embed an ECM clause as the subject of a small clause, but, as Stowell (1981) pointed out, this is never permitted.

(45) a. I consider John to be foolish.
b. *I consider John to be foolish to be obvious.

Johnson (1988) argued that gerunds with accusative subjects (ACC-ing gerunds) make an even stronger point for the lack of exceptional exceptional government. Consider the data in (64).

(46) a. I consider John being here to be a problem.
b. *Who do you consider t being here to be a problem?
c. I remember John being here.
d. Who do you remember being here?

In (46a), an ACC-ing gerund is possible as the subject of a small clause governed by *consider*. This contrasts minimally with (45a), thus, we might assume that gerunds are able to casemark their subjects internally. What is important though, is that extraction of the subject of the gerund is not permitted, thus *consider* in (46b) must not govern into the subject of gerund. This contrasts minimally with the extraction data in (46d) which shows that *remember* plausibly does govern into the subject position, even if it does not assign case to the subject.[10]

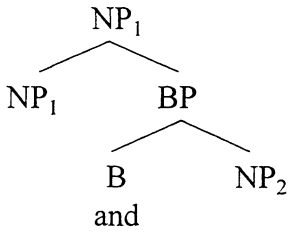
---

[9] Raposo and Uriagereka (1990) argued for the recursive definition of government. By their definition, recursive government is always subject to minimality, i.e. a head can govern long distance provided there is no closer had that governs the projection in question. Even with their definition, exceptional exceptional governement is not permitted.

[10] Johnson uses this data to argue that gerunds are in fact CPs but his arguments are dubious, given the large amount of evidence to the contrary (cf. Reuland 1983, Abney 1987, Munn 1991).

Munn (1992, 1993) argues that the general unavailability of 'exceptional' exceptional government supports a different structure for coordination, one in which the Boolean phrase is adjoined to the first conjunct, as in (47).[11]

(47)



When we embed the structure given in (47) in either of (42a) or (42b), the first conjunct will be governed, either directly or by exceptional government, however that is to be cashed out in detail. By treating coordination as adjunction, all of the first conjunct agreement facts can be accounted for without appealing to stipulative extensions to the theory of government. The analysis also preserves the correlation between the agreement under government and first conjunct agreement which is lost under ABS's analysis.

6. First conjunct agreement without government?

I have not given a detailed analysis of all of the constructions described above, since in all cases the point is the same: first conjunct agreement cannot be given a biclausal analysis, but rather follows directly from agreement under government on the assumption that conjunction phrases are adjoined to the first conjunct. In this last section I would like to return to the idea, mentioned at the outset, that agreement under government can be accounted for without government, since, as ABS rightly argue, a disjunctive notion of agreement seems to be conceptually unsatisfactory. In the Minimalist framework (Chomsky 1993, 1995), government is dispensed with entirely, being subsumed (largely) by the Spec-head relation. A minimalist account of agreement under government will therefore need to be recast if minimalism is to be adopted. Recall, however, that the differences between governed agreement and 'regular' agreement still need to be accounted for.

If government does not exist as a relation in the grammar, then we need to ask what is its analogue in the Minimalist framework. In the minimalist program, all movement is driven by feature checking requirements.[12] Elements either move before Spell-Out or at LF. If we think in these terms, then if X (descriptively) agrees under government with YP then YP has not moved *relative* to X by Spell-Out. On the other hand, if YP is in (descriptively) a Spec-head relation with X then YP has moved to the specifier of X overtly.[13] We can then recast the notion of agreement under government as the descriptive generalisation given in (48).

---

[11] Two other arguments for the adjoined BP structure are presented by Munn. The first is that conjunction phrases can be extraposed, which is consistent with the idea that they are maximal projections. If the first conjunct were in the specifier of the conjunction phrase, the extraposed constituent would have to be a B'. A second argument comes from Munn's 1992 analysis of Across-the-Board (ATB) extraction as an instance of operator movement to the Spec BP position.

[12] For concreteness I will assume the feature checking mechanism of Chomsky 1993 with the modification to the principle of Greed given in Chomsky 1995. Nothing crucial hinges on this particular point.

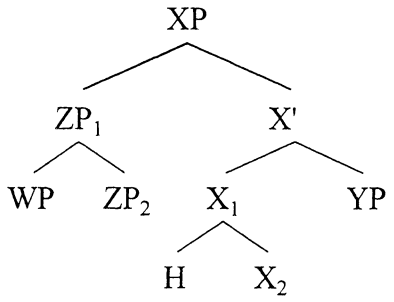
[13] This is not to say that YP has not moved at all. Also, I am restricting this statement to agreement under government. We do not want to say, for example, that the verb in Comp agrees under government with the subject in Spec IP in (i) (as the unacceptability of first conjunct agreement in (ii) shows) but rather, that the subject and the verb have agreed in a Spec-head relation and then the verb has raised further.

(i) Who do John and Mary like

(48) Agreement under government is always covert agreement.

A crucial notion within the checking theory is that of *checking domain.* Consider the schematic tree given in (49), adapted from Chomsky (1995:177).

(49)



The minimal *domain* of X is the set of nodes{YP, ZP, WP, H}. The *checking domain* of X is this set less the complement domain of X, in this case {YP}, thus the checking domain of X is {ZP, WP, H}. Both heads and complements must be in the checking domain, since both may need to have features to be checked. If we assume that X in (49) is some functional projection, then ZP is in a checking relation with X, as is H (or more properly, its chain).

We can now derive most of the properties of agreement under government (and therefore first conjunct agreement) if we assume the following:

(50) Agreement under government is a head-head relation.

By assuming that agreement under government is a head head relation, we can still say that agreement is a checking relation within the Minimalist framework, but it will have subtle differences from the Spec-head agreement relation, given the adjoined BP structure argued for above.

Consider ZP in the tree in (49). Assuming Greed, ZP must have moved to satisfy some strong feature of X or of itself. WP, on the other hand, an adjunct to ZP has been pied-piped for independent reasons. Since the adjunct is in the checking domain, it may also enter into agreement relation with the head.

If we analyse agreement under government, then the head of the first conjunct raises covertly to check features. We can then return to the cases of distinctions between spec-head agreement and agreement under government. Agreement under government is 'strict' in the sense that it does not 'see' the other conjuncts, while spec-head agreement can see the other conjuncts. This fact may be derivable from the fact that the conjunction phrase is pied-piped in Spec-head agreement cases and is not in head-head agreement cases.

The first conjunct agreement facts inside the noun phrase support this idea. If NP internal agreement is effected by head movement within the noun phrase, as proposed by Longobardi (1994) for example, then we expect first conjunct agreement to be the norm with respect to determiner agreement, and this is the case, as described above. Adjuncts to the noun phrase, will agree with plural agreement, these being instances of Spec-head agreement.

Recall the fact that in British English, a collective noun forces singular agreement under government, and cannot agree with a plural demonstrative, even though it can agree in the plural in canonical spec-head agreement configurations. If demonstratives are in Spec DP,

---

(ii) *Who does John and Mary like

and agreement involves N raising to D, then we can account for the fact that the demonstrative must agree with the noun in the singular and never in the plural. Since the agreement facts in *there* constructions show the same effects, then whatever accounts for the raising of the associate to the expletive is a case of head-head relations and not Spec-head relations.

Conclusion

It is beyond the scope of these remarks to give a full analysis of all of the cases discussed above in terms of LF head (or feature) raising. It should be clear, however, that head-head agreement is an allowable case of agreement within the minimalist framework, and thus the argument that agreement under government is conceptually invalid does not hold under minimalist assumptions. What is interesting about this approach, however, is that it still encodes the subtle differences between the two types of agreement in terms of whether pied-piping of adjuncts is allowed or not. Heads will never be able to pied-pipe adjoined conjunction phrases, and this is consistent with the fact that agreement under government does not care about the other conjuncts with respect to feature resolution.

Spec-head agreement is predicted to allow for agreement with more than one element according to feature resolution rules of the usual type. This will follow, at least partially, by treating the conjunction phrase as an adjunct to the first conjunct and therefore in the checking domain when Spec-head agreement arises. If we treat the conjunction as a sort of plural pronominal element as Munn (1993) does, then the fact that agreement resolution is necessary in Spec head relations might follow. Conjunct resolution rules themselves are a poorly understood phenomenon, and I do not claim to have a full account for them here. Given the plural agreement facts in collective nouns in British English however, which arise only in Spec-head configurations, it is not entirely obvious that a purely syntactic account of the effects of Spec-head agreement can be found.

References

Abney, Steven. 1987. The noun phrase in its sentential aspect. Doctoral dissertation, MIT, Cambridge, Mass.

Aoun, Joseph, Elabbas Benammoun and Dominique Sportiche. 1994. Agreement, word Order and conjunction in some varieties of Arabic. *Linguistic Inquiry* 25:195-220.

Aoun, Joseph and Dominique Sportiche. 1991. On the formal theory of government. *The Linguistic Review* 2:211-236.

Barlow, Michael. 1992. *A Situated Theory of Agreement*. New York: Garland.

Benmamoun, Elabbas. 1992. Functional and inflectional morphology: Problems of projection, representation and derivation. Doctoral dissertation, USC, Los Angeles, California.

Chomsky, Noam. 1986. *Barriers*. Cambridge, Mass.: MIT Press.

Chomsky, Noam. 1993. A minimalist program for linguistic theory. In *The View from Building 20: Essays in linguistics in honor of Sylvain Bromberger,* ed. Kenneth Hale and Samuel J. Keyser, 1-52. Cambridge, Mass.: MIT Press.

Chomsky, Noam. 1995. *The Minimalist Program.* Cambridge Mass.: MIT Press.

Corbett, G. G. 1979. The agreement hierarchy. *Journal of Linguistics* 15:203-224.

Johnson, Kyle. 1988. Clausal gerunds, the ECP and government. *Linguistic Inquiry* 19:583-609.

Longobardi, Giuseppe. 1994. Reference and proper names: A theory of N-movement in syntax and Logical Form. *Linguistic Inquiry* 25:609-665.

McCloskey, James. 1986. Inflection and conjunction in Modern Irish. *Natural Language and Linguistic Theory* 4:245-281.

McCloskey, James. 1989. A note on agreement and coordination in Old Irish. In *A Festschrift for William Shipley.* ed. Sandra Chung and Jorge Hankamer 105-114. Syntax Research Center, University of California, Santa Cruz.

McCloskey, James and Kenneth Hale. 1984. On the syntax of person-number inflection in Modern Irish. *Natural Language and Linguistic Theory* 1:487-533.

Mohammed, Mohammed. 1987. Nominative case, I-subjects and subject-verb agreement. In *Proceedings of the Parasession on Agreement,* Chicago Linguistics Society, Chicago. Ill.

Moltmann, Friederike. 1992. Reciprocals and *same/different:* towards a semantic analysis. *Linguistics and Philosophy* 15:411-462.

Munn, Alan. 1987. Coordination and X-bar theory. *McGill Working Papers in Linguistics* 4-1:121-140.

Munn, Alan. 1991. Binding in gerunds and the Leftness Condition. In *MIT Working Papers in Linguistics* 14. ed. Jonathan David Bobaljik and Tony Bures 163-178. MIT, Cambridge, Mass.

Munn, Alan. 1992. A null operator analysis of ATB gaps. *The Linguistic Review* 9:1-26

Munn, Alan. 1993. Topics in the syntax and semantics of coordinate structures. Doctoral dissertation, University of Maryland, College Park, Maryland.

Raposo, Eduardo and Juan Uriagereka. 1990. Long distance case assignment. *Linguistic Inquiry* 21: 505-538.

Reuland, Eric. 1983. Governing *-ing. Linguistic Inquiry* 14:101-136.

Sag, Ivan, Gerald Gazdar, Thomas Wasow and Steven Weisler. 1985. Coordination and how to distinguish categories. *Natural Language and Linguistic Theory* 3:117-171.

Schmitt, Cristina. 1996. Aspect and the syntax of noun phrases. Doctoral dissertation, University of Maryland, College Park, Maryland.

Schmitt, Cristina. To appear. Lack of iteration: accusative clitic doubling, participial absolutes and *have*+agreeing participles. *Probus*.

Department of Linguistics, Michigan State University and
Max-Planck Gesellschaft, Arbeitsgruppe Strukturelle Grammatik, Berlin

Wells Hall
Michigan State University
East Lansing MI 48824 U.S.A.

amunn@pilot.msu.edu

Licensing Definite Determiners*

Cristina Schmitt
ZAS - Berlin / Michigan State University

Introduction

The presence of a definite determiner on a direct object will normally cause the VP to be interpreted as terminative or bounded if the verb is eventive. In this paper, I discuss a set of cases in which, despite the presence of a definite determiner on the direct object, the VP can be interpreted as durative. I will call this phenomenon DETERMINER TRANSPARENCY (DT), since, for the purposes of calculating aspect, the determiner acts as though it is not there. One of these constructions is the relative clauses (RC) and (1) and (2) exemplify the phenomenon:

(1) a. Pedro matou coelhos √ por muitos anos/ #em duas horas.
Pedro killed rabbits √ for many years/ #in two hours.

b. Pedro matou o coelho #por muitos anos/ √em uma hora.[1]
Pedro killed the rabbit #for many years/ √in one hour.

c. Pedro matou os coelhos #por muitos anos/ √em duas horas.
Pedro killed the rabbits #for many years/ √in two hours.

(2) a. Pedro [matou [o coelho que comia suas plantas]] #por 3 anos/ √em uma hora.
Pedro killed the rabbit that ate his plants #for 3 years/ √in one hour

b. Pedro[matou [os coelhos que comiam suas plantas]]√por 3 anos/√em uma hora
Pedro killed the rabbits that ate his plants √for many years/ √in one hour

In Brazilian Portuguese, as in English, bare plurals in object position of eventive verbs (1a) force durative readings, as the acceptability of the adverbial *for many years* demonstrates. A definite determiner, on the other hand, will force a terminative reading in (1b) and (1c). In (2a) we have a definite singular modified by a RC and again we have a terminative reading as the adverbial, taken here to be modifying the matrix VP, shows. However, in (2b), a durative reading is possible. The same effects will be found with demonstratives, and with certain types of adjectives, namely, if the nominal head is plural (as shown in (3) and (4)), a durative reading is possible, despite the presence of the definite determiner.

---

* This paper is a shorter version of a chapter of my dissertation. Parts of it have been presented at the ZAS project on relative clauses and parts of it have been presented at the Linguistic Symposium of Romance Languages in march 1996 in Mexico City. I thank the audience in both places and in special Alan Munn for fixing some of the English and hearing about this paper ad nauseam. I also would like to thank Chris Piñon for a long discussion on the aspect of these constructions.

[1] Hans-Martin Gaertner has pointed out to me that, in certain contexts, (1b) can have a durative reading. For example, imagine a situation in which for many years Pedro received a rabbit for his birthday from his friends. And every year he killed it and made a nice dinner. In this case (1b) is acceptable with a durative reading. In this paper I will not be concerned with the definite dependent reading. Under the durative reading of (1b), the definite has been quantified over.

(3) a. O Pedro dirigiu aquele filme #por 3 anos[2]
#Peter directed that movie for 3 years

b. O Pedro dirigiu aqueles filmes por 3 anos
Peter directed those movies for 3 years/ in two hours

(4) a. Maria escreveu o artigo errado por 3 anos/? em dois meses.
Maria wrote the wrong article #for years/ ?in two months.

b. Maria escreveu os artigos errados por 3 anos/? em dois meses.
Maria wrote the wrong books for years/ ?in two months.

Two questions arise: what accounts for the aspectual readings, both the terminative and durative readings with plurals in RCs, demonstratives, and certain adjectives, and the non ambiguity with count singulars? (ii) under what conditions does DT obtain in Portuguese and English?

I will link DT to the ability of the determiner to take something other than the head noun as its complement. The analysis provided will constitute independent motivation for the lack of constituency between the determiner and the head noun and will provide an argument for the idea that the interpretation of aspect depends partially on the internal syntax of complements. In section 1 I outline my assumptions and my proposal for the VP aspect calculus. In section 2 I provide a unified structure for cases of DT and I answer various questions it raises.

1 Basics of VP Aspect Calculus

First, I assume that aspect is compositional: terminative readings are dependent on both verbal and nominal properties. Thus, the minimum necessary to calculate the VP aspect is information about the verb and its object. On this point, there is consensus in the semantics literature (see Verkuyl 1993 and ref. there). A summary of the possibilities of VP aspect interpretation is given in (5), although I will only deal with cases like (5a) and (5b):

(5) a. the verb is eventive[3] and the object has its cardinality specified
write the book, run a mile (Terminative)

b. the verb is eventive and the object has its cardinality unspecified
write books, write junkmail, run (Durative)

c. the verb is non-eventive and the object has its cardinality specified
know a language (Durative)

d. the verb is non-eventive and the object has its cardinality unspecified
know French (Durative)

The summary above shows that durative is the default case, since only if the verb and the object have certain properties a terminative reading will arise.

Note that it is always possible to bound a durative predicate by adding an external boundary, but in order to unbound a terminative predicate we need to force iteration. For example, in *John played the sonata for two years*, we need as many playings of the sonata as will fill the time specified by *for two years*. On the other hand, *John played*

---

2 I will mark with # the stretched readings and the iterative readings of terminative predicates modified by *for x time* adverbials.

3 I am simplifying slightly here. It is necessary to separate two classes of eventive verbs: those that are sensitive to the cardinality of the object and those that are not sensitive to the cardinality of the object such as *push*, since *John pushed a cart for 3 hours* is perfectly acceptable. I will be only concerned here with the former group. For a semantic account of the distinction between the two groups, see Verkuyl 1993.

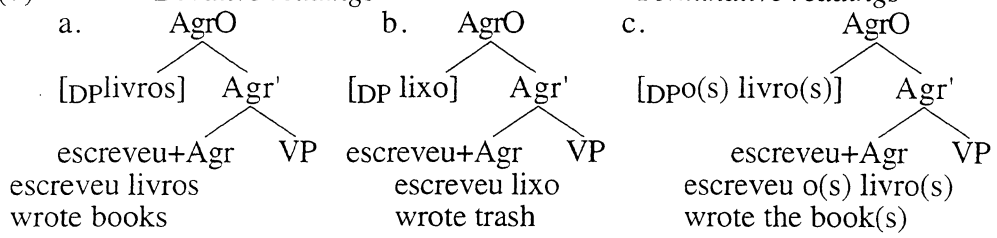
sonatas for two hours is bounded by the adverbial and not by the object. In this case, however, iteration is not forced.

The second assumption is that aspect itself is a semantic property, but aspectual interpretations are dependent on syntactic configurations. Based on independent evidence from Finnish, Polish, Czech and Spanish (see Schmitt 1996), I have shown that the syntax provides a position where the verb can 'see' the quantity information of the object. I will assume this position to be universally the checking domain of the verb and object (in Chomsky's 1993 terms, AgrO). Given that terminative aspect is dependent on a quantized object, and this information is only visible in the checking domain of the verb, my proposal is the following:

(6) Interpret VP as terminative (bounded) iff AgrO contains an eventive verb and a nominal element with its quantity specified. Otherwise it is durative.

Basic examples for how (6) works are given in (7).

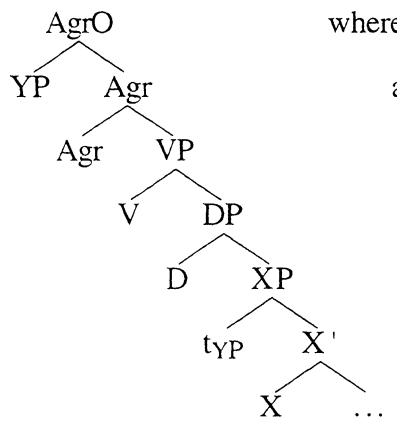
(7) *Durative readings* *Terminative readings*



2 The Syntax of DT

Now we can go back to the cases in (2) to (4). In (2b), for example, a durative reading is possible. If the proposal above is correct, we cannot have a definite determiner at AgrO by the time aspect is calculated. Instead, we interpret (2b) as if we had a bare plural at AgrO. The configuration we need in order for the definite determiner to be invisible for aspect calculus is one in which the DP as a whole does not raise to AgrO but the nominal element inside it does. The nominal element must move to AgrO, otherwise we could not distinguish the plural from the singular cases. The basic structure for determiner transparency (which will be essentially the same for (3) and (4)) is given in (8). The definite determiner takes some XP as its complement and the nominal part of the construction moves through Spec XP to AgrO to check its case.

(6)



where XP is some non-nominal projection

and YP is some nominal projection

I will adopt the structure in (8) to account for DT effects and I will answer the following questions: (i) why does only YP and not the whole DP raise to check case?

(ii) what can XP be? (iii) can any kind of modification instantiate the structure above? (iv) what is the category of YP, i.e. is it a bare NP, or does it have more structure?

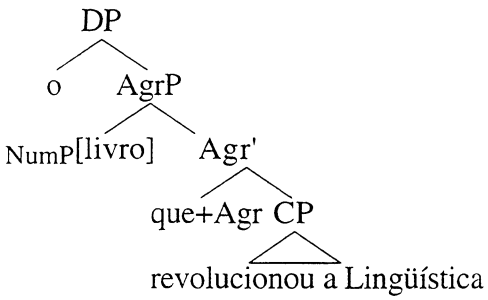
2.1 Why only YP and not the whole DP raises to check case.

The analysis of RCs proposed by Vergnaud (1974, 1985) based on Kuroda (1968) and more recently Kayne (1994) independently motivates a structure in which the determiner takes the CP and not the head noun as its complement. Kayne assumes with Vergnaud that the head of the RC is in fact part of the operator of the RC that raises out of a wh-phrase to its own specifier.

It is a well known fact, however, that the RC operator does not necessarily takes the same case as the head of the RC. I will take that as evidence that the raising analysis is not quite correct but I will accept from Vergnaud and Kayne the arguments for the proposal that it is the CP that is the complement of the definite determiner.[4] If we are to preserve Kayne's anti-symmetry hypothesis, then we need an Agr projection, the spec of which in which spec the head of the RC is generated, as illustrated in (9).

(9) a. [$_{DP}$ o [$_{AgrP}$ [livro]$_{NumP}$ [$_{Agr'}$ [$_{CP}$ que revolucionou a Lingüística]]]]

b.



For the moment I will leave unmotivated the assumption that the head of the restrictive relative is a NumP but will return to it in 4.3. In order to enter a spec-head agreement with the head of the RC, the C will raise to Agr to check features and the complex C+ Agr will then move at LF to D (a movement I will motivate in the next section).

This proposal makes the D part of the extended projection of the C and will allow us to understand why only the NumP raises to check its case and not the whole DP. Clauses do not need to have their Case checked. Thus the extended projection of the RC does not need to move and therefore will not move (although the D may carry the morpho-phonological case from the head noun which will agree with the NumP, but not abstract Case features that are uninterpretable).

The NumP, on the other hand, has Case and needs to check it. Therefore it will raise from the spec of Agr to the spec of AgrO. The net result is that depending on what we have in the head of the RC, a different aspectual reading will obtain, as illustrated in (10). After the covert raising of the NumP[5] the configurations that obtain are like the ones given in (7) and the aspectual interpretations will follow from (6):

---

4 Reconstruction data also provides evidence against the raising analysis. See Munn 1994 and Schmitt 1996 for discussion.

5 One might ask why this movement is not overt. My assumption here is that overt movement to AgrO is triggered by the need to check D properties and not necessarily Case. Thus, NumPs will never move alone in scrambling situations. In subject position, however, we can see the movement of the whole relative clause, since the EPP forces a D element to move to AgrS.

(10) a. Chomsky [escreveu o livro que revolucionou a Lingüística] # por 3 anos
[$_{AgrO}$ [$_{NumP}$ (sg) livro]$_i$ [$_{Agr}$ escreveu [$_{VP}$ ... t_i que revolucionou a Lingüística]]]
'Chomsky wrote the book that revolucionized Linguistics #for 3 years.'

b. Chomsky [escreveu [os dois livros que revolucionaram a Lingüística]] #por 3 anos
[$_{AgrO}$ [$_{NumP}$ dois livros]$_i$ [$_{Agr}$ escreveu [$_{VP}$ ... os t_i que revolucionaram a...]]]
Chomsky wrote the two books that revolucionized Linguistics # for three years

c. Chomsky [escreveu os livros que revolucionaram a Lingüística] por 3 anos
[$_{AgrO}$ [$_{NumP}$ livros]$_i$ [$_{Agr}$ escreveu [$_{VP}$ ... t_i que revolucionou a Lingüística]]]
Chomsky wrote the books that revolucionized Linguistics for 3 years

d. João[escreveu [o lixo que foi ignorado]]por 3 anos
[$_{AgrO}$ [$_{NumP}$lixo]$_i$ [$_{Agr}$ escreveu [$_{VP}$ ... que t_i foi ignorado]]]
João wrote the books that were ignored for 3 years

If NumP is a singular count noun (one book), the result is a terminative reading as exemplified in (10a). If the NumP is a plural with its quantity specified (10b), then the result is terminative. If the NumP is the plural noun (10c) or if the NumP is a mass noun (10d), a durative reading will obtain. The analysis then gives an account for the distinction between definite relatives with plural and with singular count nouns as heads. Only the former have no information about the quantity of the object.

Although I have focused on the durative readings of plural RCs, terminative readings are also possible, since (2b) can be modified by adverbials like *in X time*.

The terminative readings are to be expected if, in some cases, the RC left behind can act as an external boundary allowing terminative readings of the matrix VP, just like certain adverbials can create external boundaries. *For x time* adverbials, for example, provide an external boundary for a VP that is durative.

Since durative readings are the default, we can see that the terminative readings of the matrix VP are derived from the internal properties of the RCs. Verbs and aspectual choices within the RC play an important role. For example, the choice of the perfective in (11a) as opposed to the imperfective in (11b) within the RCs, makes durative readings harder to obtain, although not impossible.

(11) a. O Pedro [rasgou [os anúncios que a Maria colocou no jornal]] ?por 3 anos
The Pedro [tore [the ads that the Maria put-perf in the newspaper]] for 3 years
Pedro tore up the ads that Maria put in the newspaper for three years

b. O Pedro [rasgou [os anúncios que a Maria colocava no jornal]] por 3 anos
The Pedro [tore [the ads that the Maria put-IMP in the newspaper]] for 3 years
Pedro tore up the ads that Maria used put in the newspaper for three years

To treat the terminative readings of plurals with definite RCs as the result of using the RC as an external boundary is not an ad hoc explanation for the facts. It follows from the assumption that durative readings are the default. They can always be externally bounded. If we were to propose that the terminative reading in (11a) is the basic reading, as opposed to the durative readings created by the movement of *anúncios*

'ads' to AgrO, we would encounter a problem. Recall that adding a durational adverbial to a terminative predicate yields an iterative reading, but in (2b) or (11b) this is not the reading we obtain.

In sum: durative readings of RCs with plural heads are the result of the fact that a NumP with no cardinality information raises to AgrO. Terminative readings with the same plurals are the result of using the RC as an external boundary.

2.2 What can be the complement of a definite determiner

First it should be noted that not all nouns can appear as complements of a definite determiner. The examples in (12) illustrate this point and form the core of the arguments for RCs as complements of definite determiners. While a definite with certain idioms is impossible, a definite with a RC is perfectly possible. (a) and (b) give an example from Portuguese and (c) and (d) from English. (13) shows a similar effect with measure phrases.

(12) a. João fez corpo-mole.
João made body-soft.
'João pretended he was not there to participate in something.'

b. João fez *o corpo-mole / √ o corpo-mole que sempre fez
João made the body-soft / the body-soft that he always made

c. John made headway

d. John made *the headway / √ the headway we expected

(13) a. A Maria pesa quarenta e cinco quilos.
The Maria weighs forty-five kilos.

b. A Maria pesa *os quarenta e cinco quilos / os quarenta e cinco quilos que a Susana adoraria pesar.
The Maria weighs *the forty-five kilos / the forty-five kilos Susana would love to weigh.

The conclusion we can draw is that not all noun phrases can be complements of definite determiners. The data above also clearly implicate 'referentiality' as a requirement on licensing the definite determiner. Idioms and measure phrases are commonly taken to be non-referential, and consequently, they do not license a definite determiner as the (b) examples show.

We can make sense of the above by adopting Higginbotham's (1985) proposal that definite determiners enter a theta-binding relation with their complements. Nouns have an <R> element that will allow the definite and the noun to enter a theta-binding relation. In Minimalist terms we can implement theta binding as the following: theta binding is in fact the obligatory head-movement of a lexical category to incorporate into a functional head of its extended projection.[6] Thus in a simple DP as *the book, book* will move to D and the theta-binding relation will obtain. We can now distinguish the nouns in (12) and (13) from regular nouns in terms of presence or absence of <R>. In the restrictive RCs we have seen that C is able to license a definite determiner. This makes sense, because RCs have their own reference and therefore are able to provide the referential element that is required to license the definite determiner.

At this point we might ask why the NumP in a simple DP below cannot move leaving the determiner stranded and consequently allow a durative reading. The reason is very simple. If the noun does not raise to D, the D features are left unchecked and the result is uninterpretable since at LF there is a definite determiner that has not been theta

---

6 Thus only theta-marking is in fact a relation between a head an its complement. Theta-binding and theta identification are relations in the checking domain of a head.

bound. More generally it is impossible to move an XP whose head is part of an extended projection without carting together all of the extended projection, because there will be always something left behind unchecked. What I am saying implies that it is the N or the C that license the definite determiner and not the other way around. We can consider definite determiners as a marked option in the grammar. They need to be licensed by something that is "referential".[7]

2.3. The wrong and long adjectives: why not every modification on a DP instantiates DT

Consider the following paradigm:

(14) a. Maria escreveu o artigo errado por 3 anos/? em dois meses.
Maria wrote the wrong article #for years/ ?in two months.

b. Maria escreveu o artigo errado por 3 anos/? em dois meses.
Maria wrote the wrong books for years/ ?in two months.

(15) a. Maria escreveu o artigo comprido por 3 anos/ em dois meses.
Mary wrote the long article #for 3 years/ in two months.

b. Maria escreveu os artigos compridos por 3 anos/ em dois meses.
Mary wrote the difficult books #for years/ in two years

In (14a), where *book* is singular, a durative reading is unavailable. But in (14b), however, a durative reading is available in spite of the definite determiner. It seems then that the adjective is having an effect similar to the effect found with the RCs in the preceding section. This effect is clearly is not a mere product of modification since in (15b), is spite of the modification and the plural, a terminative reading of the predicate is again obligatory[8]. The contrast between (14) and (15) show that not all kinds of modifiers allow for DT effects. To account for the differences between the two classes of adjectives I will again use Higginbotham's (1985) proposal, adapted to minimalism, to formalize the distinction. *Errado* 'wrong' will be a head with an <R> which then theta-bind the D, while *comprido* 'long' will be an AP with no <R>, which will not be able to license a D. That 'wrong' has an <R> seems reasonable, since it is highly dependent on context: *the wrong book* is wrong for a certain circumstance in a way that is not true for *long* or *red.*

Besides the aspectual differences, there are two more differences between *long* and *wrong* and their Portuguese counterparts. First, *errado* and *wrong* must be further away from the noun. It is the right most in Portuguese and the left most in English.

(16) a. o artigo comprido errado
the-MASC.SG article-MASC.SG long.MASC.SG wrong.MASC.SG
b. *o artigo errado comprido
the-MASC.SG article-MASC.SG wrong.MASC.SG long.MASC.SG

The second difference is that, while *long* can appear in predicative constructions, *wrong* cannot with the intended reading, as in (17a, b) respectively. The only possible reading is that there is something wrong with the article; thus its acceptability with *estar,* the aspectual copula in Portuguese (and Spanish), illustrated in (17c) (see Schmitt 1992; 1996). With the intended meaning the only way *errado* 'wrong' can appear in

---

7 The conditions to license the definite determiner will be refined below.

8 If the adjective is used with contrastive focus, a durative reading is possible. Matters of focus are outside the scope of this paper, but it is likely that contrastively focused adjectives have a different syntax.

predicative position is if it is preceded by a definite determiner and, in English, a complement *one*, and in Brazilian Portuguese a null complement, as illustrated in (17d).

(17) a. o artigo é comprido
the article is long

b. #o artigo é errado
the article is wrong

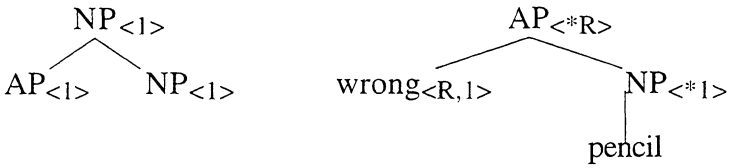
c. o artigo está errado
the article is wrong

d. este artigo é o errado
this article is the wrong (one)

The distinction among the two types of adjectives is on a par with Higginbotham's distinction between theta marking adjectives and adjectives that enter a theta identification with the nouns they modify.

Following Higginbotham (1985), it is possible to say that while *comprido* 'long' is adjoined to NP and enters a theta identification relation with the noun, as illustrated below, *errado* 'wrong' takes the noun as its complement and theta marks it. This will be almost all we need to establish the difference between the two types of adjectives. While the definite determiner is going to be part of the extended projection of the Determiner in (18a), this is not the case in (18b); such a possibility will allow us to obtain, in the second case, but not in the first, a configuration that is similar to the one proposed for relative clauses.

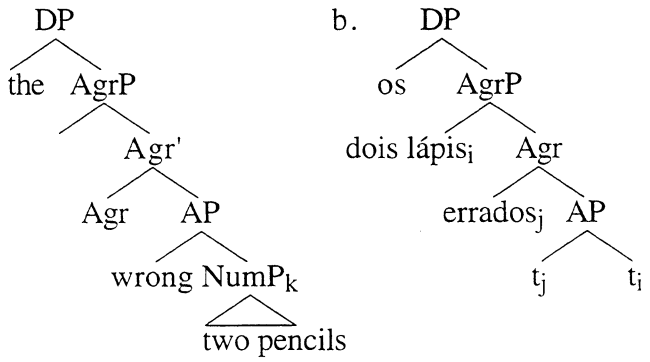
(18) a. long <1> b.wrong <R, 1>



We can safely assume that the complement of *wrong* is a NumP given the following examples from English. For English the full structure of *the wrong two blue pencils* is illustrated in (20a) and for Portuguese is illustrated in (20b) at Spell-Out.

(19) a. the wrong two journals
b. the wrong three old journals

(20) a. b.



The only difference is that movement to the specifier of the Agr is overt in Brazilian Portuguese but not in English, so that the right word-order will obtain.

(21) *as erradas duas revistas/ as duas revistas erradas
the wrong two journals/ the two journals wrong

At LF *wrong* will incorporate into the definite determiner and will enter a theta binding relation with the definite determiner. Now, being part of the extended projection of an adjective, the D+adjective will not need to check Case features. The NumP argument of *wrong* moves to check its case at AgrO. If the NumP is singular or if the NumP is plural with its quantity specified, only terminative readings will obtain. If the NumP is a bare plural or mass noun, the result is a durative predicate. In the latter case, *wrong* can only serve an external bound and force a terminative reading, if used in a contrastive form, in which case a discourse boundary can be provided for the sentence as illustrated below.

(22) a. O João tocou a sonata errada por 3 anos (only iterative reading)
The João played the wrong sonata for 3years

b. O João tocou as sonatas erradas por 3 anos
The João played the wrong sonatas for 3 years

c. O João tocou as duas sonatas erradas por 3 anos
(only iterative reading)
The João played the wrong two sonatas for 3 years

d. O João tocou a música errada por 3 anos
John played the wrong music for 3 years

Summarizing, the analysis I have presented here for the adjectives like *wrong* as opposed to *difficult*, *long*, etc. distinguishes the two classes of adjectives in terms of their theta properties. While the former theta marks a complement and can license a definite determiner, the latter are just modifiers.

2.4 Demonstratives

Based on the discussion above, we now extend the analysis to demonstratives, as in (23):

(23) a. O Pedro dirigiu aquele filme #por 3 anos
#Peter directed that movie for 3 years

b. O Pedro dirigiu aqueles filmes por 3 anos/ em 3 anos
Peter directed those movies for 3 years/ in 3 years

c. O Pedro dirigiu aqueles dois filmes #por 3 anos/ em dois anos
Peter directed those two movies #for 3 years/ in 2 years.

d. O Pedro dirigiu aquele lixo por 3 anos/ em 2 anos.
Peter directed that junk for 3 years/ in 2 years.

While (23a) allows only terminative readings, the plural with demonstratives allow durative and terminative readings (23b). Again, if the cardinality of the plural is specified (23c), the only possible reading is a terminative reading. Yet again if the noun is mass, as in (23d), a durative reading will be available.

Since demonstratives show DT effects, then demonstratives must also have an element with an <R>, which will allow the definite determiner to be bound and free the NumP to check Case on its own. There are some reasons to believe that to be the case.

Bennett (1978) argues that when we say *this house*, we are actually saying *the house here* and *that house* is *the house there*. Demonstratives require demonstration, typically a pointing that makes clear which place is intended. However, according to Bennett, only places can actually be demonstrated. *Here* and *there* are then the only true demonstrative pronouns. The noun *house* that accompanies *this house* is not the element that is providing reference for the DP. Rather it is the *here* i.e., the pointing (the demonstratum) that is providing the reference for it. This pointing can be an actual pointing, or it can be made explicit in the discourse by the addition of *here,* as in (24a); and *aqui* in Brazilian Portuguese (24b). Thus in a sense every demonstrative expression has its reference dependent on the context.

(24) a. This here man (Dialectal)
b. Esse homem aqui

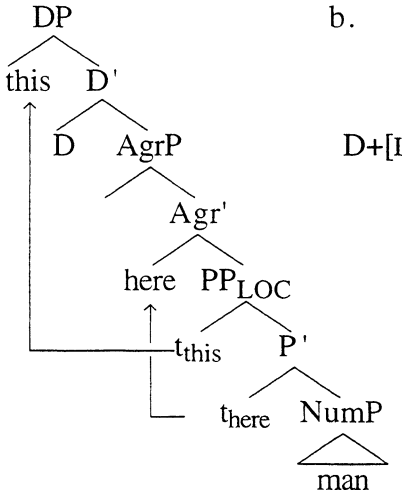
Also, discourse anaphora will provide a place for the pointing if there is no explicit *here*. Evidence for the complementarity between *here* and discourse anaphora comes from the fact that if *here* is present, discourse anaphora is not possible. This observation, due to Tasmowski-De Ryck 1990 for French is illustrated in (25) for English and Brazilian Portuguese. RCs can also provide the place for the pointing. In its restrictive reading, the RC cannot cooccur with *here* as illustrated in (26).

(25) a. Once upon a time there was *an ogre* that would only eat.... ...#*this here ogre* decided to change his diet
b. Era uma vez um ogre que só comia ...#esse/este ogre aqui decidiu mudar de dieta.

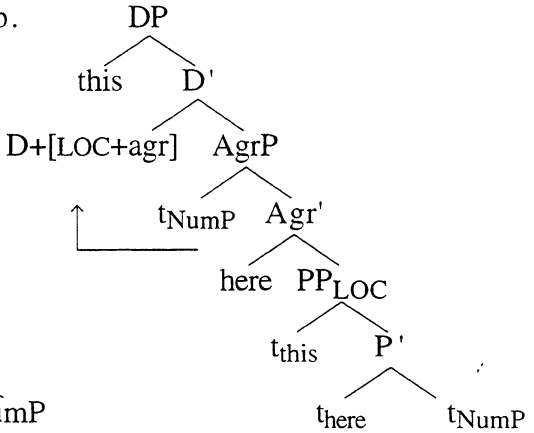
(26) a. ?*This here man we talked about (*restrictive reading)
b. *?Esse homem aqui que nós encontramos

The complementarity between the locative element and the RC and the similarities in aspectual interpretation, suggest that a structure like (27) is probably correct.

(27) a.



b.



In (27) the locative element can be an overt locative element or a null locative anaphoric pronominal element which I will notate for the discussion as LOC. The NumP *man* is generated as a complement of a locative phrase, which theta-marks it. The demonstrative, which I will take to be a DP (i.e. a pronoun) is generated in the specifier of the LOC head and raises then to check its D features with the D head where it will agree in proximity and phi features with the LOC+Agr complex. The structure at Spell-Out for (24a) is given in (27a) and the LF is given in (27b). The LOC head raises overtly at least to Agr and from there to D to license the D features of the demonstrative. The LOC+Agr enters a spec head agreement relation with the NumP, being able then to

check its phi features. At LF the NumP raises to AgrP to have the agreement features on the LOC+Agr complex checked and from there the NumP moves to AgrO to check case, probably through movement a spec AgrDP position. The structure will allow the demonstrative to agree with LOC in terms of proximity and with the NumP in number. The element that raises to AgrO is the NumP. If it is a count singular or a quantized plural, a terminative reading will arise. If it is a mass noun or a (bare) plural NumP, then the result is durative. The structure proposed captures the intuition that the noun phrase is not the demonstratum, since it is the LOC that raises to D and not the noun phrase. It also maintains the analysis of Szabolcsi (1994) and Uriagereka (1988) among others that demonstratives are modifiers in Spec DP, which would account for the lack of extractability out of Demonstrative phrases. Third it captures the agreement facts of demonstratives in English and Portuguese. Moreover it accounts for the parallel behavior of demonstrative phrases, adjectives like wrong and RCs with respect to the aspectual interpretations.

2.5 What is YP

The analysis proposed so far groups together bare plurals[9] and mass nouns in that both force durative readings in DT contexts or by themselves. Singular count nouns and plurals with specified quantities, on the other hand, force terminative readings in both cases. Since in English both mass nouns and plurals can be seen as names of kinds, it is possible to think that this alone would account for the durative readings in the RC, provided we adopt an analysis for relative clauses in which the determiner is not a constituent with the noun.

Under this reasoning, we might expect that in a language where bare singular count nouns (BSCN) can appear by themselves with a kind-like interpretation, singular count nouns as heads of relatives would also allow durative readings.

Brazilian Portuguese is a place to test this hypothesis since it allows bare plurals and BSCNs in argument positions. Bare plurals and BSCNs can, in general, appear in both subject position and object position. BSCNs, just like bare plurals and mass nouns, allow durative readings of the VP predicate, as illustrated in (28).

(28) Eu escrevi carta por muitos anos
I wrote letter for many years
'I wrote letters for many years'

Now consider again the case of RCs, shown in (29):

(29) Eu escrevi a carta que o Pedro queria #por muitos anos/ em cinco minutos
I wrote letter that Pedro wanted for many years/ in five minutes

Why do singular count nouns that are heads of RCs, for example, and bare count nouns in argument positions behave differently, but mass nouns and bare plurals behave alike for matters of aspectual interpretation? I will argue that the lack of durative readings in RCs with singular heads will follow from the fact that singular NumPs are interpreted as quantized. It must therefore be the case that a bare noun in an argument position is not a NumP, and I will devote the rest of the section to show that, in fact, argumental bare nouns are best analyzed as DPs with zero determiners that select for NPs rather than NumPs.

Suppose (for the moment without argument) that bare count nouns are either NPs or DPs without number information, and it is the lack of number that allows them to induce durative readings in argument positions. Now consider the following DP basic structure:

---

9 Bare plural is used here to mean plural heads not specified for quantity.

(30) a. $_{DP}$[the $_{NumP}$[[friends$_i$+Num] $_{NP}$ [t$_i$]]]
b. $_{DP}$[[friends$_i$+Num]$_j$ +the $_{NumP}$[[t$_j$] $_{NP}$ [t$_i$]]]

The N head raises to the NumP head (30a) and from there the complex head [friends+Num]$_{Num}$ raises to the definite determiner licensing it. However, because head raising is an adjunction process (see Chomsky 1993) what head-raises to D is not strictly N, but a Number projection. Thus, what is actually licensing the definite determiner is a combination of Number+N. It follows from this that N by itself cannot license a definite determiner. Suppose we generalize this to the other cases discussed above, i.e. C, LOC and *wrong* alone cannot license a definite determiner but must bear number features to do so, and in all of those cases it is a complex of a X+Number that is able to license a definite determiner. In the case of the RC, for example, since the C head itself does not bear number features, it must enter a specifier head agreement with a NumP in order to successfully license the definite determiner. This is mediated by the Agr projection above CP in the RC. Raising the NumP to Spec AgrP activates the Nominal features on the Agr, including Number, and the C+Agr that raises to D is therefore able to license the definite determiner.

Now suppose the head of the RC is an NP. As long as the NP does not have number features, it will not activate those features on the Agr and the C+Agr will not be able to license the definite determiner. The same argument will hold if the head of the RC is a DP with no number features. Note that it does *not* follow from this analysis that the head of every RC must be a NumP. Provided no definite determiner is to be licensed, then, in principle, no problem arises because number features are not required. RCs with BSCNs are perfectly acceptable and force a durative reading on the VP predicate when in complement position.

(31) Eu comprei caderno que estava em liquidação por muitos anos
I bought notebook that was on sale for many years

In sum, a bare NP with a RC cannot have an overt determiner because that will create a situation where the C+Agr complex lacks number features and only a C+Agr that has checked features against a NumP can license a definite determiner. We cannot have a DP with no Number features as the head of a RC that has an overt determiner for the same reason. Since bare plurals and bare mass nouns can be heads of definite RCs then they must be NumPs. The fact that their quantity is unspecified will produce durative readings.

I have presented an argument that the heads of definite RCs must be NumPs in order to license the definite determiner. In the rest of the section I will provide evidence for treating bare count nouns as DPs without NumPs in Brazilian Portuguese. The similarities between bare nouns, mass nouns and bare plurals in argument position will follow from the lack of overt quantity information.

In previous work (see Schmitt 1996) I have shown that BSCNs are not quantificational and behave in a par with bare plurals in most cases: i.e. they can acquire existential or generic readings depending on the predicates. The ability of bare nouns and bare plurals to behave as names of kinds was dependent on them being DPs with empty Ds.

BSCNs behave differently from bare plurals with respect to cross sentential anaphora. In such cases, a pronoun in either the singular form or the plural form can be anaphoric to the bare noun. Thus they seem to lack number information. Note that this is impossible if a bare plural or a mass noun are the subject, as illustrated in (32c,d):

(32) a. Tem criança na sala. E elas estão ouvindo.
There is child in the room. And they are listening.

b. Tem criança na sala. E ela está ouvindo.
There is child in the room. And she is listening.

c. Tem crianças na sala. E elas estão/ *ela está ouvindo.
There is child in the room. And they are/ *she is listening.

d. Tem leite no refrigerador. E (ele) vai estragar/ *(eles) vão estragar.
There is milk in the fridge. And it will spoil/ *they will spoil

BCSNs could therefore be simply bare NPs. However, the contrast in interpretation between coordinated objects with and without a definite determiner will provide an argument against treating them as such.

(33) a. Ele encontrou o amigo e parente no aeroporto.
He met the friend and relative at the airport.

b. Eu encontrei os amigos e parentes no aeroporto.
I met the friends and relatives at the airport.

c. Eu encontrei amigo e parente no aeroporto.
I met friend and relative at the airport
'I met friends and relatives at the airport.'

Examples such as (33a) with singular count nouns inside a DP allow an interpretation in which the referent of the NP is the same. *O amigo e parente* in (33a) can be interpreted as meaning the person who was both a friend and a relative. Crucially, this is not possible in the case of bare plurals or mass terms (33b). The fact that conjoined singular count nouns can be interpreted as having identity of reference lends support to the structure of *o amigo e parente* in which NPs are the elements being conjoined.[10]

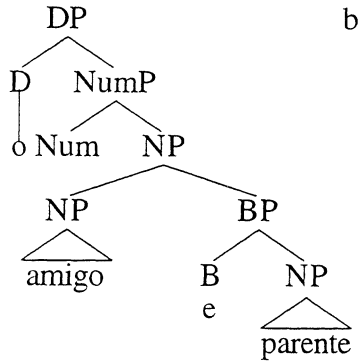
We can now use this fact to show that bare nouns in argument positions are DPs with no NumP rather than simply bare NPs.

Consider (33c). Here it is not necessary that the friend and the relative are the same person. The difference between (33a) and (33c) is the lack of an overt definite determiner.

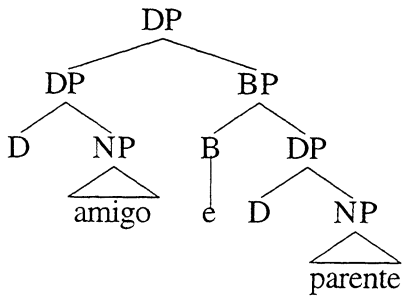
If bare nouns were simply NPs, we would expect (33c) to force the interpretation where I met those people who were both friends and relatives. Instead we interpret the two noun phrases as names of kinds. This fact provides us with evidence against the hypothesis that bare count are just NPs. However, given that we still interpret (33c) as having one or more friends and one or more relatives at the airport is evidence that we do not have a NumP in those cases. In those cases then we have two DPs being conjoined. The trees below are for (33a) and (33c), respectively:

[10] The fact that the determiner will always agree with the first conjunct follows from the fact that the D governs the first conjunct. I am assuming, that movement out of the first conjunct to license the D in (33a) is possible and does not violate the Coordinate Structure Constraint. See Munn 1993 and this issue for details.

(34) a.



b.



In sum, BCSNs force durative readings because they do not have number information. In definite relative clauses, however, singular count nouns must have number information to license the definite determiner. They will therefore induce terminative readings when they raise to AgrO to get case.

3 Conclusion

In this paper, I have presented a theory of Determiner Transparency that accounts for the aspectual properties of certain types of nominal complements. DT holds whenever an element other than a nominal is the complement of the definite determiner. I showed definite determiners are licensed by a combination of Higginbotham's <R> and Number features, and that elements such as relative clauses, adjectives such as *wrong*, and the locative part of a demonstrative can provide the <R> leaving the nominal element free from the determiner. On the assumption that all nominal elements need Case, the nominal of a DT construction in object position will raise by itself to AgrO. This movement, and the proposal that the VP aspect calculated at AgrO, accounts for the durative readings in DT configurations when the nominal element is a mass noun or unquantized plural.

I have focused on the aspectual implications of determiner transparency configurations, but it should be noted that the same phenomenon arises in secondary predicate configurations:

(35) a. John painted the car a nice color
b. *John painted the car the nice color
c. John painted the car the nice color that his girlfriend liked

Although a regular DP is unacceptable in (35b), a definite with a relative clause is again acceptable. This follows from the fact that in (35c) the NumP [nice color] is free from the definite determiner and can provide the indefinite that seems to be necessary for secondary predication to obtain. Notice that in this case we are not dealing with a distinction between plurals or singulars, so the effect of determiner transparency is more general. In fact in the literature it is common to find footnotes pointing out that a definite otherwise disallowed becomes acceptable if a relative clause is added. If the analysis I am proposing is on the right track, then these sorts of facts may have a much more principled explanation.

References

Bennett, Michael 1978. Demonstratives and indexicals in Montague grammars. *Synthese* 39.1-80.

Chomsky, Noam. 1993. A minimalist program for linguistic theory. *The view from Building 20*: essays in linguistics in honor of Sylvain Bromberger, ed. by Kenneth Hale and S.J. Keyser 1-52. Cambridge, MA: MIT Press.

Higginbotham, James. 1985. On semantics. *Linguistic Inquiry* 16. 547-593.

Kayne, Richard S. 1994. *The antisymmetry of syntax.* Cambridge, MA: MIT Press.

Kuroda, S.Y. 1968. English relativization and certain related problems. *Language* 44.244-266.

Munn, Alan. 1993. Topics in the syntax and semantics of coordinate structures. College Park, MD: University of Maryland dissertation.

Munn, Alan. 1994. A minimalist account of reconstruction asymmetries. *Proceedings of NELS 24*.397-410.

Munn, Alan. 1996. First Conjunct Agreement without government. (this volume)

Schmitt, Cristina. 1992. Ser and estar: a matter of aspect, *Proceedings of the NELS 22*.

Schmitt, Cristina. 1996. Aspect and the syntax of noun phrases. College Park, MD: University of Maryland dissertation.

Szabolcsi, Anna. 1983. The possessor that ran away from home. *The Linguistic Review* 3.89-102.

Tasmowski-De Ryck, Lorraine. 1990. Les démonstratifs français et roumains dans la phrase et dans le texte. *Langages* 25.82-99.

Uriagereka, Juan. 1988 On government. Doctoral dissertation, U. Connecticut, Storrs.

Vergnaud, Jean-Roger. 1985. *Dépendances et niveaux de répresentation en syntax.* Amsterdam: John Benjamins.

Verkuyl, Henk J. 1993. *A theory of aspectuality.* Cambridge: Cambridge University Press.

*Warps: Some Thoughts on Categorization**

Juan Uriagereka, Linguistics, University of Maryland

I. The Limits of a Derivational System

Uriagereka (forthcoming) tries to push some of Sam Epstein's ideas concerning derivations within the Minimalist system to a logical conclusion. The result of that paper suggests that we should go back to a traditional model, most thoroughly explored in the early seventies (a specific proposal exists in Jackendoff (1969)). The Minimalist version is slightly different, but the main point remains: LF and PF are accessed as the derivation proceeds. The question is what are these entities--LF and PF.

It is not clear that they exist as levels of representation, a notion borrowed from Concatenation Algebras. Since Chomsky (1955), Linguistic theory is taken to provide a (universal) array of these levels. Each is a system L based on a set of primes; the operation of concatenation (which forms strings of primes of arbitrary finite length) and an associated class of strings which is characteristic to L, or L-marker; and a mapping between various L-markers. For various reasons that I will not repeat now, these specific formal objects do not exist within Minimalism.

But how does this conclusion square with the first major premise of Minimalism, that a (virtually) conceptually necessary property of natural language sentences is their pairing intentional/conceptual structures with articulatory/perceptual ones? I have argued that one may adhere to this premise without being forced into having to admit levels of PF or LF. The key is to admit, instead, PF and LF components. This may seem like innocuous terminology; it is not. For if we have a level, we may dictate conditions on it; for example, standard Minimalism takes Full Interpretation to hold of PF and LF: derivations converge only if they meet certain specified requirements at the level. These conditions, then, are virtually defining the substantive character of linguistic objects--at the levels. If these go, there should not be any room left for derivations converging if they meet certain standards.

It is probably worth emphasizing this point. As things stand now, Minimalism offers two ways in which derivations may go wrong. One has just been described, and is called crashing. But apart from crashing, derivations may also be cancelled if they do not meet certain formal specifications. This situation appears more often than is perhaps realized. Imagine, for instance, a derivation that only uses part of a lexical array, but otherwise produces a perfect LF and PF.[1] What is wrong with that? How can we say that the derivation does not converge? Various other examples can be constructed. The point now is simple: what we may call the 'radical' Minimalist model that I have been exploring does not allow us to make the distinction between derivational crashing and cancellation; it can only admit the latter.

But then what are legitimate PF and LF objects? The conclusion is evident: if they are to be part of UG, PF and LF objects must be the inevitable results of derivations. While this is not necessarily hard to accept as a reasonable position to explore within the realm of PF, it looks a priori harder to accept as a claim about LF. Here is why:

---

[1] . For example, having the building blocks to say Socrates wondered whether the sophists were sane, but deciding to stop at the sophists were sane, a perfect (PF, LF) pair, albeit not one that corresponds to the relevant lexical array.

- LF would appear to be the place where such matters as reference, quantification, scopal and binding relations and perhaps others, are, if not established, at least partially determined.

- Indeed, LF would appear to be the place to check whether our predicates match our arguments, which presupposes a procedure to, if not establish, at least determine these notions enough for familiar thematic relations, and others, to allow for the relevant matchings.

- Possibly, LF might present the skeleton for a system of presupposition and entailment.

I am not going deny these important facts; I will however note that while the basic intuitions are moderately clear, that they should be expressed in terms of an LF level is less so, and may be where the facts turn into fiction.

I mean the last sentence more than stylistically. There is a very real sense in which language is about matching certain facts about the world (inside and outside ourselves) with certain fictions we create 'about' them. I do not know how well the fictions match, but we certainly use them; indeed are using them this very second. This is not controversial. What is controversial, though, is where the facts should be analyzed--indeed where more than how.

A majority of colleagues would still probably say that the basic facts are semantic in nature, syntax being reducible to semantics. This is clearly a coherent position to take, and if it is to be examined in light of naturalistic expectations, it would even be the one whose tenets are supported by the main stream of evolutionary biology, for which everything there is which is alive must have adapted.[2] Then one may say that semantics evolved for adaptive, communicative reasons, and syntax is at best a way of clearing up ambiguities, and at worst an effective way of theorizing in our path towards semantic understanding. In the limit, this is of course functionalism, and for reasons I have spoken about elsewhere (in particular, (1996)), I think wrong.

Another large chunk of the field would argue that the facts above are both syntactic and semantic. Suppose it is indeed true that radical Minimalism reduces to pure derivations. Then the syntax/semantic position must adhere to the claim that two separate competences exist, one semantic and one syntactic. Or if one believes that the semantic part is in simple correspondence with some articulate syntax, then two syntactic competences must exist: the derivational one, and a representational one that is responsible for irreducible formal conditions that are not expressible as transformations. It is in fact reasonable to say that Chomsky's practice in the Minimalist program, contrary to his rhetoric, is indeed of this latter type. Thus, he has no troubles in using licensing conditions for, in particular, an LF level, such as a thematic criterion, or the interpretability of specific features. These conditions differ from those without which a derivation may be argued to not be even one, such as restrictions on locality, last resortness, the uniformity and upward character of chains, and perhaps others.[3] Once

---

[2] . For various critiques of this position, see the popular works of Gould, Eldredge, Lewontin, and many others.

[3] . For a discussion on whether this is the correct interpretation of these conditions, see Uriagereka (1996:chapter 5).

again, this is the difference between converging as a derivation, and being one, to start with. If this intuitive distinction reflects something real, we plainly are speaking of two sorts of knowledge here--hence two sorts of competences. I am perfectly willing to embrace this position, and have until now. In this paper, however, I would like to explore a third, more radical possibility.

This third perspective asserts that the core facts above are a pure consequence of the derivational system. A version of this view seems to be close to Chomsky's rhetoric, if not his practice. In this view, derivational syntactic (henceforth, simply syntactic) knowledge interfaces directly with the articulatory/perceptual and intentional/conceptual mechanisms of performance. Simply put, if this view has any chances, it must have something to say about those properties above which, while not being plausibly semantic, play a role in the determination of possible LFs. I hasten to add that the view has little to say about a variety of phenomena that do not seem semantic at all--for instance, everything that does not involve command. This, then, leaves a 'no man's land' that one must worry about, and I have.[4] But I put this to the side now. The exercise I propose here takes this third intuition seriously and explores its consequences within a radically Minimalist model, with no levels.

Part of my previous work has attempted to show that some of the structural and relational properties of LF directly follow from what I have called a dynamically bifurcated model, with multiple Spell-out (see both Uriagereka (1996b) and (forthcoming)). For instance, command immediately appears this way, if Epstein is right in his initial premise that this notion follows from derivational Merger. Then no LF-principle needs to make reference to command, for this is all there is--or there could be. Until now, however, I have not had anything to say about the objects of LF (or PF, for that matter). Evidently, if we still need levels to define these objects--whether as labeled categories, role dependencies, chains, or whatever--we are still flirting with the standard notion. Consider, for instance, a @-criterion.

Such a criterion must be checked at LF--there is nowhere else to check it. It may seem that the matter can be taken care of transformationally, roughly in the same way that Case is checked; we could, for instance, assign a theta feature somewhere in the derivation, thereby meeting some requirement of the predicate or the argument. However, Chomsky has suggested that this is the wrong view, given the ungrammaticality of *John used t (which cannot mean that John used himself). If thematic relations were a matter of chains, why couldn't John simply move up to the subject of use, and there get its (second) role? Thus, we take thematic relations to be lexico-configurational, happening between words and their projections, and not between chains and their elements. Then why do we need a Theta criterion at all? The reason, Chomsky suggests, is empirical. The alternative, mentioned in Chomsky (1993), is the notion that @-dependencies are checked in performance (i.e., the semantics): the trivial reason use needs two arguments is because of its meaning. But this makes the prediction that two competing derivations, one violating, and one satisfying the Theta criterion, may in principle outrank one

---

[4] . For example, I am forced to assume that Weak Cross-over phenomena involve the Familiarity Condition (assuming hidden indefinites in all quantifiers that induce the effect). Likewise, I must rely heavily on Higginbotham's (1988) notion of 'context confinement', in order to speak of referential dependencies that do not obtain under command. And I basically have nothing to say about those instances of control that do not seem to occur under command, if these are not reducible to something else.

another, for they both converge--it is only in performance where they differ, in their intelligibility. However, Chomsky notes, this never happens.

The form of that argument is straightforward; however, it is hard to find actual examples that do not violate something else in the derivation. Consider, for instance, *John left vs. John left t, assuming the unaccusative hypothesis. We want the latter to be the correct structure, but we cannot reach this conclusion, since the alternative, in fact unintelligible derivation (for John is not receiving a role from left) outranks its counterpart, due to the fact that it involves no movement. Right? Well, except that the two derivations are not comparable to begin with, since at no point have they shared a partial numeration and did they have different alternatives at that point. The only examples that I know come even close to proving the point are pairs like *I believe t to be a new candidate about to knock on the door and I believe a new candidate to be t about to knock on the door. These two do share a partial numeration as the derivation proceeds, and one does make a more complex move--the good one (the movement of a new candidate). Therefore, if I in the first of these two is even allowed to move to subject position, the example should converge as gibberish, which is good enough to outrank the other. But even here, an alternative exists for the bad instance, as John Frampton points out: in the bad sentence, a new candidate does not get its Case features checked, and hence the derivation, in fact, crashes.[5] The point is, it may well be that the derivational apparatus takes care of the empirical problems that worry Chomsky, and we may then dispense with the @-criterion as a representational requirement on an LF component which, in any case, is really 'about chains', not configurations.

But that sort of reasoning would have to be applied elsewhere, to explain away potential representational conditions. The point above has been about the determination of saturation requirements, the very building blocks of syntactic structures and, ultimately, chains. These are the objects that, up to now, syntax constructs and LF filters. But note in this respect that we have considerably narrowed down the filtering effect. Chomsky (1993) still speaks of certain valid X'-theoretic structures which present linguistic stuff in a way which is recognizable to the computational system. That can only mean one thing. The good structures are recognizable by LF, the bad ones are not. However, an alternative exists: the derivation itself does not deal with the bad structures; to put the matter conspicuously, the derivation does not even construct the bad structures. This is precisely what happens with Chomsky's bare phrase-structure, whose output are the well-behaved objects of X'-theory, now deduced. And similar points arise with regards to the 'projection' of the targets of Merge and Movement, dumb moves yielding all sorts of impossible objects that cancel derivations (see Chomsky (1995:chapter four)).

The natural question then is whether everything else is like this. What else? We have started with projections, so why not ask the same question about categories themselves, functional categories like Comp and Tense, lexical categories like verb or noun, sub-categories among these, and so on. This is the stuff that syntax is made on, since Aristotle; the 'parts of speech'. An outsider to the field may well ask us how come central theoretical constructs have

---

[5] . Under the assumption, of course, that no other source of Case is available for the nominal. A possibility would be for the element to raise covertly to the object Case assignment position of the matrix verb, skipping the 'invisible' trace of the moved subject. For various technical reasons, this possibility may be ruled out as well.

lasted for so long. We may reply that the classics just had an approximate intuition of what nouns and verbs are, just as they had intuitions about atoms and all sorts of ur stuffs. However, we are not much better off than the classics, at least with regards to major lexical categories. We do have--these days anyway--literally dozens of intermediate categories. Perhaps too many, although we think they correspond to actual phenomena of the usual sort. Then again, our outsider might not be discouraged by our situation, and may even remind us that physics faced a very similar challenge in the first half of this century, with a notable inflation in the physics vocabulary for particles (at some point, numbers were added to the names). This did not lead to a crisis, though. It became apparent that researchers had to study families of particles, and then try a different level of analysis, within which each of these families cohered. Soon after, physicists postulated quarks.

The moral is simple; implementing it is not! At any rate, what follows can be seen precisely in this light. In a nutshell, I will be making a proposal whereby the computational system, the engine that powers all UG, literally creates everything syntactic. And I mean everything: interactions and basic objects. Of course, this will force me to go abstract in the level of analysis.

II. Hierarchies and Other Philosophical Matters

The attentive reader may have noted that I spoke, immediately above, of basic objects. I mean this in two different senses.

As Higginbotham has pointed out, Minimalism has an inductive character to it. Apart from some combinatorial apparatus, such a system crucially involves a basic clause of some sort, a step which is presupposed in any object generated by the syntax, no matter how complex. I will be interested in such basic clauses, which will correspond to certain basic objects. But then how could I even attempt to say that the system creates these basic objects? Aren't they what the definition is based on, and hence axiomatic in character?

What I have to say here, in a sense, proposes to have the cake and eat it too. Perhaps an intuition will help understand what I have in mind. Evidently, inductive definitions are not restricted to any specific sorts of objects. Thus, it is common to define the set of natural numbers in terms of some basic clause (for some the empty set, for others a unit object), plus some natural operation (for some, a successor function, for others addition). In turn, once the set of natural numbers is so defined, one could use it as the basic clause for defining some other set; for instance, the set of integers, introducing subtraction. And the set so defined can be used as the base for defining yet another set; and so on--it's basic sets all the way up. I would like to suggest that the structure just described, which I like to call a 'warp' sequence,[6]

---

[6] . I use the term (which is defined in passing in fn. 23) as an homage to the most interesting concept of the Star Trek series: the 'warp drive'. A 'warp' is a shortcut out of the ordinary space-time fabric--in the same way that a 'worm whole' is--allowing access to a reality which is not defined somewhere, presumably (and crucially) by way of using some clever resource which is partially defined there. It is not accidental that the Star Trek writers also talk about different 'levels of warping'. The key is that once you warp out of ordinary space, you may then warp out of extraordinary space, and then again out of extra-extraordinary space, and so on. The reader who has trouble understanding this intuition may want to read the very amusing Krauss (1995).

is intuitively grasped by humans, and is furthermore the underlying structure of syntactic types, which thus have a certain 'dimensionality' to them.

These are major words. In a sense, though, if taken separately, the major words are old news. First, the topic of mathematical intuition is explored elsewhere in the philosophical literature. Parsons (1980) says:

The properties and relations of mathematical objects that play a role inmathematical reasoning are those determined by the basic relations of some system or structure to which all the objects involved belong, such as the natural numbers, Euclidean or some other space, a given group, field, or other such structure, or the universe of sets or some model thereof. It seems that the properties and relations of mathematical objects about which there is a "fact of the matter" are either in some way expressible in terms of the basic relations of this structure or else are "external relations" which are independent of the choice of a system of objects to realize the structure (149-50).

Indeed, there is a whole branch of mathematics, Category Theory, that is concerned with the structures that allow these sorts of relations.[7] It is important to emphasize here, again in Parsons words, that 'what is really essential to mathematical objects is the relations constituting the structure to which they belong.' I would call these relations basic. This is the second use of the word; it is directly related to the first, if as it seems these relations are 'dimensional' in the sense exemplified above--each dimension constituting the base for defining the next.

Where I differ in perspective with Parsons is in what he makes of the mathematical fact now being raised:

We are taking as a gross fact about arithmetic, that a considerable body of arithmetical truths is known to us in some more direct way than is the case for the knowledge we acquire by empirical reasoning. And this knowledge takes the form of truths about certain objects--the natural numbers. What is more natural than the hypothesis that we have direct knowledge of these truths because the objects they are about are given to us in some direct way? The model we offer of this givenness is the manner in which a physical body is given to us in perception (p.152).

Of course, a more direct way would be that our minds are built that way.[8] However, Parsons explicitly rejects that possibility:

---

[7] . For a very useful introduction, see Barr and Wells (1995).

[8] . Actually, the two positions may be made indistinguishable if one considers that, in order to perceive, one must have a mind built a certain way. Parsons leaves me puzzled, however, with his comment that we 'naturally think of perception as at least sometimes uncorrupted by thinking' (p. 157). Maybe this is just terminology, but how can one perceive without thinking? Probably, Parsons means conscious thinking, which he may also have in mind when talking of mathematical intuition. It should be clear, though, that the kind of thinking I am talking about, as a Chomskyan, is unconscious--the sort relevant for linguistic intuition. Certainly, whatever I have to say here about mathematical intuition is meant in this sense. And it is from this perspective that perceiving in a certain way is to have a mind of a certain kind.

We are not thinking of the capabilities of the human organism, and it may be extraneous to think of this "construction" as an act of the mind [his underscore]. . . I do not want my argument to rest on the notion of a priori knowledge (p. 158-159).

From a certain perspective, the latter statement is reasonable. If one were just interested in a certain psychological object, the position would be termed behavioristic. However, Parsons is ready to concede that in 'some cases, such as natural language, the concepts involved may be innate (p. 162),' and thus it would be unfair to call him behaviorist. Nevertheless, if one is interested in such questions as 'knowing truths about types by a certain kind of perception of tokens, which are then valid for any tokens of the types involved (p.160),' and more generally the validity of reasoning which rests itself on mathematical structures, we cannot eagerly blame the structure of mathematics--granted, as we intuit it--on the structure of our minds. If we do that without any qualifications, we may fall into the most blatant relativism.

Yet, there is a twist, and the main reason why I think this paper may have philosophical consequences--even if wrong. Uriagereka (1996) has tried to argue that Minimalism makes a lot of sense as a theory of a certain chunk of the natural world. For evolutionary reasons (of the exaptive sort), or developmental reasons (of the epigenetic sort, at very elementary levels), or yet unknown reasons, the structure of Human language resembles that of complex chemical systems and--I have tried to show--the formal structures of certain feature plans, like the Fibonacci patterns in the animal and vegetable kingdoms. Suppose this view is right, and the central discrete infinitude, underspecified plasticity, and dynamic economy of the linguistic system match similar properties in the physical word, in the broadest sense of the word (I am purposely trying to avoid the term 'biological world', subject to the fortunes of life and history). Then it is no wonder that the system might have the basic structure of mathematics, at least not more than the fact that systems of wave functions presuppose, all, natural numbers, integers, rational numbers, real numbers, and complex numbers. Surprise about the fact in the case of the mind, and not quantum physics, seems parochial.[9]

The reader may have noted that, in the last few paragraphs, I have used interchangeably the terms 'mind' and 'language'. I should have been more accurate. The philosophical point just raised, of course, only extends to the part of the mind which is responsible for language, abut which we have tons of evidence concerning the three major characteristics above. Then the philosopher could still, correctly, criticize my reasoning: How do we know that the structures of mathematics, which you are so eagerly placing inside the mind, do not fall into that part of the phenomenon (mind) which is not so clean and physical (say, the reptilian brain)? If so, relativism still looms threatening. And then of course I am forced into a position which I am happy to accept, and Chomsky has advocated: It is a linguistic mind that is capable of mathematical intuition (so much for the reptilian brain). Now the argument is complete: claiming that mathematical structures set up the dimensionality of the mind leads to no more relativism than claiming that they set up the dimensionality of the time-space fabric. Granted, we do not know what this means, but this is so in both instances.

---

[9] . The comment may remind the reader of certain speculations of Penrose's, concerning the quantum nature of thought. I have nothing to say about such a claim, which I do not understand. The point here is much more modest: from the present perspective, it need not surprise us that the 'warp' structures of use for quantum fields (translation: the need for expressions presupposing the familiar number system) would show up in language.

Coming back to how all of this might affect the linguist, here is the net result: if the basic structures of mathematical types are the basic structures of linguistic types, every time we talk about nouns, verbs, or about mass terms, states, and so on and so forth, and we mean this talk in a primitive sense, we really are using, to borrow Parsons terms '"external relations" which are independent of the choice of a system of objects to realize the [basic] structure.' In a very real sense, we are doing semantics, or as Higginbotham would put it, 'lexicography'--not syntax/mathematics.

I think lexicography is irrelevant to what concerns me here, which is the properties of the basic objects that enter a syntactic computation, and make it to interpretation. It should be as irrelevant as whether a verb starts with a consonant or has no secondary stress. Of course, nobody would deny this; however, many of us--these days anyway--are looking at the inner structure of such things as Aktionsart, noun systems, and a host of grammatical/functional systems (seventeen in the latest count). Every time we decide to place an Aspect Phrase below or above a Tense Phrase, and so on, we are making a decision which is either lexicographic--hence ungranted, for the syntax--or else should not have been made on those substantive terms, even if right.

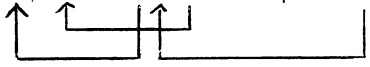
What I want to propose here is a way of rationalizing those decisions (whose empirical validity, for the most part, I have no qualms with) in terms of the dimensionality of basic structures. To go on with the number intuition (nothing but a different instantiation of the same basic structure), I will be talking about relations among noun classes, functional categories, and the like, in much the same way that one would talk about relations among sets of numbers of different orders of complexity. If this exercise is correct, it should give us a rationale for why some familiar linguistic structures are hierarchical: verbal/nominal classifications, thematic expressions, auxiliary selection, and so forth. The proposal should also give us a basic structure for lexical entailments and robust presuppositions (as opposed to conversational implicatures), for the same reason that number theory allows us to run entailments concerning the layered structure of number sets.

III. Some Syntactic Background

In the early eighties, Anna Szabolcsi made an interesting proposal concerning the articulated nature of possessive NPs in Hungarian. Kayne (1994) recasts this proposal in current terms, and adapts it to other languages, showing its depth and scope. I am not going to review now either Szabolcsi's or Kayne's arguments for their possessive structure, but I do want to summarize the main point that concerns us here, regarding structures like (1):

(1) a. John has a sister

b. [SP be [$_{DP}$ SP D^0 [[$_{DPposs}$ John] AGR^0 a sister]]]

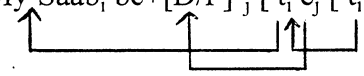


To obtain the surface order in (1a), the possessor John raises to the specifier (SP) position before be through SP D^0 and the D^0, which Kayne suggests is in some sense prepositional,

incorporates into be. The incorporated expression be+P surfaces as have, in the spirit of early work by Benveniste.

Hornstein, Rosen, and Uriagereka (1995) (henceforth HRU) suggest a small improvement for a structure like (1), for empirical reasons concerning part-whole expressions, as in my Saab has a Ford T engine. Given the structure in (1), this sentence would have to be analyzed as in (2a):

(2) a. [SP be [$_{DP}$ SP [D/P]^0 [[$_{DPposs}$ my Saab] AGR^0 a Ford T engine]]]
b. [My Saab$_i$ be+[D/P]^0_j [t$_i$ e$_j$ [t$_i$ AGR^0 a Ford T engine]]]

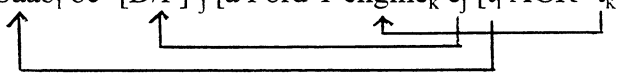


While this poses no particular problem, it prevents us from capturing an obvious paraphrase of (2): There is a Ford T engine in my Saab. HRU show that, indeed, this sentence should be derived from the same structural source as my Saab has a Ford T engine does, which poses an immediate question: Where do we fit the in? In order to respect the leading idea behind the Kayne/Szabolcsi analysis, the correct source structure should be something like (3), which incidentally redeems the intuition that the D^0 is somehow prepositional:

(3) [SP be [$_{DP}$ SP in [[$_{DPposs}$ my Saab] AGR^0 a Ford T engine]]]

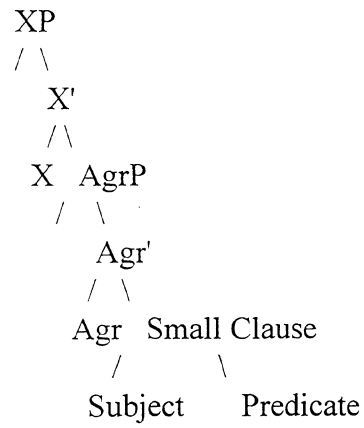
But given (3), we must alter the details of the derivations. To obtain the surface order we must raise the predicate a Ford T engine to the SP of in and insert there in the matrix SP position. By the same token, (2) should be reanalyzed:

(4) a. [SP be [$_{DP}$ SP [D/P]^0 [[$_{DPposs}$ my Saab] AGR^0 a Ford T engine]]]
b. [my Saab$_i$ be+[D/P]^0_j [a Ford T engine$_k$ e$_j$ [t$_i$ AGR^0 t$_k$]



For mostly conceptual reasons, HRU also assume that the element in the SP of AGR is not base-generated there, but actually reaches this position in the course of the derivation, in order to fulfill some checking. Then, the complete, basic structure that the HRU proposal involves is (5). I use the notation X, instead of D/P, in order not to confuse the issue of what it is to have a category which can be either a determiner and a preposition.

(5)

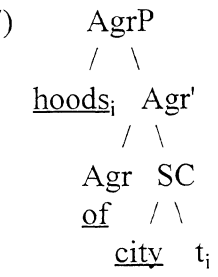


A powerful argument, I think, that the conceptual move in (5) is justified is provided by the paradigm in (6):

(6) a. There are very poor neighborhoods in the city.
b. The city has very poor neighborhoods.
c. The poor neighborhoods of the city.
d. The city's poor neighborhoods.
e. A city of poor neighborhoods.
f. *(A/the) Poor neighborhoods' city (cf. a poor-neighborhood-city).

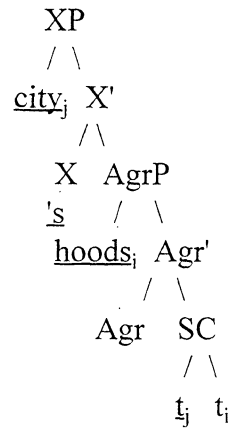
Observe, given (6a-b), that the relation (city, neighborhood) is of the same sort we saw above for (car, engine); let us call it integral. Now witness what happens when considering the basic structure in (5) alone, without the matrix verb. Let us assume, following and adapting a proposal by Kayne, that the preposition or Case marker of is a realization of AGR, when some lexical material follows it. If so, in (6c) the city could not have left the small clause, while the poor neighborhoods must be at least as high as the SP of AGR:

(7)



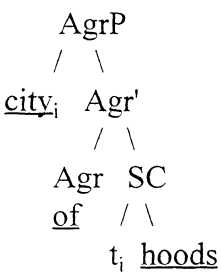
In turn, (6d) must involve movement of the city to the SP of X, taking 's to be the lexical realization of this element and abstracting away from definiteness:

(8)



Surprisingly, but following the same reasoning, (6e) must be analyzed as in (9), with a city now having moved to AGR, and poor neighborhoods staying put:

(9)



The conclusion is then very interesting: whatever has moved to the checking domain of AGR determines the reference of the whole expression.

There are two arguments for this. The first one concerns the fact that, regardless of the ultimate reference of the expressions in (6), they all express an integral relation (city, neighborhood). The present system expresses the fact in terms of a small clause, of which 'city' is in some pre-theoretical sense the subject, and 'hoods' is the predicate.

Traditionally, it was taken to be the case that parts of wholes and similar integrals are intrinsically relational. Obviously, there is no neighborhood without a city that this neighborhood is a part of. So suppose we represent the relevant notion as something like hood(x,y). Now what's the difference between Washington is several neighborhoods and Washington has several neighborhoods? Both are existential, but whereas the first quantifies over some city which is so-and-so (endowed with several neighborhoods, just as it is endowed with the Capitol and the White House), the second quantifies over several neighborhoods; it asserts, as it were, that there are several neighborhoods whose city Washington is.[10] The main traditional intuition is that these two possibilities are intrinsic to words like neighborhood, and all that be and have do is highlight one construction or the other.

But the first result of HRU is that this cannot be totally right, for the sentence there are several neighborhoods in Washington expresses an existential quantification over

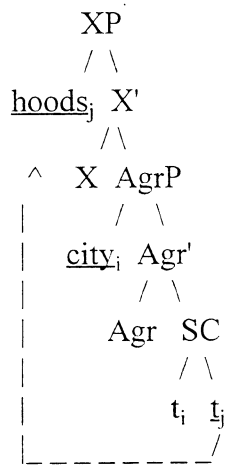
[10] . Keenan (1987) has a very illuminating discussion of these topics, and an analysis of the sort I am about to mention.

neighborhoods as much as Washington has several neighborhoods does. That is, specifically, have is not at issue. What is appears to be more subtle, if the syntax above is on the right track.

The second result of HRU is to emphasize that the phenomenon is considerably more pervasive than it looks at first. Everything that has parts or is a part of something will appear in these constructions. Then it is hard to see what does not count... Even proper names allow us such statements as The Royal Family will always have Charles.[11] The alternative to making Charles relational is to push the relation into the syntax, as we have.

The second argument for the present view is syntactic. One thing is to say that two constructions manifest two quantifications concerning a relational noun; quite a different thing is to show how this is achieved. All of the expressions that concern us now make use, apart from different bes and haves, of elements like of or the genitive 's, which fits nicely in the Kayne/ Szabolcsi picture presented thus far. Furthermore, recall the ungrammatical (6f), which would have to be analyzed, in the present terms, as in (10):

(10)



Here, the movement of 'hoods' all the way up, over 'city' (which by hypothesis must be in the checking domain of AGR, where it determines reference) clearly violates the Minimal Link Condition; it is 'too far away'. While we thus predict the ungrammaticality of (6f) with the analysis in (10), the standard analysis cannot account for the facts. Traditionally, it is the 'head' of the construction that provides its reference. From this point of view, the head of (6c/d) must be neighborhood, whereas the head of (6e) must be city, and the lexico-semantic relations between these elements must be expressed in their lexical make-up. But the only way in which the lexical structure could fall into the MLC is if the syntax is essentially as in (10).

The interesting consequence of our proposal is that the referentiality of a basic structure--when it comes down to interpretation--is determined in terms of something other than the intrinsic lexical properties of the elements in the structure. Just because city and

---

[11] . It may be thought that this is a different kind of have, but I am not convinced. In any case, in many Romance languages (e.g., Galician) it is perfectly appropriate to say such things as this:

(i) Na Familia Real hai Isabel, hai Carlos, hai Diana, hay moita xente.
'In the Royal Family, there's Elizabeth, there's Charles, there's Diana, there's many people.'

neighborhood are involved in a relation of a certain sort in these expressions, we cannot immediately determine whether we are talking about a neighborhood or we are talking about a city. The way to determine that, syntactically, is in terms of what has moved to AGR. We thus remove part of the mystique of reference from the lexicon, making this central notion a consequence of a syntactic process. Of course, we still have a substantive residue: to assume the Minimalist machinery, there must be a feature that is checked in AGR, which is presumably added at the point of lexical selection into the array that determines the syntactic derivation (a numeration); AGR attracts this feature, which must mean that, substantively, AGR is something like a referentiality site.

I must emphasize that what we have reached is an important conclusion, independently of the issues that concern me here. This is because the sort of structure that Szabolcsi and Kayne pursue faces an obvious difficulty in structures involving possessor raising, like the Spanish (11):

(11) Le corte la cabeza al pollo.
to-him/her cut-I the head to-the chicken
'I cut the chicken's head.'

The sort of structure we have considered takes a chicken and a head to stand in some sort of integral relation, where the head is a part of the chicken. However, while the syntactic expression of this relation yields all the results that HRU present, it is not less obvious that what the speaker takes himself to be doing in (11) is cutting a chicken's head, not a relation! In other words, the argument of the main verb cannot be a relation; it is a chicken, however we get that to happen. The proposal I have sketched provides a way.

One second thing to emphasize is that my conclusions would look very odd as corresponding to a semantic model like Montague grammar. There, all the notions of interest now are coded as semantic types, which are ultimately responsible for breaking down what in a sentence is referential and what is not, and how the different parts combine. It does not make a whole lot of sense to postulate a category (or corresponding feature) whose sole content is 'reference', for the Montague grammarian takes reference to be a property of a certain type. Indeed, the events that follow will emphasize this conclusion.

In contrast, the ideas presented so far are naturally interpreted in the Neo-Davidsonian program, if we think of the two elements that relate through the small clause as satisfying roles of some sort. Until we give content to these roles, let us just call them T1 and T2. Then, the nominal expressions in (6) will have the simple, rough semantics in (12):

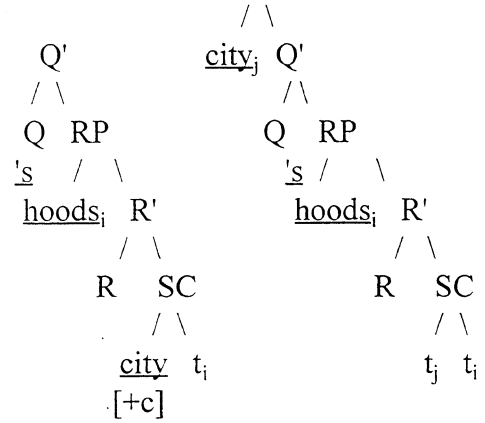
(12) a. Thee [hood(e) & T1(city,e) & T2(hood,e)] ...
(The poor neighborhoods of the city, the city's poor neighborhoods)
b. Ee [city(e) & T1(city,e) & T2(hood,e)] ...
(A city of poor neighborhoods)

Note that whereas the reference is different in each of these instances (depending on what is predicated of the variable e), the thematic roles are the same, thus capturing the integral relation between city and neighborhood, whatever that relation turns out to be. The

corresponding syntax is simple. For the sake of mnemonics, we may think of AGR in (10) as a R(eferential) head, and may so label it; correspondingly, we may postulate an [+r] feature that is added in the numeration and is checked in the checking domain of R, via movement. Of course, this is the familiar practice from the literature on functional ghosts, but bear with me for a moment; we will soon go deeper.

We must also distinguish the poor neighborhoods of the city from the city's poor neighborhoods. One possible way of deciding on how these two differ is in terms of the substantive nature of the X element in (10), which Kayne felt had a status as either a P or a D. I suggest we treat this element as a two-place relation, which can be lexicalized either as a determiner (a two-place relation if the lexical basis for a generalized quantifier) or a preposition like in (also a two-place expression). This would have one extra advantage. In those instances in which X expresses a quantificational relation (henceforth represented as Q, even if may also be lexicalized as a preposition), we can invoke the fact, stressed in Higginbotham (1988), that this sort of element must introduce a context variable C, given that human quantification is contextually restricted. Then, it would be natural to suggest that whatever moves to the SP of Q has a contextual character. In particular, we may take speakers to confine the range of whatever quantification Q invokes in terms of the element C that moves to this SP:

(13) a.



b.

c. [Thee: C(e) & hood(e) & T1(city,e) & T2(hood,e)] ...
Where the speaker confines the range of C to city

Note that the logical form in (13c) includes the context variable C, predicated of e. Whatever is placed in the syntax in a position to have to move to the SP of Q, for reasons that I return to, ends up being taken by the speaker as the element that anchors the context of the QP. This allows us to distinguish the city's neighborhoods from the neighborhoods of the city. In the latter, either no element has moved to the spec of Q (hence the contextual specification of the expression is open), or alternatively 'hoods' does. I do not know which of these options is best, but it does not matter for my purposes.

What counts is that we now have a complete syntax for the Kayne/Szabolcsi expressions, and furthermore we have a neo-Davidsonian semantics for them. In what follows, I plan to suggest that all syntactic structures reduce to these basic structures. In other words,

rather than having various categories with different labels, including multiple functional categories, I will suggest that what we encounter are recursions of the basic structures, as follows:

(14) [X^0 [R^0 [$_{SC}$[R^0 [$_{SC}$[R^0 [$_{SC}$...]]...]]...]]]

For this to make any sense, though, we must understand several things. First, what is the recursion in (14) based on? Second, what is the exact nature of the elements that enter into the small clause? Third, what is the substantive character of the R's in these basic structures? I would like to suggest that all of these questions are related.

IV. In and Out of Space

Let us suppose that what we usually refer to as the 'subject' of the small clause denotes a mental space with a dimensionality nD. Furthermore, let the 'predicate' of the small clause denote nothing other than what I have called a warp in that space at nD. If so, by the mere application of the warp to the space, we will force this space into an n+1 dimensionality. For example, in the instance discussed in (13), city would define a given nD space, and hood would define a warp to this space. By applying hood to city, we obtain a space at a new dimension n+1. Theoretically, we could then work within this space in terms of a warp for n+1D spaces, and so on.

There is every temptation to take the semantic value of the word neighborhood to be what relates to the semantic value of the word city. Whatever a 'neighborhooded' city is (some partition, say) is that because of properties of cities and neighborhoods; yet I am not saying anything of the sort. That would be like saying that when we divide two Spanish omelettes between four diners, it is a relation between omelettes and diners that is at stake. Surely there is one such relation, but it is irrelevant at the level that interests us. What we want to understand is what relation exists between two and four in terms of divisions, whether it is expressed through omelettes and diners, fortunes and inheritors, or whatever. To use Parson's term, these substantive relations are external, independent of the structure.

Of course nobody denies that, at least in the case of arithmetical operations; but I am actually extending the claim to lexical semantics, and indeed making a non-obvious move. Bluntly put, I am claiming that there is something crucial to the syntax of a part-whole relation, in making it a part-whole relation. You may not know what a zaptrack or a gropstench is, but if I talk of 'the zaptrack's gropstench', 'the gropstench in or of the zapstrack', 'a zapstrack of remarkable gropstenches', you will know that zaptracks and gropstenches stand in some sort of integral relation. The syntax tells you that. Of course, the syntax corresponds to a neo-Davidsonian semantics, where the T1 role above is now interpreted as a primitive space, and the T2 role as a primitive warp in that space. This is no more or less motivated than it is to call a role an 'agent', a 'theme', and so forth. In fact, I could have called T1 a 'whole' and T2 a 'part'. But that would be the mistake I am trying to avoid, making the relation substantive again. The real linguistic point of this article is the claim that a whole is to a part as a mass is to a measure, and so forth; just as the set of rational numbers is to division as the set of natural numbers is to subtraction: both operations warp you out of that domain, and cannot be fully defined there. The only difference between all of these is dimensional: the same process is happening at

different orders of complexity. If I am right, it is a syntactic tool that allows us to code these layered orders and their relations.

I will then write an expression like (13c) as in (15), where S stands for 'space' and W for 'warp':

(15) [Thee: C(e) & hood(e) & S(city,e) & W(hood,e)] ...
Where the speaker confines the range of C to city

(15) is homomorphic (and perhaps even isomorphic) with the corresponding syntactic structure, as discussed above.

Next, let me present the 'Aristotelian' use that Keiko Moromatsu has made of this system, which I believe will help us understand some of its more technical aspects. Muromatsu (1995) argues that nouns classes are naturally expressed in terms of the dimensional structures I have sketched. She substantively interprets the 1D dimension as expressing concepts (her qualia), the 2D dimension as expressing substance (her quanta), the 3D dimension as expressing form (her forma), and the 4D dimension as expressing change.

A few interesting properties that Muromatsu can predict include the following. Natural languages distinguish abstract and concrete, mass and count, animate and inanimate nouns, and others. Traditionally, this has been expressed in terms of binary parameters [+/-concrete], [+/-count], [+/-animate]. These parameters predict 2n possible noun phrases, for n the total number of parameters. However, less combinations exist. For example, one can imagine an animate expression which is a mass term (a lake, given traditional mythology) or an abstract expression that is countable (for example, a number); curiously though, human languages do not use specific morphemes to codify the properties of any of these. That is, a typical noun classifier tells us, essentially, that a given noun is of a certain countable sort, provided that it has a mass and a conceptual support. Thus, there are no noun classifiers which are specific to numbers, or alphabet symbols, or some such thing, even if these are obviously countable. Likewise, a typical measure element tells us that a given noun is of a certain measurable, mass sort, provided that it is seen as mere 'stuff'. That is, when I say 'here's a bucket of chicken for you', I cannot use that expression to mean that I am passing a living chicken on a bucket.[12]

The point is very simple: there are some obvious lexical entailments related to the nature of noun-classes, in such a way that if N is a grammatically animate noun, then N is also count, and so on. We can of course code these entailments through meaning postulates in the obvious way. However, if Muromatsu's classification is correct, the entailments directly follow from the way in which each dimension embeds into the next. Thus, for instance, all grammatically animate nouns have to be countable, all grammatically countable nouns have to have a substance, and so on.

---

[12] . The reader may think that this has to do with the nature of reality, but this is far from obvious. A large octopus, for instance, fits naturally into a bucket, and in fact possibly two separate buckets if the animal is very large. Nevertheless, passing two buckets containing each four legs and part of the body of a live, whole octopus does not accord well with the expression 'here's two buckets of octopus for you.' Typically, that expression would be used to refer to the octopus stuff, cut into pieces and deprived of life.

Second, given the hierarchy qualia > quanta > forma > ..., we should only start seeing systematic grammatical markings at the 2D quanta level. The reason for this has to do with the suggestion made on section II that nD warps to n+1D. This tells us that no warps are needed to stay within 1D. If so (and assuming Muromatsu's specific proposals), nouns used in a 'conceptual' fashion should not need to be accompanied by any grammatical mark of warping. This arguably relates to otherwise tricky notions, like the prototypical the lion or the generic a lion. These expressions pose two related problems.

One is grammatical: they lack significant markings, at best taking default gender or number. The other problem is semantic: How do they get to mean what they mean? The two problems are addressed as the same one if we take these sorts of expressions to be dimensionally trivial. What this means semantically is that the expressions do not denote things, or even entities whose presence is substantive; they are not reified or even concretized, which seems to accord with their meaning. The syntactic consequence is equally straightforward: they need not (hence cannot, given Minimalism) involve small clauses. Thus, as it were, in the lion or a lion what you see is what you get. If this does not get to denote a concrete lion or a set of lions (in relevant readings), this is because at 1D there are no things in the semantic model.

An important clarification is in order here. The reader is explicitly warned against any temptation to interpret the 1D lion as a set of lions, or--worse still--some such set in all possible counterfactuals. To insist, we have not built in the formal apparatus needed for things yet, hence could not have lions, which are at least things. In fact, what I am trying to say is that the whole question is ill-conceived in those terms, and thus it is pointless to argue whether it is best to talk about these or the other categorial constructs. At 1D, in the present model, the only categorial construct is raw space itself, with no strings attached even to a substance, let alone the sort of organized substance involved in a thing.

Third, Muromatsu's analysis has very interesting consequences for the syntax of classifiers, measure phrases, and the like. Specifically, Greenberg (1977) tells us that out of the six possible combinations of nouns, classifiers, and quantifiers, we only obtain four, and only two of those are possible in any given language:

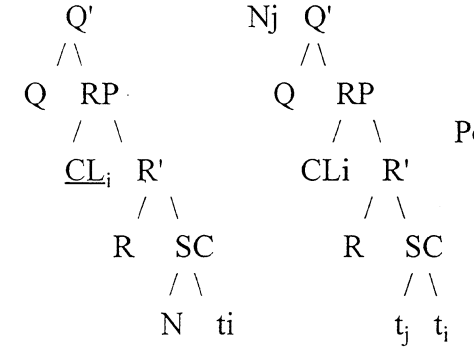
(16)

Possibility A	Possibility B	Impossible
Q CL N	CL Q N	*CL N Q
N Q CL	N CL Q	*Q N CL

Observe that, as Greenberg notes, the relative order {Q, CL} never changes in the possible structures, within given languages. In turn the sequences <Q, CL> or <CL, Q> appear either before or after N, in each type of language.

A natural analysis of these facts in Muromatsu's terms is as follows:

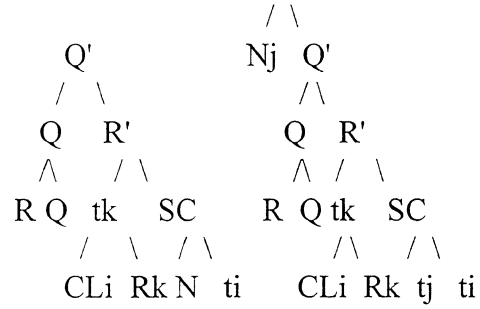
(17) a.



b.

Possibility A (cf. (13))

a.



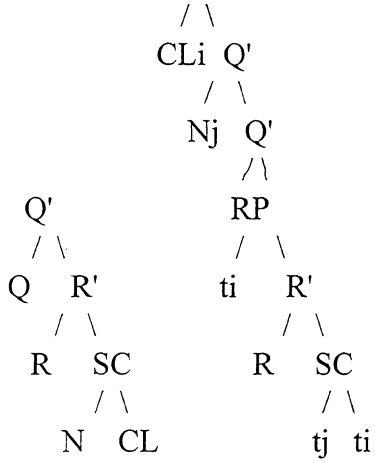
b.

Possibility B

Note that in all instances CL moves to the checking domain of R, and in that sense is what determines the reference of the classified expression. The classifier is, as it were, the reifier that turns the 2D substance into a countable expression which the quantifier can then take as one of its arguments. The main difference between Possibility A and Possibility B is simply whether the classifier is behaving as a maximal projection--in which case it moves to the SP of R--or as a head--in which case it adjoins to the head R. This is not surprising: each possibility is contemplated by universal grammar. In turn, observe that internal to the two types of languages that we have, N may or may not raise to Q, presumably for the same reasons that other categories may, as we saw above--to confine the contextual specifications.

The ungrammatical combinations can now be analyzed as in (18):

(18) a.



b.

Although Q N CL corresponds to the base structure in (18a), this particular structure is cancelled in the course of the derivation, since CL has not moved to the checking domain of R. This directly suggests that--at least in classifier languages--there is a strong feature in R attracting the interpretable [+r] feature that elements moving to R are given in the numeration.[13] In that way, a derivation that proceeds as in (18a) is simply cancelled, and does not go beyond the R projection.[14] In turn, The CL N Q ordering can only be obtained by moving CL and N to the checking domain of Q. However, there is no way of producing this movement in satisfaction of the Last Resort Condition of Chomsky (1995); doing it leads to another cancellation.

I think this last consequence is very important for the very same reasons that I gave in the previous section for the HRU analysis of integral relations. I know of no alternative explanation for Greenberg's generalizations.

Equally important, I believe, are the implication facts. The only alternative that I know of to the analysis above is in terms of meaning postulates. But these are merely observational devices; after all, why is there no meaning postulate stating that all ghosts are immaterial, which can be then coded by way of a classifier blah? The point has been: blah does not exist, although it could have if meaning postulates were for real. So something is missing, and the dimensional approach tells us what: you cannot have an individual without substance. This is not a fact about the world; we are told that muons are 'things' without mass, for instance. It is rather a fact about cognition; it makes as much sense to look for a classifier for a ghost, a number, a letter, or similar abstractions, as it does to look for the negative sign of 1 or the decimals of -2, or the i of 2/3. These are just category mistakes. In the case of numbers, this is so by definition. In the case of linguistic concepts, it seems to be so by nature.

---

[13] . Within the system that I am pursuing not checking a feature should lead to a cancellation, since there is no meaningful notion of crashing at LF. Then I cannot distinguish between checking prior to and after Spell-out, which must mean that all movement proceeds prior to this point. This is very much in the spirit of ideas in Brody (1995), although from a derivational perspective.

[14] . The sequence Q N CL could also be obtained in crazier ways, for instance moving CL to R first, and then subsequently moving N; this, though, will directly violate the derivational Last Resort Condition.

Perhaps this should be insisted on. It may be thought that Muromatsu's implications follow from the interpretation that she has given to 1D, 2D, and so forth. But this would be an error. Muromatsu may be right or wrong in thinking that 1D, in Human language, is used to denote certain abstractions, and 2D is used to denote masses, and so forth. Even if she were wrong about the correspondences, the implications would remain within the structures. To use an analogy, what she has done amounts to something like this: humans associate the structure of natural numbers to abstractions, the structure of integers to mass terms, the structure of rational numbers to things, and the structure of complex numbers to stages of things. This is no different from saying that the spin of a boson is expressed through an integer, and that of a fermion with a fraction, and so on. At any rate, suppose either of these empirical claims were wrong, and masses should be expressed through complex numbers or spins through imaginary numbers; it does not cease to be the case that rational numbers involve a system which presupposes integers, etc. The reason I think Muromatsu is right is not because of introspection (I do not have any insight into whether abstract terms should correspond to the structure of natural numbers). She may be right because the predictions she makes about entailments seem to accord with how human language works--for instance, in terms of licensing certain classifiers, and not others. In a similar way, we take the claim about spins to be right if it correctly predict that two fermions should not be in the same place at once, or whatever. There are no common sense intuitions to help us here, but simply the internal coherence of a system.

There is one other sense in which any simple-minded alternative to Muromatsu's view leads to some immediate embarrasments. Take the fact that one can say in Spanish and other Romance languages things like (19a), which is different from (19b):

(19) a. En donde yo naci hay mucho torero
'Where I was born there is much bullfighter' (sic).
b. En donde yo naci hay muchos toreros
'Where I was born there are many bullfighters.'

The latter has the standard meaning; the former is much more interesting. First, the term appears in the singular, and takes its own sorts of quantifiers; second, it is incapable of binding individual variables:

(20) a. Muchos toreros andan por ahi sueltos (desde que les pagan bien).
'Many bullfighters walk around (since they pay them well).'
b. Mucho torero anda por ahi suelto (*desde que le pagan bien).

In a word, mucho torero does not seem to be referring to a set of bullfighters, or a plurality of them. The temptation, of course, is to think that it denotes a mass term, like mucho vino 'much wine'. But what would that mean? Do speakers of Spanish have a kind of mind that conceives of individuals differently from the way in which English speakers do? This is not meant in jest; the literature is full of this relativism--the recent one.

Of course, there is a comparative grammar issue here; let's set it aside. From Muromatsu's perspective, it is not at all surprising that I should be able to apply a quantifier for mass terms to something which is typically used in a count fashion, simply because, for her, a count term is a 3D expression that has undergone two warps, each associated to a grammatical

marker. Who is to say, then, that when using the word torero I cannot stop at 2D? In a sense, what has to be explained is why English does not allow this more systematically, while most other languages do.

A particularly nasty example of Chomsky's illustrates that English speakers think like the rest of us: Expensive, hard-cover books that weigh more than five pounds are boring. Boring applies to an abstract entity; weigh, to a concrete entity; hard-cover, essentially to an individual entity; and expensive, contingently to an individual entity. Had we to classify book as [+concrete] (to take weigh) or [-concrete] (to take boring), we would fall into a paradox; the same paradox would arise if we had to classify book as [+stage-of-individual] (to take expensive) or as [-stage-of-individual] (to take hard-cover). However, if book is a 4D expression whose change potential is coded, and thus also involves a 3D coding of form, a 2D coding of mass, and a 1D coding as an abstract concept, then we can say that boring applies at 1D, weighs at 2D, hard-cover at 3D, and expensive at 4D. The argument is direct.

In work in progress, Nobue Mori also pursues these sorts of matters, this time concerning the syntax/semantics of Aktionsart.[15] Some of her results adapt ideas from Pustejovsky (1993), which does not make use of dimensions or the particular syntax discussed here, but does use considerably similar notions. For reasons of space, and because the work is still in progress, I will not report on it now. It should be obvious that the sort of structure we are studying should not be privative of noun classes, just as it is not of numbers; in fact, this point is central to Category Theory. In any case, I take the noun classifications to illustrate what dimensions can do for us within lexical categories: we need not make reference to such substantive labels (or corresponding features) as abstract, mass, individual... terms. So this is a proposal about making (relevant parts of) lexical semantics trivially formal, with a given categorial status resulting from the sheer workings of the system, as derivations go by.

V. Learnability Considerations

No linguistic theory that is worth the name is such if it does not model language as (trivially) learnable by children. In this section I want to ponder the issues that dimensional warps pose for a language acquisition device. As I said before, I am taking the dimensions per se to be innate, in the physicalist sense that I raised. However, a Language Acquisition Device (LAD) must be able to associate a given dimensionality with a given (sound, meaning) pair, like sweet, water, man, and so forth.

This question is not new, and was first systematically raised by Quine (1960), and elsewhere. Interestingly, the sorts of mathematical constructs that I have discussed here might

---

[15] . Similarly, the theory should make predictions about the form and number of arguments of increasingly articulated eventualities. Thus, for instance, it is because the dimensionality of build is rather high that it can get into complex sentences like John built himself a house or John got a house built for him (in contrast, we do not expect this complexity for more basic states--*John loves himself Mary, *John got Mary loved for him--or achievements--*John climbed himself a mountain, *John got a mountain climbed for him). In the end, a full understanding of these matters should shed some light on the hierarchy of roles that arguments receive. If this picture is correct, so-called 'themes' should be the warps of a dimension which is considerably lower than the one 'agents' are the warps of, and so on.

meet with Quine's sympathies. However, I must emphasize, more so than in the case of Parsons, that we may have reached a similar mathematical conclusion (i) from a totally different--and diametrically opposing--starting conceptual point; and (ii) we are making totally different predictions concerning language acquisition. (ii) is not a necessary conclusion, but I believe it relates in Quine's terms to the reason why he probably went into the sorts of speculations I have tried: he is ultimately a behaviorist. For someone in this position, the mind should model reality, through some sort of pattern-recognition process. Inasmuch as a mind has no internal structure when it comes to being, it should start building its structure gradually, as the phenomenological world penetrates it. Early impressions may set up the more basic dimensions, and so on, until the work is complete. I think this theory is wrong, and I want to show both why nothing that I am saying forces us in that direction, and how what I am saying is actually in accord with the facts of linguistic acquisition.

We may present the facts in a narrative way--a famous Quinian example. A LAD observes a rabbit go by, when a native speaker points at the creature while uttering: 'Gavagai!'. How does the LAD know what the native meant? It could have been 'rabbit', or 'furry texture', or more exotic combinations; let us stick to those two to simplify. Let it be true that rabbit is an instance of a 3D expression, while furry is an instance of a 1D expression, therefore one which, in some definable sense, is informationally simpler. (There is, of course, an issue here about how the phenomenon 'rabbit' is taken to be 3D, while the phenomenon 'furry' is taken to be 1D; about such correspondences, irrelevant to my argument, I have nothing to say, and presuppose some psychological theory to do the trick.) What should the LAD conclude, in the absence of explicit training? Does gavagai mean 'rabbit' (or some such 3D term), or does it mean 'furry' (or some such 1D term)? We know what actual children do: they think gavagai means rabbit. Does this then prove the dimensional theory wrong?

It depends. If the dimensional theory is acquired behavioristically, I think the fact indeed disproves it. It would be impossible for the child to come out with the more complex dimensions, in the absence of the simpler ones. Of course, Quine never predicted that children would start their lives with dimensionaly complex structures; quite the opposite, he took the coherent position that children should start with the dimensionally trivial structures. It is not Quine's reasoning that was wrong. To salvage the theory from the facts, the Quinian would have to argue that, somehow, children are capable of acquiring the dimensions on the basis of non-linguistic early experiences. Very interesting psycho-linguistic experiments by Spelke et al. (1991), with three-month old children, strongly suggest that even such concepts as the material integrity of objects are understood by that early age. If the careful experiments are reliable, the Quinian is left with a window of about three months (assuming womb experiences are not helpful for these tasks) to feed into the LAD all the machinery that will then allow it to parse gavagai as 'rabbit', and not 'furry'. Certainly not an impossible task, but a very difficult one--and meaningless, in the absence of an explicit theory of dimensional acquisition. And once the machinery is in place, one wonders again why the child is not at the same quandary that the philosopher is, and why the child should resolve the dilemma by going with the dimensionally more complex (in Quine's terms, as well as mine) 'rabbit', instead of 'furry' meaning.[16]

---

[16] The quinian would have to assume something like the Subcase Principle in (21) below as a general fact about conservatism in learning, only after having already acquired the dimensions. A quinian learner

On the other hand, suppose the dimensional theory is hard-wired into the LAD. How does the present theory fare any better than Quine's; why is my LAD not facing a dilemma? The usual answer that psycholinguists of my orientation give for this is: 'Because the LAD is that way.' This, however, simply delays our understanding of what is going on. What in the LAD being that way is such that it forces it to go with 'rabbit' and not with 'furry'? For this question, I have not found a convincing answer. However, I believe that an answer already exists in the field if we take the dimensional theory seriously.

In fact, the answer is based on well-established psycholinguistic principles of language acquisition: the Subset Principle and the Mutual Exclusivity hypothesis. The former is probably the oldest principle within linguistics, and was proposed in some form already by Panini,[17] although its significance for acquiring language has been noted more recently, and made ample use of in various domains, ranging from phonology to syntax. Recently, Steven Crain has pushed the idea that the Principle is of crucial use in understanding certain aspects of the behavior of children with respect to semantic representations. To cut an important discussion short, I will go directly to a version of Crain's principle that may be of use for us here:[18]

(21) Subcase Principle

Assuming: a) a cognitive situation C, integrating sub-situations c1, c2, ... cn;

b) a concrete set W of lexical structures l1, l2, ... ln, each corresponding to a sub-situation c [19] ;

c) that there is a structure lt corresponding to a situation which is a subcase of all other sub-situations of C; and

d) that the LAD does not know which lexical structure lt is invoked when processing a given term T uttered in C; then: the LAD selects lt as a hypothesized target structure to correspond to T.

---

would never acquire the dimensions to start with, if acting conservatively--unless they get into the mind by osmosis, or some such process.

[17] . Specifically, Paninian rules are hierarchically ordered, in such a way that if Rule n teaches that such-and-such and Rule n+m teaches that so-and-so, then Rule n+m applies at the exclusion of Rule n. The ordering of the rules is, of course, a hypothesis about linguistic structure, and is based on the specificity of the rule, more specific (in a sense, weirder) rules being ordered last, hence applying first. I should say also that Panini was explicitly concerned with the hierarchies that concerned us here, and basically proposed the thematic hierarchy that we now assume, where agents are prominent.

[18] . See Crain et al (1994) for discussion and references.

[19] . In the examples discussed by Crain et al (1994), the issue are just propositions corresponding to sentences presented in circumstances that make them true for a speaker. Note, however, that I am going here into parts of propositions, hence only elements that may enter into the computation of truth, but are themselves more elementary. Hence, I use the term 'correspond' to indicate both the relation sentence(proposition)-situation, and whatever relation holds between terms like rabbit or fur and situations such that the speaker can successfully use those terms to refer in those situations, thus allowing the presentation of the containing proposition in those situations, to make the proposition true. In other words, the Subcase Principle is more general than the Semantic Subset Principle of Crain et al (1994).

Note that it is situations that enter into sub-case relations, and not the corresponding linguistic structures. This is one of the reasons I am using now the non-committal notion 'subcase', instead of the more traditional 'subset', since I do not know how exactly situations should be articulated set-theoretically. Nevertheless, we can make matters rather precise, as in (22):

(22) Given two cognitive situations c and c' obtaining at a super situation C, and for l and l' linguistic structures corresponding to c and c', respectively, and where d and d' are the dimensions where l and l' are expressed, we say that c' is a sub-case of c if and only if d'>d.

It is perhaps useful to consider these notions within concrete scenarios:

(23) Scenario 1: In fact, gavagai means 'furry', not 'rabbit'.
Scenario 2: In fact, gavagai means 'rabbit', not 'furry'.

Analysis (in terms of the Subcase Principle):
Assuming: a) a cognitive situation C [the perceived event], integrating sub-situations c_1 ['a 3D rabbit'], and c_2 ['1D furriness'];
b) a concrete set W of lexical structures l_1 and l_2 [the different possible interpretations of a word associated to the perceived event that universal grammar allows] each corresponding to a sub-situation c;
c) that there is a structure l_t [which involves three orders of the basic syntactic structure] corresponding to a situation c_t [concretely c_2, the '3D rabbit'] which [as per (22)] is a sub-case of all other sub-situations of C [concretely c_1, the '1D furriness']; and
d) that the LAD does not know which lexical structure l_t is invoked when processing a given term T [concretely, gavagai] uttered in C; then: the LAD selects l_t [which involves three orders of the basic syntactic structure] as a hypothesized target structure to correspond to T.

Before we analyze whether this result makes sense, notice two things. First, the '3D rabbit' situation is a sub-case of the '1D furriness' situation, if we accept the dimensional structure, and (22) as a measure of specificity. In general, the Sub-case Principle tells the child to go with the more specific analysis as the first hypothesis. Second, observe that the formal analysis in (23) is totally independent from the factual scenarios.

Let us see how well this conclusion fares with each of the scenarios posed. In scenario 1, the child is of course wrong, and a philosopher who might have decided to go with the 'Super-case Solution' would have been right. However, the child will not produce an erroneous expression when uttering gavagai in front of a rabbit (assuming all rabbits are furry). In turn, if the child assumes an Exclusivity Hypothesis concerning lexical meaning in the acquisition stages ('things only have a name'), the child can retreat from the mistake by either hearing the word gavagai used for any other furry object for which she already has a name, or by hearing another word used for 'rabbit'. So although the child is in fact wrong in the initial guess, correcting the wrong guess is trivial, and is in no need of explicit instruction.

In scenario 2, the child is right, and the 'Super-case' philosopher would be wrong. In fact, the philosopher would produce an erroneous expression when uttering gavagai in front of just any furry thing. It would not be easy for her to retreat from the mistake, for instance, by

hearing the word gavagai used in any other context, assuming all rabbits are furry.[20] Even if the philosopher heard another word being used in the context of a rabbit's presence, one for instance meaning 'furry', she would be at a loss: would that word mean 'rabbit'? Subsequently hearing the word meaning 'furry' in some other context might just mean that the word means 'object' or some such thing.

In sum, given the Sub-case Principle, coupled with the Mutual Exclusivity Hypothesis, the child always gets it right; it is a done deal, regardless of the learning situation. This state of affairs, if correct, not only addresses the Gavagai Puzzle, but it furthermore makes a prediction about the acquisition sequence by children. All other things being equal, human LADS should go with the structure corresponding to more specific situations, within alternative super-cases (perhaps within salience and informational limitations having to do with whatever cognitive restrictions a young child might have)[21] . Apparently this is true. Markman and Watchel (1988) experimentally demonstrated that children (i) assign new terms to objects (rather than to properties, substances, and other possibilities), as the first hypothesis about their meaning; and (ii) do not assign new labels to already labeled objects. This directly allows moves from a more general to a more specific form (for instance, deciding in scenario 1 above that gavagai denotes 'furriness', after having thought for a while that it refers to 'rabbit'), given the appropriate circumstance (e.g., univocally observing rabbits be referred to by another term). Needless to say, all of this makes sense only in situations where the learning alternatives stand in the appropriate sub-case relations, and only a few possibilities emerge, so that solutions are reached in a realistic time.[22]

In sum, the dimensional theory makes the right predictions concerning the acquisition sequence, while addressing Quine's most serious empirical worry, given familiar principles of language acquisition. But again, we succeed at the cost of proposing exactly the sort of solution that Quine rejects: an innately specified structure, and learning strategies that arise when a system with rich internal structure has to map this structure to some trivial outside stimulus--like the utterance of gavagai in a concrete situation. All that the Sub-case Principle is implementing is the conservativeness of LADs: they hypothesize only that which can be easily falsified in terms of positive data. This turns out to be not the simplest kind of structure, but the most complex (given some relevant circumstances and perhaps up to some limitations). Of course, postulating complex structure is trivially simple if the structure is already built in. The bottom line is that our LAD acquires language in the exact opposite sequence that Quine predicts--and, so it appears, according to fact.

---

[20] . Needless to say, I am assuming that explicit corrections are pointless, at least in the case of children.

[21] . I mean this as an answer to an obvious question: why doesn't the child go with the most complex conceptual structure that is possible for a concept when hearing 'Gavagai!'. Suppose that is the sort of structure involved in something like 'a would-be fake rabbit'; that is, something which, with a bit of magic here and there, could turn in an counterfactual situation into something which is not a real rabbit. I would have to say that this sort of concept is not immediately considered in the pool of candidate hypotheses, perhaps because it is just too hard to understand (even for an adult).

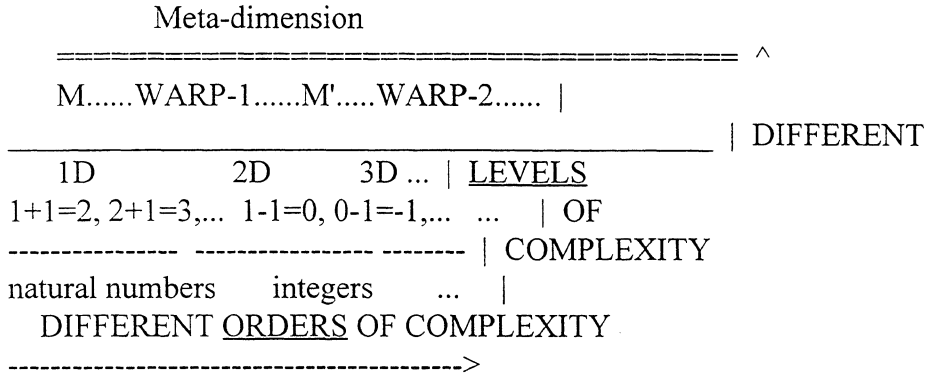
[22] . Which is not meant as an off-hand remark. Poorly understood matters are relevant here, starting with how situations are analyzed, or what are the paradigms that are relevant for lexical learning. These questions are familiar, and I have nothing to add to what I said in Uriagereka (1996:chapter 6)).

VI. Some Questions of Symmetry and Harmony

In the last two sections I want to raise the stakes. This is because of a simple fact: I have said nothing so far about functional structure. What I want to say about it presupposes understanding what I have called a 'warp'.

Models M and M' to describe how, for example, the natural numbers and the integers are generated, respectively, (technically, semigroups with specific generators) relate to each other in very much the same way that something like number 2 relates to number 1. In particular, the warp operation that carries you from nD to n+1D is, at this level of extraordinary space, an ordinary generating function, just as something like addition is at the lower level, for a generator like the empty set or one. I use the word 'level' as in Figure I (and see fn. 23). The relation between any of the models generating various sets of numbers, and the super-model for them is one of levels of complexity. The super-model is of course a model of models, and as such lives on its own meta-dimension. And if it warps to super-models of a higher order, this will imply yet a higher level of complexity, and thus a meta-meta-dimensions.[23]

Figure I:



I think this state of affairs corresponds nicely to the relation between functional and lexical categories. Just as lexical categories were shown to relate to the basic 1D, 2D, ... dimensions, I would like to suggest that functional categories are one level removed from all this, in their own meta-dimension. Before I provide some mechanics of how this might work, I want to remind the reader of a fact that several people have noticed, but perhaps no one has emphasized as much as Derek Bickerton: When functional categories are missing, everything

---

[23] . For those interested in these matters, natural numbers are a first order consequence of a certain generating function f, while the negative integers are a second order consequence of f, by using the inverse of the generating function in the previous order. This inverse--say, subtraction for natural numbers--produces results which are outside of the natural numbers (the negative numbers), which is precisely what carries us to the next set, by using the set of natural numbers as a generator. It is in this sense that the order of the sets of integers and the set of natural numbers may be said to differ. In general, we may say this: for a given function F (like addition, subtraction, etc.) that naturally generates some sort of n-th order space S (like the set of natural numbers, etc.), the warp of F (or for S) is its inverse. (I do not know whether this is more than a conjecture.) In the text, I crucially distinguish orders of complexity from levels of complexity. The model M which is responsible for describing the generation of natural numbers is a sort of mathematical structure, and as such we can ask how it relates to model M' which is responsible for describing the generation of integers. The warping function can be seen as a generating function whose arguments are models, and which yields a semi-group of models. We may then say that the structure of a model is at a different level than the structure of the object that the model describes. This is the intuition that Figure I tries to capture. For reasons of space, I cannot go into these matters any further.

else goes. If we think of it, this is truly remarkable. Take the forbidden experiment and ask the obvious question: how is it possible for a child raised outside of a linguistic community not to acquire trivial little words like for or to or the, or perfectly simple morphemes that any two year old masters, like the plural forming -s, so that she may utter I want elephant eat peanut,[24] instead of the obvious alternative. In what sense is the more complex (or whatever) than elephant, peanut, eat, or want?

I would like to suggest it is all a matter of levels. An item like the is to elephant, in my view, just as the entire number system is to 2; it is just an accident that we happen to use the same linguistic articulators to pronounce the as we do to pronounce elephant; actually, in some languages: in others you pronounce elephant, but not the. So in a sense, with regards to the there may be nothing to acquire, really; it is a dimension, or perhaps more to the point, a model of dimensions. It is thus that it is fundamental. Acquisition at this level may perhaps be seen as growing, in the sense that royal jelly makes a bee grow into a queen, affecting certain fundamental anatomical processes in the developing larva. So too, input linguistic data (we do not know which) trigger the growth of mental dimensions for language, the models within which more standard lexical dimensions, of the sort above, are expressible. Miss those triggering stimuli and you will miss more than the words you heard, just as a bee-larva will miss more than a tasty dinner if she misses royal jelly.

Of course, even if that story is coherent, two other steps are necessary to make it scientific. First, one must argue the case, beyond the plausibility, philosophical comment above. Second, one must address the issue of why functional categories should appear where they do, interleaved with lexical categories as the derivation proceeds. The second question is too ambitious to even sketch an answer for at this stage, and is in any case the topic of my current inquiry with Ian Roberts--so I must set it to the side. The last roundabout I invite the reader to take is intended to address the first matter.

There is a stubborn problem of syntactic theories, since the fifties, that I would like to comment on. Early on, the problem was appropriately turned into an axiom: Derivations start with the symbol S, which is necessarily rewritten as NP (the subject) and VP (the predicate). When rewrite rules were given up, one remained: S --> NP VP. Work in the eighties always ended up adding an extra stipulation concerning the fact that all sentences need a subject, even if it is not the bearer of a semantic role. In the nineties, the problem is turned into a feature. Tense attracts, prior to Spell-out, a D feature from somewhere down in the tree; by another name, this is a subject.

Now consider the matter from a different perspective, capitalizing on the fact that two major schools of thought within semantics tell us either that sentences are crucial semantic units, or rather propositions are. The latter is the traditional view, and is concerned with studying the internal make-up of propositions. The neo-Davidsonian program partially reacts against this view when centering semantic discussions over the claim that sentences are descriptions of events. Everything I have said here can be seen within this project, for all I have done is propose (the structure of) a lexical semantics, in terms of dimensional warping. As the

---

[24] . This sentence is a literal one uttered by Geenie, the famous child who has tragically raised without access to language.

semantics in (15) show, the descriptive apparatus of the neo-Davidsonian project remains untouched. So far, all the present theory does is restrict the class of possible roles in a sentence (they are all warps to increasingly more articulated spaces), and provide a syntax to do the job. But now comes the point of asking whether there is anything more than structured events (or whether the traditional intuition that propositions are made-up of something like subjects and predicates is also right).

This view was expressed in Raposo and Uriagereka (1995), where it was argued that while the neo-Davidsonian structure of Brutus stabbed Caesar is identical to that of Caesar, Brutus stabbed, these are different expressions, and perhaps even different propositions. Consider (24):

(24) a. A band of kids from Liverpool recorded this great song.
b. This great song, a band of kids from Liverpool recorded (it).
c. And then, there recorded this great song a band of kids from Liverpool.

In a language like English, some of these are less than perfect, but let us try and put that to the side.[25] Intuitively, (24c) is about something that happened (the recording of a great song), while (24b) is about a song, and (24a) is most saliently about a band of kids, although it can also be about something that happened. Can this change the truth conditions?[26]

Imagine we are in Hamburg, the day the young Beatles had their first recording. In the real world, Stu Sutcliffe did not make it to this recording, but suppose he had. Sutcliffe's specialty were ballads, including Elvis's Love me tender. So suppose the Beatles record Love me tender in this their first studio appearance, as a mere try out song that never makes it beyond the studio session. Now, it is certainly felicitous to say (24a) either to report an event or to tell us something about the Beatles early years (assuming we refer to the group as a band of kids from Liverpool, and to the song as this great song). The event reading is highlighted in (24c), marginal as this sentence is in English. In contrast, consider (24b). I do not think it is felicitous to say that about Love me tender. Whether it is in fact false depends on whether the rest of the expression is meant exhaustively. If it is, the proposition is directly contradicted by

---

[25] . For instance, in German we have:

(i) a. Ein paar Burschen aus Liverpool haben dieses tolle Lied aufnehmen
b. Dieses Lied haben ein paar Burschen aus Liverpool aufgenommen
c. Es haben ein paar Burschen aus Liverpool dieses Lied aufgenommen

(Thanks to Elena Herburger for the data and useful discussion.) For some reason, topicalizations as in (24b) are not very felicitous for some English speakers. The same is true about transitive existentials, as in (24c), although examples like (ii) are marginally acceptable:

(ii) And then,
a. there entered the room a man from England.
b. there hit the stands a brand new journal.
c. there visited us a group of students from India.

[26] . When considering this question, the reader must abstract away from focus considerations, which also alter truth-conditions, but in a way that is irrelevant for my purposes here.

Elvis also having recorded the song. If, on the other hand, the comment about Love me tender is not meant exhaustively, the proposition is non-cooperative. Either way, the expressions in (24) are clearly different, and the neo-Davidsonian structure does not capture this fact.[27]

Once we assume that something more than standard neo-Davidsonian structure is necessary to account for the subtleties of propositional interpretation, the question is where to add this something. Raposo and Uriagereka suggest that this be done through a 'higher level' predication, much in the spirit of early work on these matters that distinguished categorical judgments from thetic judgments. We can take the former to be about some event-participant, while the latter are about an event itself. A judgement, in turn, can be thought of as a proposition presented from the contextual perspective of some judge, usually the speaker.

Semantically, it appears clear that we have to assume that judged propositions are about something. But how do they get to be that way? Of course, in my terms it would make sense to think of the matter thus:

(25) A proposition is a warped eventuality.

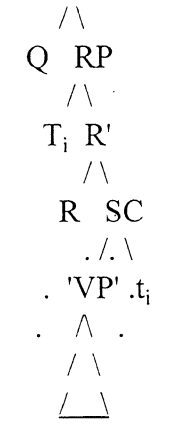
What this is saying is that propositions relate to events just as individually classified nouns relate to mass terms, or for that matter integers relate to natural numbers. I should emphasize, however, that if (25) is true, it must be taking place at a level different from that were noun classes relate, not at a mere higher order (and see Figure I). That is to say, if we have reached order n with a given lexical structure, applying functional structure to it will not warp us to level n+1. For the purposes of the functional warping, we may as well be in a dimension 1, 2 or whatever, at a different level.

One advantage of (25) would be that we could take its syntactic expression to correspond to the sort of syntax I have motivated above, as in (26). Here the element labeled 'VP' for ease of reference is possibly very complex, internally. This 'VP' determines an eventive space s_e, which is warped by T, in a small clause relation, as before. The reason I dot the space above 'VP' is that material within 'VP' is not of the same level as material outside. Other than this (central) fact, the architecture of what we are now seeing is identical to that of what se saw before:

---

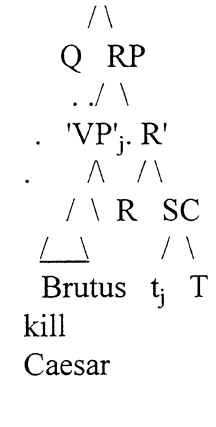
[27] . Actually, Elena Herburger's dissertation is written, in large part, to demonstrate that the Neo-davidsonian project can in fact capture facts of the relevant sort without being enriched in the sorts of ways that Raposo and Uriagereka propose. I put this possibility to the side, since the work is still in progress.

(26) a. Q'



Brutus kill Caesar

b. Q'



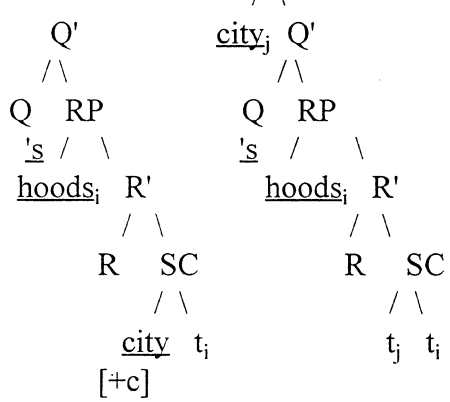
This is in fact the key to what I have to say in this section, and the reason why I think it may be useful to explore these matters, since we have not enriched our descriptive apparatus when going into (26). True, we have used a new label like T, but this is merely expository. What T is, in this system, is a warp for 'VP', at a level which is higher from anything we have seen thus far. Of course, the relation between T and 'VP' is not neo-Davidsonian, in that it is not expressing any traditional role of the sort explored up to now; it is instead introducing a T anchorage, by somehow delimiting $\underline{s}_e$ through an indexical time which (in some non-trivial sense) integrally coincides with it. Finally, if what we saw for the attracting potential of R is true at this new level as well, then either T or 'VP' must move to R, to 'check' reference. While in both instances the relation between 'VP' and T is integral (one is not understood without the other), two different objects are produced.

Note that while (26a) introduces reference to tenses, (26b) introduces reference to events. Possibly, this is the main difference between Brutus kill-ED Caesar and Brutus's kill-ING of Caesar; the latter denotes a given event, while the former existentially quantifies over a time which is univocally associated to a concrete event. *Adverbs of quantification* vs. referential determiners separate these readings:

(27) a. *Brutus never killed Caesar.*
b. *Brutus's never killing of Caesar.
c. *A/the Brutus killed Caesar
d. A/the killing of Caesar by Brutus

At this juncture, we could point out the similarity between (26a) and (13), repeated now as (28), with the more accurate notation in terms of S/W:

(28) a.



b.

c. [Thee: C(e) & hood(e) & S(city,e) & W(hood,e)] ...
Where the speaker confines the range of C to city

Suppose we were to invoke the type of movement in (28b)--which we suggested has the contextual effect noted in (28c)--in (26a). This would carry 'VP' all the way up to Q SP, just as city moves in (28b). Perhaps this can explain the sort of situation we find in a language like Basque:

(29) Jonek Miren maite du.
Jon-subject Miren-object loved present-agreement
'John loves/has loved Mary.'

Observe that Tense is post-verbal, directly suggesting (in the spirit of Kayne (1994)) that the entire 'VP' has moved up to a site that commands Tense.

Let us for now set aside the interpretive consequence of moving 'VP' to the Q SP in (26a), and assume some reason R for why the movement is legitimate. An interesting descriptive question is whether, in situations of the sort in (26a), just the entire 'VP' must move to the SP of Q, or rather a sub-constituent of 'VP' may also move there. This may be the situation in languages involving overt topic marking, like Japanese, where we could take the main sentential topic to be a reflex of T. Thus:[28]

(30) a. Osamu-wa Keiko-o mi-ta.
Osamu-topic Keiko-object see-past
'Osamu, he saw Keiko.'

---

[28] . The data that follow are courtesy of Keiko Muromatsu. The possibility in (i) is not included in the paradigm in (33) because the judgement in this instance is not categorical, but thetic:

(i) Osamu-ga Keiko-o ni-ta.
Osamu-subject Keiko-object saw-past
'The event took place that Osamu saw Keiko.'

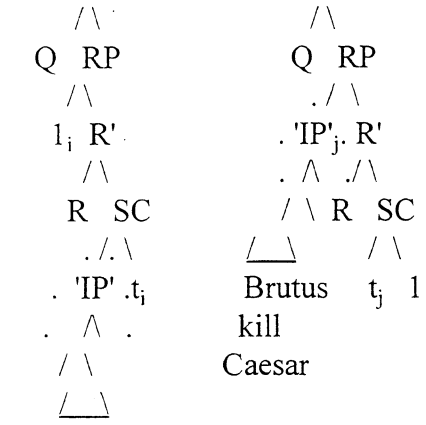
b. Keiko-wa Osamu-ga mi-ta.
Keiko-topic Osamu-subject see-past
'Keiko, Osamu saw her.'

c. Osamu-ga Keiko-wa mi-ta.
Osamu-subject Keiko-contrast see-past
'It was Keiko that Osamu saw.'

Observe that either the thematic subject (30a) or the thematic object (30b) can be topic-marked. When this is the case, though, the constituent marked with a topic that the proposition is about must move to the left edge, the Q SP in (29a) by hypothesis. When this does not happen, as in (33c), the reading is different, involving matters concerning focusing that I cannot go into.

So far we have seen a parallelism between 'verbal' (26) and 'nominal' (28) structures. The parallelism extends to 'clausal' structures as well, as (31) shows. Just as 'VP' relates to T, so too the resulting expression, which we may think of as 'IP', relates to a truth declaring item (as suggested in work in progress that I am conducting with Esther Torrego)):

(31) a.



b.

'IPs' are quantified tense-event spaces $\underline{s}_e$ which can be warped through 1. As before, 1 may move to the referential projection, or 'IP' may. In the first case, we will have a standardly judged proposition like Brutus killed Caesar when uttered by a speaker as a judgement. Technically, the sentence will be some sort of speech act quantifying over 'the truth', which is integrally associated to a given quantified tense-event space. In the second case, we will have, instead, reference to a proposition. This is probably the sort of expression involved in Oh, to kill Caesar!, and might also be relevant for propositions with imperative force like kill Caesar!.

Continuing with the parallelism, either the entire 'IP' should move to the SP of the next level of Q, leaving 1 behind, or a sub-constituent of 'IP' should. The first possibility is arguably what happens in Japanese when empathy particles are invoked, particularly in conversation:[29]

[29] . Data again courtesy of Keiko Muromatsu. Thanks also to Nobue Mori for helpful discussion on these topics. On these issues, see Kuno (1973).

(32) Osamu-wa Keiko-o mi-ta-yo.
Osamu-topic Keiko-object saw-past-empathy
'Osamu, he saw Keiko, I declare.'

The second possibility may be illustrated through Quechua:

(33) a. Paqarin-ta-n hamu-nqa.
tomorrow-object-empathy come-agr-future
'He will come tomorrow, I declare.'

b. Mana-n hamu-n-chu.
not-empathy come-agr-negative
'We/she does not come, I declare.'

Muyskens (1995), where these data are taken from, observes that empathy markers are always constituent external, and typically attached to the first constituent,[30] and in any case never in constituents to the right of V, as expected given the picture that (31a) provides, with 1 hosting the empathy marker and the 'edge' constituent in the Q SP. Importantly, imperative and exhortative clauses cannot take these particles, and must occur in the domain of Tense, which suggests that the import given to (31b) is probably correct, with this sort of structure lacking the import of a judgement.

To make these parallelisms complete, we must also ask whether, just as T and 1 have a special status in bounding the 'verbal' and the 'clausal' structures, there is a similar bounding element within the 'nominal' structure. In fact, there is. No matter how complex the internal make up of a nominal expression is (how many dimensional layers it involves which license given lexical entailments), it ultimately invokes reference to something in the last layer of structure. This suggests the presence of an indexical equivalent to T or 1, some element P which may in fact translate as ostension, pointing, or even locative elements, as in the expressions below:

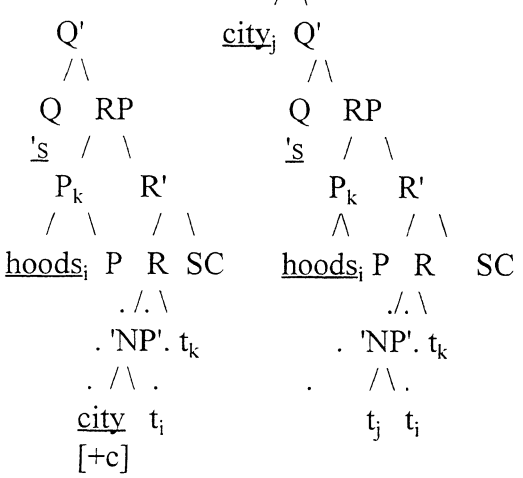
(34) a. That [speaker points] guy is my friend.
b. This here guy is my friend.

Now we can take an 'NP' structure to determine an eventive space s_e, which is bounded by P (hoping again that this substantive interpretation will be deduced). If so, the structure in (28) has to be sharpened to (35):

---

[30] . Or to focused constituents, which pose questions I am not dealing with here. Muyskens also observes that empathy-marked constituents can be preceded by topics; this would seem to contradict what I have said above about topics in Japanese, which are supposed to move at a lower level. However, if the empathy-marked constituents are focused on that instance, then the situation is no different from that arising in (33c). Alternatively, the topics may also be, in some instances, conversational or 'hanging' topics, with an 'as for' import.

(35) a.



b.

Observe that an element like hoods does not move directly to R; rather, it first moves to P, and then the complex element hoods-P moves to R. The movement of a nominal like hoods to P, however, does not seem to be general, as (34b) arguably shows if P is lexicalized as here. Moreover, it is reasonable to suppose that whereas a warp like hoods may associate to another (more abstract) warp like P, the same is not true about the spatial city, which may need to move to R--*when it does--all by itself (in a parallel fashion to what we saw in (31b) for 'IP')*. Ultimately, though, these questions have to be addressed separately and more carefully, and some of them are familiar: What motivates head movement and how does it vary across languages? I have little to add now.

Summing up, we have the following picture so far, at the higher level:

(36) a. There are three domains of structural regularity that behave in symmetric ways: a 'nominal', a 'verbal', and a 'clausal' zone.

b. These zones are successively embedded, and may relate in terms of different orders of abstract spaces and their warps.

c. Functional elements like T, 1, or P may be warps to the 'verbal', 'clausal', and 'nominal' zones, respectively.

d. Zonal warps attract (for reason R) given constituents to the edge (Q SP) of the structure, where they themselves are attracted (R).

e. Constituents in a structural edge appear to confine context ranges.

(36a) is useful as a generalization. (36b) is a comment about symmetry; it appears that the domains in (36a) are, in some intuitive sense, alike. (36c) commits to the interpretation that functional structures are warps of some sort. (36d) and (36e) merit some separate discussion.

Suppose the 'attracting' Reason R is a result of something deeper than the system thus far sketched would lead us to expect. Note that in order not to fall into generative semantics,

we have to sharply distinguish domains of structural conservation, where we expect structural qualities to be preserved in the course of the derivation. It is very important to identify these domains, in the quest for understanding inner properties of the system which are often quite abstract; through the observation of these pockets of regularity we may be able to hypothesize corresponding structures. We may think of the distinctions between words and syntactic structures precisely in this light: each of these determines different domains of conservation. Syntactic structures are productive, transparent, and systematic, in the sense of Chomsky (1970), while words are none of these; conversely, words align themselves in paradigms subject to such learning procedures as the Sub-case Principle or the Exclusivity Hypothesis discussed above. These are just different systems. Word-level units do not talk to syntactic units, and are instead submitted to the Word-Interpretation component. Assuming all of this, it is then natural to ask how this rhetoric corresponds to the formal apparatus discussed so far. Looking at a structure like (35), how do we know what is syntax and what is not?

VII. On Alignment

I propose (37) as an answer to the question above:

(37) Alignment Principle
For X warped, X referring syntactic expression s, match s with a PF boundary anchored in X, and treat the result as a WI unit.

In a nutshell, if (37) is right, it is the same impulse that drives the system to create WI units (complex words, idioms, and perhaps others) that drives constituents to the edge of 'nominal', 'verbal', and 'clausal' zones. This intuition, although coming from a different perspective and involving different mechanisms, is very much in the spirit of Steven Anderson's old dictum that 'clitics are the morphology of phrases'. In fact, clitics (including verbs) typically appear placed in the sorts of edges that such phrases as topics, subjects, or genitives mark. What is the purpose of these edges from the point of view of the syntax? If (37) is right, it is what determines the cut between syntax and morphology, in some abstract sense.[31]

Note also that the Alignment Principle seeks the harmony of edges. Intuitively, the principle matches semantic edges with phonological edges. I have little to say here about what are phonological edges. Obviously, though, the left periphery of a phrasal unit should be an edge. In turn, I have had something to say about semantic edges; these are the warps. The point can be made more concrete on mathematical grounds, using notions of Topology; I find this unnecessary. It is intuitively obvious that what a warp does is carry us 'out of the edge' of a given space. In doing so, the warp also delimits an inner space. The intuition behind (37) is then that the space delimiter in this categorial sense must align itself with a perceptual edge, in the PF component.

Technically, the Alignment Principle first finds a major semantic X warp in a referring position R; second, it seeks a major syntactic constituent to move to the phonological edge

[31] . Of course, we are dealing with objects that are definitely larger than some words are, and might be thought of as lexical units at LF. See Uriagereka (1996:chapter 6, section 4) on this.

associated to R. Syntactic conditions restrict this movement in the obvious way, although here a great deal of variation must be expected.[32] Likewise, the syntax relates R to the Q element that takes it as its internal argument, either overtly or covertly. This places R in the domain of Q, which may be seen as the justification for why the phonological edge of R is actually the SP of Q, not the SP of R.

Finally, consider (36e) and what it implies. We could motivate movement to the SP of Q in purely syntactic terms, through some kind of contextual feature. However, that would be against the spirit of the Alignment Principle, and I believe also wrong. Consider, in this respect, (38):[33]

(38) a. To have idle time! -

b. [John], I like. +-

c. He just arrived, [John (did)]. -+

d. [John], she loves, [Mary (does)]. +-+

e. (*)[A man] +

f. *[Mary], [John], she loves. ++-

g. *She loves him, [Mary (does)], [John]. -++

h. *[John], I like, Mary hates. +--

i. *He likes Mary, he loves Sue, [John (does)]. --+

j. *[John], she likes, she hates, [Mary (does)]. +--+

On the right hand side, I have interpreted elements in the edge as + warps, and elements in the center as - spaces, for now without committing to any deeper interpretation. Formally, it is interesting that only the first four combinations are possible, and (38a) may or may not be depending on what one takes vocatives to be. The combinatorics strongly resemble syllables, a fact that is highlighted if we take these elements as abstractly as Perlmutter (1993) does when speaking of ASL hand movements and positions.

---

[32] . For instance, if Chomsky's recent treatment of Bantu languages is on the right track, these allow movement of objects the 'IP' edge, a sort of derivation argued for, also, by Raposo and Uriagereka (forthcoming) for some instances in Romance. Then the familiar question is why this is generally impossible for English. Chomsky has spent a considerable amount of time dealing with this matter, and I have nothing to add to his conjectures.

[33] . Many of the facts below are inspired by the discussion in Lasnik and Saito (1992). Claims concerning the impossibility of two edges directly relate to Muysken's (1995) observations: in Quechua it is completely impossible to have two empathy marks.

This may be a coincidence, or it may be telling us something about the role of edges in syntax, and if true would allow syntacticians to have some common ground both with phonologists and pragmaticists. Researchers like Lisa Selkirk have often talked about syntactic edges matching phonological edges in instances involving focus, a sort of discussion that is now common in the Optimality literature. In turn, pragmaticists have often emphasized the role of discourse in configurationality. There may be something right to that sort of claim, although I still would argue that it is backwards. If the Alignment Principle is right, it is for formal reasons that semantics aligns with phonology. It is a harmony seeking system that tells the semantic edge to go with the phonological edge. This entails the need to create a phonological edge. Simply put, if nothing moves to the domain of the Q-R complex, the phonological edge will be random, assuming that the Q and R elements are clitic-like in themselves; we need to displace some lexical structure to Q-R to create a perceptually robust phonological edge. The question is what.

The pragmaticist would perhaps want to argue that it is the, in some sense, 'salient' element that gets so displaced. But this would be giving teleological power to derivations. Rather, it seems more plausible to say that something, whatever is near-by and meets conditions for movement, is displaced to form an edge--and then... it anchors a context. It is because the element has been appropriately displaced to a domain of prominence that the context encoding device, a performative matter, can be triggered. I admit that in some instances the grammar may have featural elements, or morphemes, to designate the element to be displaced. But even in that instance, I would argue that these features are assigned randomly, with the sole purpose of guaranteeing a displacement to the edge, thereby entering into specific interpretations.

A related question is how the syntax knows what is a phonological edge and what is a semantic edge, to proceed to match them. If what I have said is right, the phonological edge is literally created in the course of the derivation: the moved, 'lexically heavy' constituent produces the edge. But how about the semantic edge? Apparently, the syntax recognizes an interpreted edged--that is, a warp--only if this element is in the checking domain of R. Taking R-dependency to be what allows movement for reason R purposes is more than a pun: it would justify the important contrasts below:

SEMANTIC Warp IN R	SEMANTIC SPACE IN R
(39) a. Brutus killed Caesar.	b. A/the killing of Caesar.
(40) a. Xwan-mi hamu-nqua. Juan-empathy come-future-agr 'Juan will come.'	b. Mijhu-y(*-mi). eat-imperative-empathy 'Eat!'
(41) a. The/*a poor neighborhood of the city	b. The/a city of poor neighborhoods

(39) involves a 'verbal' zone; the Quechua (40), a 'clausal' zone; (41) involves a 'nominal' zone. The question in (39) is why (39b) does not force the subject Brutus; in other words, why gerundials and similar elements do not have to obey the Extended Projection Principle. The

question in (40) is why (40b) does not take a empathy particle (similarly, perhaps, one could have asked why imperatives do not trigger standard 'verb second' effects). The question in (41) is why (41b) does not require a definite 'head', whereas (41a) does. I suspect these questions are related. In the (b) examples, the element in R is not the semantic warp (T, 1, or P), but some semantic space ('VP', 'IP', or 'NP'). If what I am trying to establish about the syntax identifying warps is right, the derivation will not take the (b) examples as involving a semantic variable, and hence will not force phonological alignment, since the Alignment Principle will not apply. These should be dependent expressions.

In sum, what we typically call an argument is a space which is bounded by P; what we call a proposition is a kind of space which is bounded by T; what we call a judgement is a kind of space which is bounded by 1. Arguments are warps to basic spaces which are, in some definable sense, expressed at a more elementary than these very abstract spaces. The former are lexical, the latter are functional.

We need the Alignment Principle because phrases are not words. In the latter, the pairing of the PF and LF formats is listed in the lexicon, after being acquired in ways already mentioned. But there is no such pairing for phrasal-level units. Of course, in the old days, the pairing was given through an axiom of the form 'S-->...' In the sort of dynamically split model that I have been exploring, something else must ensure that PF be locally compatible with LF, as multiple Spell-out proceeds. The Alignment Principle has that effect. And for those phrases that do not meet it, we make a straightforward commitment: they cannot be root phrases, and must constitute larger units which do satisfy the alignment.

One virtue of these speculations should be pointed out. The Minimalist program simply does not expect semantic effects that are not syntactically driven. But a variety of 'discourse-dependent' phenomena pose a serious challenge for this view. Everything beyond neo-Davidsonian structure--conversational and sentential topics, thematization, focusing--seems to involve phonological information in crucial ways, either through overt displacements whose character looks quite different from that of standard movement, or from a variety of prosodic cues (intonation, stress, pauses, etc.). There has been, to my knowledge, no natural way of fitting these phenomena within the current Minimalist picture. One can deny the LF significance of the processes, but there is every reason to believe that it exists. Then the puzzle is immediate. My answer to this puzzle has invoked the Alignment Principle, which instantiates some specific assumptions about harmony across levels of representation. The Alignment Principle can be thought of as part of Spell-out, just as Kayne's LCA. The grammar must match up semantic and phonological boundaries. From this perspective, it is not surprising that phonological and semantic ends meet, at the point where they should--at Spell-Out.

The point, though, is that if the analysis above is right, we have justified treating functional categories with the syntax that we had motivated for lexical categories. This is only a step, though. Now we must understand what they are doing there, and also what happens with the other fourteen categories--or however many there is. These are the specific matters that Roberts and I are trying to clarify.

VIII. Concluding Remarks

It is not unreasonable to say that we have:

- Chartered a partial semantic representation for some unfamiliar lexical notions, such as abstract and mass terms, or classified nouns.

- Provided a framework to capture lexical entailments among these elements.

- Provided a solution for Chomsky's puzzle concerning multiple predications involving the same lexical item with different senses.

- Given an acquisition account of Quine's gavagai puzzle.

- Given an explicit Minimalist syntax to carry these lexical semantics.

- Proposed a type of solution for the puzzle that 'discourse configurationality' poses for Minimalism.

- Proposed a way of restricting 'functional structure' while at the same time leaving its descriptive potential open.

- Suggested a way in which the level of lexical structure relates to the level of functional structure.

- Suggested a way to interpret the notion 'local domain for interpretation' at WI.

More importantly, we have seen through the HRU and Raposo and Uriagereka proposals that these theoretical results are grounded on standard linguistic data. This is, to my mind, clearer still in the on-going work of Muromatsu and Mori, as is in the incipient work of several others which, lacking space, I could not report now.

But while empirical gains and consequences are central to any natural science, we should not loose sight of the forest. I have started this paper by asking what a radically Minimalist, derivational proposal may have to say about syntactic objects. We have now seen how the dynamics of the derivation may produce a variety of objects, all of them of a very similar 'character', in the sense of involving some space and a warp to this space. Although we have no criterion of admissibility for these objects at LF or PF--lacking these levels altogether--the very way in which the objects are formed is their passport to existence. If I am correct, standard linguistic categories are forced to exist, given derivations. The creation of impossible objects and interactions leads to an immediate derivational cancellation. No derivations crash;

the notion of a divergent derivation does not make sense in this view.[34] If so, the right question could not be what sorts of semantics our syntax will meet.

References

Barr, M. and Ch. Wells (1995) Category Theory, Prentice Hall.

Brody, M. 1995. Lexico-Logical Form, MIT Press.

Crain, S., Weijia Ni, and Laura Conway (1994) 'Learning, Parsing, and Modularity,' in Ch. Clifton, L. Frazier, and K. Rayner (eds.) Perspectiveson Sentence Processing, Lawrence and Erlbaum Associates.

Chomsky, N. (1970) 'Remarks on Nominalization,' in R. Jacobs and P. Rosenbaum (eds.) Readings in English Transformational Grammar, Ginn and Co.

Greenberg, (1977) 'Numeral Classifier and Substantial Numbers,' in A. Makkai, V. Makkai, and L. Heilmann (eds.) Linguistics at the Crossroads, LivianaEditrice.

Higginbotham, J. (1988) 'Contexts, Models, and Meanings,' in Mental Representations. The Interface between Language and Reality, R. Kempson (ed.), Cambridge.

Hornstein, N., S. Rosen, and J. Uriagereka (1995) Integral Existentials, Proceedings of the West Coast Conference on Formal Linguistics 1994.

Jackendoff, R. 1969. Some Rules of Semantic Interpretation for English. Doctoral dissertation, MIT.

Kayne, R. (1994) The Antysymmetry of Syntax, MIT Press.

Keenan, E. (1987) 'A Semantic Definition of Indefinite NP,' in The Representation of (In)definiteness, MIT Press.

Kuno, S. (1973) The Structure of the Japanese Language, MIT Press.

Kraus, L. (1995) The Physics of Star Trek, Basic Books.

Lasnik, H. and M. Saito (1992) Move @, MIT Press.

Markman, E. and G. Watchel (1988) 'Children's Use of Mutual Exclusivity to Constrain the Meanings of Words,' Cognitive Psychology 20.

Muromatsu, K. (1995) 'The Classifier as a Primitive,' to appear in The University of Maryland Working Papers in Linguistics, 3.

Muyskens, P. (1995) 'Focus in Quechua,' in K. Kiss (ed.), Discourse Configurational Languages, Oxford.

Parsons, Ch. (1980) 'Mathematical Intuition,' Proceedings of the Aristotelian Society, March 17, 1980.

Perlmutter, D. (1993) 'Sonority and Syllable Structure in American Sign Language,' Linguistic Inquiry 23, 3.

Pustejovsky, J. (1993), 'Type Coercion and Lexical Selection,' in J. Pustejovsky (ed.) Semantics and The Lexicon, Kluwer.

Quine, W. (1960) Word and Object, MIT Press.

Raposo, E. and J. Uriagereka (1995) 'Two Types of Small Clauses,' in A. Cardinaletti and M.T. Guasti, Small Clauses, Academic Press.

Raposo, E. and J. Uriagereka (forthcoming) 'Indefinite se,' NLLT.

Spelke, E., K. Breinlinger, J. Macomber, and K. Jacobson (1991) 'Origins of Knowledge,' Psychological Review, 99, 4.

Uriagereka, J. 1995. 'Formal and Substantive Elegance in the Minimalist Program,' in M. Bierwisch, H.M. Gaertner, and C. Wilder (eds.) The Role of Economy Principles in Linguistic Theory. Berlin: Akademie Verlag.

Uriagereka, J (1996) Rhyme and Reason: A Minimalist Dialogue on Human Language MIT Press.

Uriagereka, J. Forthcoming. 'Multiple Spell-out' to appear in M. Browning (ed.) Working Minimalism, MIT Press.

[34] . Which is not to say that an ungrammatical, interpretable object, of the sort Higginbotham (1985) first seriously discussed, could not be produced in performance, and furthermore given some interpretation.

QR across finite CP: *de re* readings, binding and VP-ellipsis

Chris Wilder
ASG Berlin, July 1996

In the following, I look at two types of evidence - (i) antecedent contained deletions (ACDs), and (ii) *de re-de dicto* ambiguities - bearing on LF-extraction ("QR") of constituents out of finite complements governed by believe-type verbs. I suggest that *de re* readings for embedded adjuncts (1) be treated in terms of LF-movement (QR). Binding evidence supports this view. The analysis extends to *de re* readings for comparative clauses (2). *De re* readings thus supplement the evidence for "long QR" of provided by wide scope ACDs, as in the comparative (3): [1]

(1) John thinks Mary left before she did (leave)
(2) John thinks Mary is taller than she is.
(3) John thinks Mary is taller than Bill does

1. "Long QR"

1.1 ACDs: wide scope VP-Ellipsis vs. absence of scope ambiguities

"Wide scope" readings of elided VPs (VPEs) in ACD contexts - e.g. (4) - provide evidence that subjects (and other constituents) can raise out of finite clauses in the LF-component: [2]

(4) a. John believes that everyone is intelligent that Mary does
b. John believes that everyone is intelligent that Mary does *believe t is intelligent*

---

[1] These notes presuppose the discussion in Wilder (1995). Following the line pursued in May (1985) etc., the interpretation of a VP ellipsis site is assumed to be determined by its formal syntactic properties, i.e. on the basis of the constituents dominated by the VP-node at LF. The precise mechanism by which the ellipsis site gains its syntactic content is not at issue here. Two contenders are (i) "base-generated empty VP": the contents of a VPE are 'reconstructed' from its antecedent via copying after S-structure (May 1985, Fiengo & May 1994); (ii) "PF-deletion": the contents of a VPE are 'base-generated', hence present throughout the syntactic derivation, and deleted under 'identity' with the antecedent only in the PF-component (Chomsky 1992). Under (ii), a VPE underlies a requirement that it be 'identical' (or 'parallel') with its antecedent at LF. The discussion here is consistent with either approach. The claim that is crucial here, is that a VPE may not be dominated by its antecedent VP at LF. Under (i), copying would lead to 'infinite regress'; under (ii), identity could not be achieved, since the VPE would always contain at least one depth of embedding less than its antecedent.

[2] This type of example, involving a VPE in a relative clause extraposed from the embedded subject, was first discussed in Tiedemann 1995, and Lasnik 1995.

The fact that (4a) has the reading indicated can be accounted for as follows (Wilder 1995). After 'Spell-Out', the relative clause is "reconstructed" into the subject DP (5a). That DP then raises out of the finite clause (5b). The VPE is no longer contained in the matrix VP, and so may take this VP as its antecedent at LF (5c):

(5) a. John believes [everyone that Mary does *vp*] is intelligent
b. everyone that Mary does *vp* [John believes [*t* is intelligent]]
c. everyone that Mary does *believe t is intelligent* [John [$_{VP}$ believes t is intelligent]]

The movement (5b) is QR, playing the same role as in May's (1985) account of ACDs. However, the analysis (5) dictates that - contra May - QR can affect the subject of a finite complement clause. [3] Call the case where raising crosses a finite CP "long QR" (LQR).

As is well known, quantifiers in finite complements (as opposed to e.g. ECM-complements) normally do not interact scopally with quantifiers in the matrix. Thus (6a) contrasts with (6b):

(6) a. Someone believes that everyone is a genius ok: ∃∀ / * ∀ ∃
b. Someone believes everyone to be a genius ok: ∃∀ / ok: ∀ ∃

We might expect an expression that undergoes LQR, determined by wide scope VPE, to interact scopally with expressions of the higher clause, but such effects are not found. Adding a relative clause that modifies the lower subject and contains a wide scope VPE does not alter the pattern of (6) - *everyone* cannot take scope over *someone* in (7):

(7) Someone believes that everyone is a genius that Mary does ok: ∃∀ / * ∀ ∃

Why should standard QR (i.e. short QR not crossing a finite CP) permit scope ambiguities, while LQR does not? I return to this question below, sect. 5.3. [4]

The asymmetry might be seen as casting doubt on the assumption of LQR. Since LQR does not give rise to scope ambiguities, the only reason to assume LQR would be the account

---

3 Fiengo & May (1994:257) note examples of wide scope VP-ellipsis, but none that would require QR of an embedded subject.

4 It is important to realize that the absence of the inverted scope reading in (7) is not inconsistent with the assumption of LQR (cf. Wilder 1995). Scoping of *everyone* over *believe* is in fact necessary to give the correct reading, which is (i), and not (ii). The latter is a possible reading for the 'undeleted' version of (7), i.e. (iii):
(i) ∃y ∀x : [believe(m) [genius(x)]] → [believe(y) [genius(x)]]
(ii) ∃y : believe (y) [∀x : [believe(m) [genius(x)]] → [genius(x)]]
(iii) Someone believes that everyone is a genius that Mary believes is a genius.

it permits for wide-scope VPE in ACD contexts. If an alternative could be found to the LQR-based analysis of (4), then maybe LQR does not exist.

1.2 ACDs: LQR vs. extraposition

The LQR-analysis (5) is not the only possibility for handling the resolution of the ACD in (4). The problem posed directly by ACDs is the antecedent-containment itself. The minimal requirement is that the VPE itself is extracted from its antecedent before it can be interpreted (via copying, identity checking, or whatever). The QR analysis serves this purpose. But any movement which leads to raising of the VPE would suffice. An alternative is that wide scope VPE is licensed not by QR of the DP everyone + relative clause, but by extraposition of the relative clause (cf. Baltin 1987). [5] (4) would have the S-structure (8):

(8) [John [$_{VP}$ believes that [everyone (t_{CP})] is intelligent $_{VP}$] [$_{CP}$ that Mary does _]]

Notice that this analysis must assume that the Right Roof constraint, or whatever underlies it, is neutralized in such examples.

However, extraposition alone does not ensure that ACDs are assigned the correct interpretation - e.g. (9) for (4) - without the additional assumption that QR (or an equivalent) applies to *everyone* (cf. Larson & May 1990). The relative clause containing the VPE must be interpreted in the scope of *everyone* - e.g. by forming the antecedent of the conditional in (9):

(9) $\forall x$ believe(mary,(intelligent(x)) $\rightarrow$ believe(john,(intelligent(x))

So wide scope VPE in ACD contexts seems to entail LQR anyway, whether it is LQR itself, or extraposition, that licenses wide scope VPE.

The only issue then is whether LQR itself is responsible for wide scope ACD resolution, or whether it merely 'shadows' another operation (e.g. extraposition), with the latter being responsible for ACD resolution.

The account of wide scope ACDs in terms of LQR (5) presupposes that QR targets more than just the quantifier *everyone*, i.e. that the relative clause is 'pied-piped' under QR. Below, evidence independent of ACDs is provided to support the claim that LQR exists, and that it involves raising of whole phrasal constituents out of finite complements. To the extent that this evidence is compelling, the analysis of ACD resolution in terms of LQR is supported.

1.3 Temporal adjuncts: wide scope ACDs vs. *de re* readings

Temporal adjuncts do not permit wide scope ACDs. Matrix or embedded attachment for the adjunct and wide/narrow scope for the VPE should give (10) four readings, i.e. (11a-d). Only three of these exist.

---

[5] For argument against an extraposition approach to ACDs, see Larson & May (1990), Hornstein (1994).

(10) John said that Mary would arrive before Peter did.

(11) a. [[John said that Mary would arrive] before Peter did *arrive*]
b. [[John said that Mary would arrive] before Peter did *say that Mary would arrive*]
c. John said that [[Mary would arrive] before Peter did *arrive*]
d. * John said that [[Mary would arrive] before Peter did *say that Mary would arrive*]

Wilder (1995) suggested because of this paradigm that temporal adjuncts do not undergo LQR. If the adjunct could undergo LQR, the missing reading (11d) would be expected to exist.

However, other data indicate that a covert movement operation like LQR is available for temporal adjuncts. Lappin (1993:267) notes (in passing) that in (12), the before-adjunct has undergone QR out of its clause:

(12) the book which Mary thinks she reviewed before she could have _

His motivation for saying this is presumably as follows: the adjunct (which modifies reviewed in the complement of thinks) receives a *de re* reading with respect to Mary thinks; for the *de re* reading to be possible, the before-adjunct must be assumed to have raised out of the complement clause. In the next section, I explore the idea that this operation is LQR (without implying that the before-adjunct itself is to be treated semantically as a quantificational expression). Such an analysis for temporal adjuncts has been suggested by Larson (1987:260-262, esp. footnote 21).

In §7. I seek to square (11d) with (10), by showing that (11d) is ruled out by independent factors, so that the paradigm says nothing about whether temporal adjuncts can undergo LQR.

2. *De re* readings of temporal adjuncts and *than*-clauses

2.1 Getting the readings

Consider a simplified version of Lappin's example: [6]

(13) Mary thinks she$_j$ reviewed this book before she$_j$ could have

The most accessible reading is one in which the constituent headed by *before* modifies the lower verb (*reviewed*), but in which the content of that constituent is not treated as part of Mary's thought. We might represent that reading as in (14a):

---

[6] Lappin is concerned with the parasitic gap contained in the VPE in (12), which is irrelevant here.

(14) a. [$_{IP2}$ Mary thinks [$_{IP1}$ she reviewed this book at time t] &
[$_{PP}$ t < t', t' s.t. she could have reviewed this book only at time t'
(or later, not earlier)]]

b. [$_{IP2}$ Mary thinks [$_{IP1}$ she reviewed this book at time t &
[$_{PP}$ t < t', t' s.t. she could have reviewed this book only at time t'
(or later, not earlier)]]]

There is an alternative reading in which the temporal adjunct modifies *reviewed*, but in which the content of that constituent is treated as part of Mary's thought (14b). This latter reading is an absurd reading (noted #): it attributes an absurd (contradictory) thought, i.e. (15), to Mary:

(15) # I reviewed this book before I could have

So (13) is ambiguous between a sensible reading like (14a) and an absurd reading (14b). This is a classic example of a *de re* / *de dicto* ambiguity found with believe-type verbs: in the sensible reading (*de re*), PP is not part of Mary's thought (=IP2), i.e. *de re* w.r.t thought; in the absurd reading, PP is part of Mary's thought (=IP2), i.e. *de dicto* w.r.t thought.

Ambiguities of this sort can be viewed as a matter of "scope" ("sequence of interpretation"). For PP to be interpreted *de dicto* w.r.t thought, PP is interpreted in the scope of thought (as part of the complement of thought, before that verb and its complement are interpreted). For PP to be interpreted *de re* w.r.t thought, PP is interpreted outside the scope of thought (after thought and its complement are interpreted).

(13) is complicated by the presence of the modal. Simpler cases (16) have equivalent structure, i.e. (16a) only has an absurd reading, while (16b) - restricting attention to the case where the temporal modifies *left*, not *said* - has a *de re* (sensible) reading, and a *de dicto* (absurd) reading that attributes (16a) to Mary:

(16) a. # I left before I did (leave)
b. John said Mary$_j$ left before she$_j$ did (leave)

Similar in structure are comparatives of the type (17), taken up in Stechow (1984), who traces their discussion back to Russell (1905): [7]

(17) a. # John$_j$ is taller than he$_j$ is

---

[7] Larson (1987:262, note 21) briefly notes these examples, suggesting an LQR-analysis. He also observes that temporal adjuncts are more closely related to comparatives than at first sight appears, with before = earlier than, after = later than, when = as early as, etc., and each permitting the same range of ellipsis types in the complement clause:
(i) John arrived {before; earlier than} Sam arrived / did / ∅.

b. Mary thinks John$_j$ is taller than he$_j$ is

The advantage of these paradigms (*de re* -sensible, *de dicto* - stupid) is that they provide clear intuitions about scope relations, so that scope effects are easier to control for when testing other properties. [8]

2.2 *De re* at LF

Suppose that the ambiguity of (16b, 17b) is represented structurally in LF-representation. Then in the sensible (*de re*) reading, the *before-* (or *than-*) clause is outside the scope of V, i.e. outside the finite complement of V. The absurd (*de dicto*) reading arises if the *before/than* clause is inside the complement clause. Under such an approach, (13) is associated with 2 different LFs - cf. (14). Similarly for (16b): [9]

(18) a. [$_{IP2}$ John said [$_{IP1}$ Mary left at time t] & [$_{PP}$ t < t', t' s.t. Mary left at time t']]
= *de re*

b. [$_{IP2}$ John said [$_{IP1}$ Mary left at time t & [$_{PP}$ t < t', t' s.t. Mary left at time t']]]
= *de dicto*

The comparative can be handled similarly. The sensible reading of (17b) is paraphrased by (19b), the absurd reading of (17a) (*de dicto* in (17b)) as (19a):

(19) a. the degree to which John is tall is greater than the degree to which John is tall

b. the degree to which Mary thinks John is tall is greater than the degree to which John is tall

Suppose that the *than* clause is an (extraposable) complement to a head Deg° = *more* (*-er*). To capture the *de re* reading, I suppose that the DegP (or a phrase containing DegP) undergoes QR. Hence, different LFs can provide a structural basis for distinguishing *de re* and *de dicto* readings:

(20) a. Mary thinks that [$_{IP2}$ John is d-tall & [$_{DegP}$ d>d'(*more*) &(*than*) he is d'-tall]]

---

8 There is an independent puzzle in (16), namely, why it is that (16a) blindly gets the absurd reading it does. There is a non-absurd reading in which I can leave, come back and leave a second time: but that is only accessed when the two occasions are explicitly referred to: I left **once** before I left **again**. With (17a), there is no puzzle - absurdity derives from the fact that an individual can have only one height at one time.

9 These and similar 'LFs' are intended to be informal, merely indicating relevant scope relations. No significance should attached to linear order. "Event times" (t, t') and "degrees" (d, d') are treated as constants to keep things readable. The syntax and semantics of comparatives is glossed over here for the usual reasons. For useful discussion cf. Stechow (1984).

b. $[_{IP1}$ Mary thinks that John is d-tall] & $[_{DegP}$ d>d' & he is d'-tall] =*de re*

Stechow (1984) discusses two ways of handling such *de re-de dicto* ambiguities in "Russell sentences". One solution ("scopism") is essentially the one just presented - structural differences in the representations to be interpreted. The alternative ("double indexing") makes use of a special modal operator that permits direct reference to "the actual world". Use of this alternative allows *de re / de dicto* ambiguities to be captured without structurally different LFs: *de re* readings can be got from interpreting than-clauses in situ.

Suppose that LFs of finite clauses contain "world variables". The content of the clause is evaluated w.r.t. the "world" picked out by the world variable (w) (→ "possible world semantics"). In an indicative root clause, w refers to the "actual" world. In the complement clause of a believe-type verb, w is interpreted w.r.t the belief-world of the referent of the matrix subject. Suppose that in a than-clause contained in a belief-complement, w can be bound by a special operator (ACTUALLY) that ties the world-variable it binds to the actual world. Then the content of the than-clause is evaluated w.r.t the "actual world" (21b). If ACTUALLY is not present, the than-clause is evaluated w.r.t. the belief-world of the complement clause containing it (21a):

(21) a. M. thinks $[_{IP2}$ J. is d-tall in w & $[_{DegP}$ d>d' & he is d'-tall in w]] (=*de dicto*)
b. M. thinks $[_{IP2}$ J. is d-tall in w & $[_{DegP}$ d>d' & ACTUALLY (he is d'-tall in w)]]

In the "double-indexing" soliution, exploiting world-variables and the ACTUALLY operator, the *de re* reading arises as the result of intepreting the than-clause in situ. Hence, LQR - i.e. "scoping-out" the than-clause - can be dispensed with. This solution will work in the same way with before-adjuncts, I assume.

Stechow provides one argument against the scope solution. He argues that a proper treatment of the behaviour of "Russell sentences" like (17b) embedded in counterfactual conditionals (22), necessitates the assumption of the ACTUALLY operator:

(22) If Bob had been taller than he was, he would have made the team.

While the antecedent of the conditional (Bob had been taller) has a counterfactual reading (is evaluated w.r.t fictive worlds), the than-clause in (22) has a "factual" reading - i.e. one in which it is evaluated with respect to the "actual world". If the ACTUALLY operator is assumed for this case, then it is also available for *de re* readings in belief-contexts, destroying the motivation for assuming scoping-out in the latter.

It is not clear to me that a scope-based solution is in principle excluded for (22), with DegP, containing more + than-clause, taking scope over the implication (if). But I do not plan to discuss the syntax / semantics of counterfactuals here.

Instead, arguments for a scope-based solution will be given using binding and ACD facts, which must be accounted for structurally. These facts cannot be accounted for by double-indexing. Moreover they require scoping for examples which only have *de re* readings. The weakest conclusion is that scoping can be responsible for the presence of *de re* readings / absence of *de dicto* readings in belief contexts (even if *de re* readings can also arise without scoping). The stronger conclusion that all *de re* readings arise from scoping would require examination of Stechow's argument from counterfactuals.

2.3 *De re* at S-structure

Now consider assumptions about the S-structure(s) for the LFs (18):

(18) a. $[_{IP2}$ John said $[_{IP1}$ Mary left at time t] & $[_{PP}$ t < t', t' s.t. Mary left at time t']]
= *de re*

b. $[_{IP2}$ John said $[_{IP1}$ Mary left at time t & $[_{PP}$ t < t', t' s.t. Mary left at time t']]]
= *de dicto*

In each case, we would want to say that the PP is inside IP_1 at S-structure:

(23) $[_{IP2}$ John said $[_{IP1}$ Mary$_j$ left $[_{PP}$ before she$_j$ did (leave)]]]

The reasons are the following:

(i) temporal adjuncts are generated in the clause whose verb they temporally modify
(ii) word order facts show that the temporal adjunct in (18a,b) is inside IP_1 at S-structure

(ii) is a standard (and natural) assumption about the "base position" of adjuncts such as the before-PPs. Consider the meaning of temporal before. It relates two time points, t and t', and sets them in the temporal "before" relation (t < t'). One time point (t) is identified with the event time of a verb outside the PP, the other (t') is identified with the event time of a verb inside the PP (i.e. inside the clause governed by *before*) (see Thompson 1995 for discussion). So in (24), t = the event time of Mary's eating, t' the event time of Mary's leaving. The PP 'modifies' t, the event time of ate.

(24) a. Mary ate before she left.
b. eat(m,t) & t<t' & leave (m,t')

The word order facts indicating that PP in both (18a) and (18b) is inside IP_1 at S-structure relate to the Right Roof constraint. Under the reading in which PP modifies left, PP may not be separated from IP_1 by material belongng to IP_2 but not IP_1:

(25) a. He will say (when you meet him) tomorrow that Mary left before she actually did.
b. * He will say that Mary left (when you meet him) tomorrow before she actually did
c. He will say that Mary left before she actually did when you meet him tomorrow

i.e. a postverbal temporal adjunct is never ordered discontinuously w.r.t other constituents of the clause headed by the verb it modifies.

2.4 *De re* as LQR

Given these assumptions about S-structure, the conclusion that the adjunct can undergo LQR is straightforward. If the PP is in IP2 at S-structure, then it must undergo movement between S-structure and LF, for the LF (18a) to be derived. That movement is motivated by scope facts (interpretation of LF), i.e. is a candidate for "QR". QR extracts PP out of a finite complement, so it is LQR.

Similarly for the comparative example. Assuming that the than-clause is the complement of Deg°, the *than*-clause must be generated in the embedded IP in (20), even for the LF (20b). Right-roof effects support the claim that the than-clause in (20b) is inside IP2 at S-structure, even if extraposed from DegP: [10]

(26) a. She will say (when you meet her) tomorrow that John is taller than he actually is.
b. * She will say that John is taller (when you meet her) tomorrow than he actually is
c. She will say that John is taller than he actually is when you meet her tomorrow

Hence, the mapping from S-S to the LF (20b) must involve raising of DegP out of the finite complement into the higher clause.

This conclusion ties in neatly with the fact that comparative than-clauses can contain wide scope ACD's:

(27) a. John thinks that Mary is taller than Bill does
b. John thinks that Mary is taller than Bill does *think that Mary is*

The reading (27b) can be accounted for, assuming an LQR analysis as outlined in §1.1. Following reconstruction of the *than*-clause (if extraposed) into DegP, LQR raises DegP to give (28b). The VPE in the *than*-clause is no longer contained in the matrix VP and may take this as its antecedent (28c):

(28) a. $[_{IP1}$ John thinks that $[_{IP2}$ Mary is $[_{DegP}$ more than Bill does _] d-tall]]

---

[10] Chomsky (1981:82ff) discusses examples where right roof seems not to contrain the relation between more and than X. The case at hand does not fall under that type.

b. [$_{DegP}$ more than Bill does _] [$_{IP1}$ John thinks that [$_{IP2}$ Mary is t_{DegP} d-tall]]]

c. [$_{DegP}$ more than Bill does *[$_{VP}$ thinks that Mary is t_{DegP} d-tall]*]
[$_{IP1}$ John **[$_{VP}$ thinks that Mary is t_{DegP} d-tall**]]

Crucially, ACDs like these require a structural solution. The VPE must be raised out of the VP of the matrix clause, to be intepretable at all i.e. to avoid the "regress problem". Notice further that (27) has only a *de re* reading for DegP - it is not paraphrased by (29a), but by (29b):

(29) a. What John thinks is that the degree to which Mary is tall exceeds the degree to which Bill thinks that Mary is tall.
b. The degree to which John thinks that Mary is tall exceeds the degree to which Bill thinks that Mary is tall.

Hence, ACDs dictate (i) that DegP can scope out of believe-complements (to avoid antecedent-containment); (ii) when it does, it receives a *de re* reading. Hence, it seems reasonable that scoping of DegP (rather than "double-indexing") is also responsible for *de re* readings in Russell-sentences (17b).

3. Restrictions on *de re* readings

De re readings are found with other verbs than believe-think-say:

(30) a. You shouldn't tell him that Mary$_j$ is taller than she$_j$ is
b. You shouldn't tell him that Mary$_j$ left before she$_j$ did (leave)
c. You've convinced him that Mary$_j$ is taller than she$_j$ is
d. You've convinced him that Mary$_j$ left before she$_j$ did (leave)

But their distribution is restricted. In this section, some restrictions are discussed which would be unexpected in an 'in situ interpretation' approach. These restrictions turn out to provide interesting support for the movement approach.

3.1 Island effects

Embedded in factive complements, the constructions under discussion only have an absurd reading:

(31) a. # John regrets that Mary$_j$ left before she$_j$ (actually) did (leave)
b. # The fact that Mary$_j$ left before she$_j$ did (leave) surprised us

It is possible to regard these as island effects: the factive complement is a 'barrier' for LQR (as it is for most cases of A'-movement). [11] Assuming a factive complement is a barrier for LQR would correlate with the fact that wide scope ACDs are impossible e.g. in the complement of regret. If LQR is impossible, the VPE in (32a) cannot escape the antecedent-containment ('regress') trap. In the 'undeleted' (32b), by contrast, relativization across the factive complement yields only a weak island effect.

(32) a. * John regrets that we invited the same people that Mary does
b. ? John regrets that we invited the same people that Mary regrets that we invited.

Alternatively, the absurd readings of (31) may be a purely interpretative effect of the factivity of the construction. The content of the complement is "presupposed" in the "actual world", so that a *de re* reading of the adjunct leads to the same conflict as found with I left before I did. For the LQR account of *de re* readings, this account of (31) seems to be neutral as to whether LQR may apply in these examples or not.

There seems to me to be a potentially sensible reading for (31a) which the example does not have. This can be paraphrased as (33a). The corresponding paraphrase of (33b) seems less acceptable:

(33) a. John regrets that Mary left at noon, noon being earlier than when she actually did leave.
b. # The fact that Mary left at noon surprised us, noon being earlier than when she actually did leave.

The contrast between (33a,b) and between (33a) and (31a) might argue against a semantic approach to the latter. As a speaker, I am not responsible for the presupposition when I report John's regret, but I am responsible for the presupposition when I present something as a fact (33b). While I can't dissociate myself from the presupposition of what I present as a fact by using actually in (33b), I can dissociate myself from the presupposition of what I report about John's regret by using actually in (33a). Why can't I do this by using actually in (31a)?

Whatever underlies (31), factive complements can be used as a further tool in investigating the properties of *de re / de dicto* readings and their relation with facts from other domains.

---

[11] Fn: De re readings are also unavailable in wh-island and adjunct islands:
(i) John asked who$_j$ left before he did$_j$
(ii) John thought [that Mary would be late because she$_j$ left before he did$_j$]
The *de re* reading reported for comparatives in counterfactual conditionals (cf. sect. 2.) raises a question about LQR and the barrierhood of if-clause which I do not go into here.

3.2 Topic Freezing Effect

A before-adjunct can stand in pre-subject position in the clause containing the verb it modifies (34). However, the *de re* readings is not available for a before-adjunct in pre-subject position. The effect is sharp - cf. (35):

(34) a. Before she left, Mary ate.
b. John said that before she left, Mary ate.

(35) # John said that before she$_j$ (actually) did (leave), Mary$_j$ left.

It is not easy to envisage a purely semantic-interpretive account of this restriction. In the approach sketched by Stechow (cf. §2.), it would probably have to be stated in terms of a restriction on the distribution of the ACTUALLY operator.

The movement approach opens an interesting perspective on the restriction. It is plausible to suppose that a pre-verbal before-clause has undergone leftward A'-movement already in overt syntax (maybe topicalization). There is a well-known restriction to the effect that a phrase that undergoes A'-movement in overt syntax may not undergo further movement in the LF-component. This restriction is claimed to underly the impossiblity to topicalize wh-phrases in English (36a) or to scramble wh-phrases in German (36b) in multiple questions (Lasnik & Saito 1992, Epstein 1992, Müller & Sternefeld 1993):

(36) a. * Who said that who$_j$, John saw t$_j$?
b. * Wer$_j$ sagte, daß wen$_j$ Hans t$_j$ gesehen hat?
who said that whom John seen has
c. # John said [that [$_{PP}$ before she$_j$ did (leave)] , Mary$_j$ left t$_{PP}$]

Assuming an analysis of wh-in-situ in terms of LF-movement, (36a,b) are bad since the moved wh-phrase is unable to move on to its target position (Spec,CP in the matrix) in the covert component. Analogously, the temporal clause in (36c), having preposed in overt syntax, would be prohibited from undergoing LQR at LF, so that only the absurd interpretation is available.

Similar facts are found with preposed comparatives (DegP): (37) is fine, while (38) only has absurd readings: [12]

(37) John said that taller than Mary is, (only) John is.

---

[12] Wide scope ACDs are impossible if DegP is preposed, but this has an account in terms of a PF-condition independent of the licensing of LQR - cf. Wilder (1995):
(i) * John said that taller than Bill did, only Mary is.

(38) a. # John said that taller than she$_j$ is, (only) Mary$_j$ is.
b. # John said that taller than Mary$_j$ really is, (only) she$_j$ is.

3.3 Parentheticals

Uttered in a neutral context, a simple declarative root clause like (39a,b) is taken to report a belief of the speaker. (39b) is felt to be anomalous, since it attributes a contradictory belief to the speaker:

(39) a. Mary left before Bill did.
b. # Mary$_j$ left before she$_j$ did.

The insertion of a parenthetical into a root clause can change the status of that clause in the utterance. In (40a), the root clause reports (the speaker's belief about) a belief of John's. In this sense, the root is interpreted as if it were the complement of the verb in the parenthetical, i.e. (40a) is similar to (40b):

(40) a. Mary left, John thinks, before Bill did.
b. John thinks that Mary left before Bill did.

However, this similarity has its limits, as (41) shows. The temporal adjunct in (41a) cannot be interpreted *de re* with respect to the parenthetical verb:

(41) a. # Mary$_j$ left, John thinks, before she$_j$ actually did leave.
b. John thinks that Mary$_j$ left before she$_j$ did.

This paradigm is predicted by the movement analysis. In (41a) there is no higher VP for PP to adjoin to, hence no *de re* reading, although the root is interpreted as subordinate to an opaque predicate. If "direct interpretation in situ" were available as a means of deriving *de re* readings, it would be unclear why the *de re* reading is unavailable in (41a).

The paradigm can be reproduced with comparatives:

(42) a. # Mary$_j$ is taller than she$_j$ is.
b. # Mary$_j$ is taller, John thinks, than she$_j$ actually is.
c. John thinks that Mary$_j$ is taller than she$_j$ is.

The behaviour of temporal adjuncts and comparative clauses contrasts with the concessive adverbial in (43):

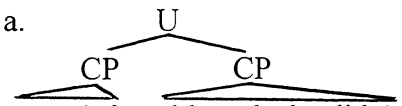
(43) a. # Mary$_j$ left, although she$_j$ didn't.

b. Mary$_j$ left, John thinks, although she$_j$ didn't.

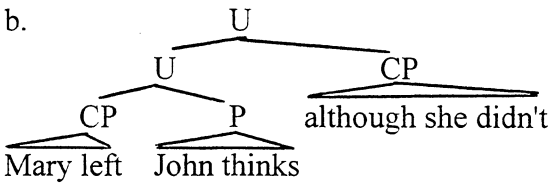
While (43a) is contradictory, the insertion of the parenthetical permits the although-clause to be evaluated with respect to a different world (i.e. the 'actual' world) than the matrix, which can be evaluated with respect to the belief-world of John.

Why the contrast? Unlike the temporal PP in (41) or the comparative clause in (42), the concessive clause does not need to be generated within the matrix clause. Suppose that a parenthetical is generated outside the root main clause (ignoring the problem of serialization), and attaches to it to form a unit U (= 'utterance'). The although-clause in (93) can be directly attached to the unit that results from combining the parenthetical with the root, schematically as in (44b) (P = 'parenthetical'):

(44) a.



b.



In both (44a&b), the concessive clause is interpreted w.r.t the speaker's belief world. In (44a), so also is the matrix, hence the absurdity. [13] In (44b), the matrix is interpreted with respect to the belief-world of John, introduced by the parenthetical, hence the contradiction is lifted. We make the usual assumption that root clauses are 'islands', out of which nothing can be displaced by move-α. Neither the temporal (41a) nor the comparative (42b) can reach the position of the *although*-clause in (44b) by LF, since both must, to be licensed at all, be generated inside the root clause, where they then are trapped.

4. Binding: QR voids Condition C effects

The claim that the adjunct is outside the complement clause at LF when it receives a *de re* reading, is corroborated by binding facts. Covert movement alters c-command relations that obtain at S-structure. Assuming that the Binding Theory applies to LF-representations, we expect mismatches between S-structure c-command and binding possibilities in exactly those cases where covert phrasal movement applies.

The paradigm (45) can explained in terms of QR 'bleeding' Binding Condition C - a c-command relation that holds at S-structure no longer holds at LF, after QR has applied (Fiengo & May 1994:265-6):

(45) a. * She told him$_j$ that John$_j$ must leave

---

[13] Although is similar to the coordinator and, in requiring the truth of both the host clause and its own complement clause. (44a) is contradictory in the same way as is *Mary left and she didn't*

b. She gave him$_j$ whatever John$_j$ asked for

c. [whatever John$_j$ asked for *t*]$_{NP}$ [she gave him$_j$ t_{NP}]

d. She gave him$_j$ whatever John$_j$ wanted her to _

e. [whatever John$_j$ wanted her to *give him*$_j$ t_{NP}]$_{NP}$ she [gave him$_j$ t_{NP}]

(45a) violates Condition C at LF: the name in the complement clause of told is c-commanded by the indirect object pronoun at SS and, assuming QR does not affect complement clauses, at LF. That the name in the free relative in (45b) need not be obviative w.r.t. the pronoun is explained if the relative undergoes QR (45c). The neutralization of Condition C by QR goes hand in hand with the licensing of ACDs (45d-e). [14]

Consider now temporal adjuncts. In a main clause (46), a name inside a postverbal adjunct must be obviative with respect to the main clause subject - a Binding Condition C effect. This indicates the adjunct is in the domain of the subject: [15]

(46) * She$_j$ ate before Mary$_j$ left

When the adjunct modifies an embedded verb and receive a de dicto reading, the Condition Effect remains. The de dicto reading is forced in the complement of fact/regret (cf. sect. 3.1). This was explained in terms of the barrierhood of factive CP for A'-movement (LQR):

(47) a. * John regrets that she$_j$ ate before Mary$_j$ left

---

[14] In ACD-examples, reconstruction of ellipsis sites appears to **feed** BC.C. C-command relations not apparent at S-structure can be created after QR by reconstruction of the VPE (copying of the antecedent). In (i), he may not corefer with John, although the pronoun apparently does not c-command the name; in (ii), the effect is missing. The cases are correctly distinguished at LF -- copying in the antecedent VP *introduce John to t* after QR yields a configuration in the relative in which the pronoun c-commands a name in the first case but not in the second:

(i) * She introduced John$_j$ to everyone that he$_j$ did _

(ii) She introduced John$_j$ to everyone that his$_j$ mother did _

(iii) [everyone that { his$_j$ mother / *he$_j$ } did *introduce John$_j$ to t*] she introduced John$_j$ to t

However, wide scope ACD does not feed BC.C in this way - the pronoun in (iv) may corefer with the name (example requires *she* and *he* to be stressed):

(iv) She said that everyone met John$_j$ that he$_j$ did _

Copying the antecedent VP *say that t met John* into the VPE after QR should yield a Condition C violation (v). The fact that it doesn't is analysed by Fiengo & May (1994:ch.5) in terms of "vehicle change" - a name may be replaced by its 'pronominal correlate' under reconstruction. Hence, (iv) has (vi) as a possible output:

(v) [everyone that he$_j$ did *say that _ met John$_j$*] she said that _ met John$_j$ **BC.C*

(vi) [everyone that he$_j$ did *say that _ met him$_j$*] she said that _ met John$_j$ *vehicle-change.*

Why doesn't vehicle change make (i) grammatical? In this case, turning the name into a pronoun turns the violation of Condition C into a violation of Condition B (vii):

(vii) *[everyone that he$_j$ did *introduce him$_j$ to t*] she introduced John$_j$ to t **BC.B*

The existence of vehicle-change effects under ellipsis masks the effects of the binding conditions in wide-scope ACDs. Hence the parallel between wide scope ACDs and *de re* readings does not show through in the data. Section 6. discusses pronominal variable binding in wide-scope ACDs.

[15] This Condition C effect is neutralized if the adjunct is preposed: *Before Mary$_j$ left, she$_j$ ate.*

b. * The fact that she$_j$ ate before Mary$_j$ left surprised us.

c. John regrets [$_{CP}$ that she left PP]

<-----x----------

The *de re* reading become possible when the construction is complement to believe or think, and then the condition C effect is vitiated (such examples may not be perfect, but the relevant constrasts are clear):

(48) ? John thinks that she$_j$ ate before Mary$_j$ left. (ok if PP = *de re*)

The *de re* reading is most accessible in examples of the type discussed in sect. 2, with absurd de dicto readings:

(49) a. ? John thinks she$_j$ left before Mary$_j$ did (leave).

b. ? John thinks she$_j$ is taller than Mary$_j$ (actually) is.

The correlation between the availability of a *de re* reading and the lifting of the Condition C effect strengthens the proposal in sect. 2, that *de re* / de dicto contrasts for temporal adjuncts are reflected structurally in LF-representations. If Condition C holds at LF, the name contained in the temporal adjunct in (48/49) must not be in the c-command domain of the subject at that level. Conversely, the name contained in the adjunct must be in the c-command domain of the subject in the LF of (47). The proposal that *de re* readings are the result LQR, and factive CPs are barriers for LQR, is supported by Binding effects. LQR gives rise to *de re* readings, and simultaneously bleeds BC.C.

The LQR analysis makes further predictions. Inside a factive complement, *de re* / *de dicto* ambiguities should be possible, and *de re* readings should correlate with the neutralization of condition C effects. But this neutralization will only be relative to NPs below the landing site of LQR. Consider the paradigm (50-51):

(50) a. John regrets that Bill thinks she$_j$ is taller than Mary$_j$ (actually) is.

b. John regrets that Bill thinks she$_j$ left before Mary$_j$ did (leave).

c. Bill regrets [$_{CP}$ that John thinks [$_{CP}$ that she left PP]]

<----ok----------

(51) a. * John regrets that she$_j$ thinks she is taller than Mary$_j$ (actually) is.

c. * John regrets that she$_j$ thinks she left before Mary$_j$ did (leave).

These facts can be described as follows. The adjunct PP (or the DegP) can raise out of the complement of thinks. Hence a name inside the adjunct/than-clause can escape the

c-command domain of the subject of the complement of thinks at LF. Coreference induces no Condition C effect (50). But the raised PP/DegP cannot leave the factive complement. Assuming that its landing site inside the factive complement is in the c-command domain of the subject of the factive complement, a name inside it may not corefer with that subject (51). This is corroborated by simple root clauses:

(52) a. * She$_j$ thinks she$_j$ left before Mary$_j$ did (leave).
b. * She$_j$ thinks she$_j$ is taller than Mary$_j$ (actually) is.

5. Locality

The facts in sect. 4 raise the question of what the landing site of LQR is. Insofar as the neutralization of the condition C effect in *de re* readings reflects the height of the temporal adjunct in the tree, condition C effects can be used to specify more narrowly the position of the adjunct in the tree following LQR. The evidence converges on the following proposal:

(53) a. long QR adjoins XP to VP immediately dominating CP_{fin}

b. long QR may cross at most one finite CP

... [$_{VP}$ V [$_{CPfin}$ ... [$_{VP}$ V [$_{CPfin}$ ... t ...] ...] ...] ...] ...

5.1 More Condition C effects

If (53) is correct, then LQR adjoins XP to the VP immediately dominating the finite CP complement. It then has scope over the matrix predicate. Assuming that all other arguments of the higher verb are outside VP at LF, then we expect QR to bleed BC.C only with respect to arguments of the clause from which XP originates. The facts support this view.

(52) has already shown that a name in an embedded adjunct cannot escape the c-command domain of the subject of the next clause up, when that clause is the root. (54) reproduces that fact for an embedded higher clause:

---

16 The assumption that VP, and not a higher functional projection, forms the landing site of QR, is made for simplicity of exposition. The intended result is that LQR cannot raise a constituent of a finite complement above a satellite of the higher VP-IP projection. Also necessary therefore is the assumption that the lower segment of the VP-adjunction site may form the antecedent to the VPE contained in the raised constituent. On the possibility for LQR to raise more than one constituent out of the complement clause, see section 6.

(54) a. * John said that she$_j$ thinks she left before Mary$_j$ (actually) did (leave).
b. * John said that she$_j$ thinks she is taller than Mary$_j$ (actually) is.

(55) shows that a name in embedded adjunct that undergoes LQR also remains in c-command domain of the object of the higher VP (cf. the examples (30), sect. 3.):

(55) a. * You've convinced her$_j$ that she$_j$ left before Mary$_j$ did (leave).
b. * You$_j$ shouldn't tell her$_j$ that she$_j$ is taller than Mary$_j$ (actually) is.

5.2 Boundedness of wide scope ACDs

(53) further predicts that wide scope ACDs will show strict boundedness effects. Consider the abstract representation of a comparative wide scope ACD (56), where VP* provides the LF-antecedent to the VPE contained in XP:

(56) a. [$_{VP*}$ ... [$_{CPfin}$ ... [$_{XP}$ more ... than ... [$_{VP}$ e]] ...]] *S-structure*

b. [$_{VP*}$ [$_{XP}$ more ... than ... [$_{VP}$ e]] [$_{VP*}$ ... [$_{CPfin}$ ... t_{XP} ...]] *LF*

Given (53), we predict that no more than one finite CP-node may intervene between VP* and XP in S-structure. This is because the adjunction of XP to VP* is what will void the antecedent-containment in LF; if more than one finite CP intervenes, the locality constraint on QR would not be met. Notice that (53) permits other nodes, including non-finite VPs or clauses, to intervene between VP* and XP on either side of the finite CP.

The paradigm (57) indicates the effect induced by the boundedness of long QR on wide scope VPE. In each of (57a,b,c), the constituent (more trees...) that undergoes QR is located in the first finite clause dominated by the VP-antecedent to the VPE in the comparative clause. These three examples have the readings indicated in (58):

(57) a. John thinks that more trees died than Mary does _
b. John thinks that more trees seem to have died than Mary does _
c. John thinks that it seems that more trees have died than Mary thinks it does _
d. * John thinks that it seems that more trees died than Mary does _

(58) a. John [thinks [that more trees died than Mary does *think [that _ died]*]]

b. John [thinks [that more trees seem to have died
than Mary does *think* [*that _ seem to have died*]]]

c. John thinks that it [seems [that more trees have died
than Mary thinks it does *seem* [*that _ have died*]]]

In (57d), the constituent (more trees...) that undergoes QR is located in the second clause below the VP-antecedent to the VPE in the comparative clause.

(59) a. * John [thinks [that it seems [that more trees died than Mary does
think [that it seems [that _ died]]]]]

b. * [$_{VP}$ *think* [$_{CPfin}$ ... *seem* [$_{CPfin}$ ... t ...] ...]]

Consequently, QR would have to cross two finite CP boundaries, to escape antecedent of the VPE. The example is not acceptable, in particular it does not have the reading shown in (59a).

5.3 Lack of inverted scope readings

As noted in sect. 1.1, LQR does not lead to scopal interactions between the raised item and a satellite of the higher verb. Thus there is no ∀∃ reading in (60), despite the fact that the relative clause modifiying the embedded subject contains a wide scope VPE. [17]

(60) Someone believes that everyone is a genius that Mary does (ok: ∃∀ / * ∀ ∃)

We now have the basis of an account for this restriction. The proposal (53), together with the assumption that all satellites of the matrix predicate are outside the matrix VP at LF, permits all the facts discussed in this section to be captured. At LF, the QNP everyone+relative clause in (60) c-commands the matrix predicate (believe), but does not c-command the subject someone. The lack of an inverted scope reading thus correlates with the fact that Condition C effects are not neutralized for Mary in example (52) (repeated here).

(52) a. * She$_j$ thinks she$_j$ left before Mary$_j$ did (leave).
b. * She$_j$ thinks she$_j$ is taller than Mary$_j$ (actually) is.

Just like the QNP in (60), the temporal adjunct in (52) c-commands the predicate of the higher clause, but not the matrix subject, in LF.

---

17 Examples like (i) do not have a reading in which the object is in the scope of the embedded subject:
(i) John will convince at least one professor that every student is a genius
Parallel examples with wide scope VPE - indicating that LQR is available - are possible; cf. ex. (30), sect. 3.

6. Pronoun-binding by QNPs

Wide scope ACD's indicate that the subject of a finite complement can scope out of the higher VP:

(61) a. John said that everyone is tall that Mary did

b. John ... $[_{VP}\ [_{NP}$ everyone [that Mary did [say e is tall]]] $[_{VP}$ said [t_{NP} is tall]]

c. $\forall x$ (say (M,(tall(x))) $\rightarrow$ (say(J,(tall(x))

The QNP has a *de re* reading w.r.t John said ... . In this case, the *de re* reading is the only possibility (antecedent containment). LQR of the QNP (everyone+relative clause) is what licenses the *de re* reading and the wide scope VPE. In this case, we might view LQR as responding to the 'interpretative needs' of (a subpart of) the QNP itself.

Now consider (62). The comparative has a sensible (*de re*) reading; and the pronoun he in the comparative clause is bound by everyone. Hence the embedded subject can include a *de re* DegP in its scope:

(62) John said [that everyone$_j$ is taller than he$_j$ (actually) is]

If the LQR account of the *de re* reading for DegP is correct, then everyone must be assumed to undergo LQR in this case too. Interpreting "in the scope of α" as "c-commanded by α in LF", then everyone must c-command the pronoun in the than-clause in LF. If everyone is not raised out of the complement of say (but is, for the sake of argument, adjoined to the lower IP), then the bound variable reading should not be possible:

(63) a. John ... $[_{VP}\ [_{VP}$ [-er than he$_j$ is $]_{DegP}$ $[_{VP}$ said [[everyone]$_j$ [t_j is t_{DegP} tall]]
(* by the c-command condition on bound variables)

b. $\exists$d,d':d > d' & (say (J,($\forall$x tall(x,d'))) & (tall(x,d))
(last occurrence of x not bound)

This seems to be correct: the reading of (62) is not captured by (63b). In fact the conclusion (i) that everyone must c-command (the pronoun in) the than-clause in LF (bound variable reading), can be strengthened to (ii) everyone must c-command DegP in LF, as in (64a). The latter is necessary, as everyone must include the comparative operator in its scope: the degrees being compared (the height that each person actually has, and the height that, according to John, each person has) vary for each person considered, as in (64b):

(64) a. John ... $[_{VP}$ [everyone]$_j$ $[_{VP}$ [-er than he$_j$ is $]_{DegP}$ $[_{VP}$ said [t_j is t_{DegP} tall]]

b. $\forall x\ \exists d,d':d < d'$ (tall(x,d)) (say (J,(tall(x,d)))

Thus we have evidence (i) that QNPs can undergo LQR from the finite complement subject position independently of the 'interpretative demands' of the QNP itself; and (ii) that more than one constituent can undergo LQR. [18]

(62) involves binding of a pronoun in a DegP that is interpreted *de re*. The analysis of (62) in terms of multiple LQR would be on firmer footing if it could be shown that such pronoun binding can also cooccur with a wide scope ACD. The wide scope VPE would only be licensed by LQR of the DegP containing it. If a QNP in the same clause could independently undergo LQR, then it should be able to bind a pronoun in the DegP. The relevant examples are deviant, though - contrast (65)-(66) with (62) and with (67):

(65) a. ?? Mary thinks [that everyone$_j$ is taller than he$_j$ does (himself)]

b. Mary ...
$[_{VP}$ [everyone]$_j$ $[_{VP}$ [-er than he$_j$* does *think he$_j$ is d-tall* $]_{DegP}$
... $[_{VP}$ thinks [t_j is t_{DegP} tall]]]]

(66) a. * Mary thinks that everyone$_j$ is taller than his$_j$ mother does

b. Mary ...
$[_{VP}$ [everyone]$_j$ $[_{VP}$ [-er than his$_j$* mother does *say he$_j$ is d-tall* $]_{DegP}$
... $[_{VP}$ thinks [t_j is t_{DegP} tall]]]]

(67) a. Mary thinks that everyone is taller than he thinks he is (himself).

b. Mary thinks that everyone is taller than his mother thinks he is.

In the putative LFs (65b) and (66b), everyone, he*/his* and the variable left by LQR of everyone, stand in a weak crossover configuration. However, trying to exclude such examples by appeal to Bijection (or whatever underlies WCO) raises the issue of why the effect is not present in (62) (cf. also note 16). I leave this issue open here.

7. Long distance operator movement in temporal adjuncts and VPE

The claim that the *de re* reading of the before-adjunct in (68) results from LQR is supported by binding data like (68b) (cf. sect 4 and sect. 5). But it is not supported by the ACD facts. In

---

[18] There is a potential problem with this example. A weak crossover configuration arises in the LF (64a), after LQR, though the example shows no corresponding deviance. This may be a case of the well-known amelioration of WCO-effects for pronouns contained in tensed clauses (*That he$_j$ had to work bothers everyone$_j$*).

the case where the temporal adjunct modifies the embedded verb, the VPE in (68) permits the reading (70a) but not (70b) (cf. sect. 1.3 above):

(68) a. John thinks Mary$_j$ left before she$_j$ did.
b. ? John thinks she$_j$ left before Mary$_j$ (really) did.

(69) John said that Mary arrived before Bill did.

(70) a. John said that [[Mary arrived] before Bill did *arrive*]
b. * John said that [[Mary arrived] before Bill did *say that Mary arrived*]

However, the impossibility of (70b) can be shown to be due to independent factors, so that the paradigm does not endanger the claim that temporal adjuncts can undergo LQR.

The explanation for the impossibility of (70b) runs thus:

(71) a. A wide scope reading of the VPE in the adjunct entails
a "long-distance" dependency inside the adjunct.
b. A long distance dependency in a temporal adjunct is impossible
when the matrix VP is a VPE-site.

That is, two factors conspire to exclude (70b). Let us look at details.

The key notion is that of "long distance" dependency in a temporal adjunct. The meaning of before is t<t', where t = the event time of the external verb, and t' = the event time of a verb inside the adjunct. When before governs a tensed clause, t' may be the event time of a verb in a subordinate clause inside the adjunct (72c). This the "long-distance" reading:

(72) a. John left before Mary said that he would _
b. John left at t & [t<**t'** & Mary said at **t'** [that John would leave]] (short-distance)
c. John left at t & [t<**t'** & Mary said [that John would leave at **t'**]] (long-distance)

Several authors (e.g. Thompson 1995) propose that the event time of the embedded verb is linked to before (which relates it to the event time of the V modified by the adjunct) via syntactic movement of a "null" temporal operator (perhaps a null when): [19]

(73) a. John left [before **O$_j$** Mary said **e$_j$** [that he would (*leave*)]] =(72b)
b. John left [before **O$_j$** Mary said [that he would (*leave*) **e$_j$**]] =(72c)

---

[19] Examples with overt operator are marginally acceptable (for me), with the same ambiguity: *? John left before when Mary said that John would (leave).* This may well be the same construction as (72).

A wide scope VPE in an ACD context entails a long-distance dependency such as (73b) in the before-adjunct. If the VPE in (69) takes the matrix VP (said that IP) as its antecedent, the dependency in the before-adjunct cannot be a "short-distance" one, i.e. the before-adjunct cannot have the reading (74b):

(74) a. John said that [Mary arrived [before O_j Bill did *say* e_j [*that Mary arrived*]]]
b. John said that [Mary arrived **at** $\mathbf{t_1}$[$\mathbf{t_1}$<$\mathbf{t_2}$ Bill did *say* **at** $\mathbf{t_2}$ [*that Mary arrived*]]]

The reason is presumably the following: at LF, the before-adjunct must raise out of the matrix VP headed by said, so that the VPE in the adjunct can take that matrix VP as antecedent (=containment avoidance). This is LQR. Suppose LQR of the temporal adjunct leaves an A'-bound trace, i.e. a 'temporal variable' (e_k):

(75) [before O_j Bill did *say* e_j [*that Mary arrived*]]$_k$ John said that [Mary arrived $\mathbf{e_k}$]

The VPE in the adjunct is not identical with the matrix VP, since the former contains a temporal variable in its matrix clause (e_j) the latter contains one in its lower clause (e_k). Hence, the relation of the VPE to its antecedent is not licensed at LF. [20] The only option that satisfies the identity requirement for the VPE / antecedent-VP relation is one in which the adjunct itself contains a long-distance dependency, as in (76), with the reading (76c):

(76) a. John said that [Mary arrived [before O_j Bill did *say* [*that Mary arrived* e_j]]]
b. [before O_j Bill did *say* [*that Mary arrived* e_j]]$_k$ John said that [Mary arrived e_k] (=LQR)
c. John said that [Mary would arrive **at** $\mathbf{t_1}$] $\mathbf{t_1}$<$\mathbf{t_2}$ Bill did *say* [*that Mary would arrive* **at** $\mathbf{t_2}$]]]

The upshot is that (71a) holds. The wide scope VPE reading for (69) requires a long-distance dependency in the before-clause.

Consider now (71b): a long distance dependency in a temporal adjunct is impossible when the matrix VP is a VPE-site. This is illustrated in the following paradigms. The before-clause (77a) with matrix VPE, has short-distance readings (78) but no long-distance reading (79a). The long-distance reading is possible with embedded VPE (77b) - cf. (79b):

(77) a. Mary said that we left at 2. This was before John did.
b. Mary said that we left at 2. This was before John said we did.

[20] In the copy-theory of VPE, copying the antecedent VP would automatically transfer the variable in the lower clause to the VPE-site, hence the short-distance reading of the adjunct could not arise.

(78) a. This was before [O_j John did (*leave* t_j)]
b. This was before [O_j John did t_j (*say that we left* (*at 2*))]

(69) a. * This was before [O_j John did (*say that we left* t_j)]
b. This was before [O_j John said that we did (*leave* t_j)]

The same effect is shown in (80-81):

(80) a. 2 o'clock was when John said that we left. This was before Mary did.
b. 2 o'clock was when John said that we left. This was before Mary said that we did.

(81) 2 o'clock was [$when_j$ John said [that we left t_j]] ...
a. This was before [O_j Mary did (*leave* t_j)]
b. * This was before [O_j Mary did (*say that we left* t_j)]
c. This was before [O_j Mary said that we did (*leave* t_j)]

The contrast between temporal adjuncts (no wide scope ACDs) on the one hand, and comparatives etc. (permit wide scope ACDs) on the other, relates not to a difference in LQR, but to a difference concerning the effect of ellipsis on long-distance dependencies. A long-distance dependency headed by a relative operator in an ACD is not blocked by matrix VPE:

(82) a. John thinks that everyone is clever that Bill does
b. everyone ... [Op_j that Bill does *think [(that)* t_j *is clever]]*

Otherwise, of course, wide scope ACDs could not exist. And the same goes for long-distance dependencies in relatives that are not in ACDs - these also permit matrix VPE:

(83) a. I am the person that John said that the book was for t, and
she is the person that Bill did

b. ... she is the person [Op_j that Bill did *say* [*that the book was for* t_j]]

While I have no explanation for (71b), it is supported by data independent of ACDs. In effect, (71b) conspires with (71a) to exclude the wide scope ACD (70b).

References

Baltin, M. 1987 Do antecedent-contained deletions exist? *Linguistic Inquiry* 18. 537-577.

Chomsky, N. 1981 *Lectures on Government and Binding*. Foris.

Chomsky, N. 1992 A Minimalist Program for Linguistic Theory. MITWPL.

Epstein, S. 1992 Derivational Constraints on A'-Chain Formation. *Linguistic Inquiry* 23.235-259.

Fiengo, R. & R. May 1994 *Indices and Identity*. MIT Press.

Hornstein, N. 1994 An argument for Minimalism - the case of Antecedent-Contained Deletion. *Linguistic Inquiry* 25: 455-480.

Lappin, S. 1993 Ellipsis resolution at S-structure. In: A. Schafer (ed.) NELS 23, Vol. 1. 255-269.

Larson, R. 1987 "Missing Prepositions" and the Analysis of English Free Relative Clauses. *Linguistic Inquiry* 18:239-266.

Larson R. and R. May 1990 Antecedent containment or vacuous movement? Reply to Baltin. *Linguistic Inquiry* 21: 103-122.

Lasnik, H. 1995. Lecture notes. Berlin.

Lasnik, H. & M. Saito 1992 *Move* α. MIT Press.

May, R. 1985 *Logical Form - Its Structure and Derivation*. MIT Press.

Müller, G. & W. Sternefeld 1993 Improper Movement and Unambiguous Binding. *Linguistic Inquiry* 24.461-507.

Russell, B. 1905 On Denoting. Mind 14.

Stechow, A. von 1984 Comparing Semantic Theories of Comparison. *Journal of Semantics*, 3. 1-77.

Tiedeman, R. 1995 Some remarks on antecedent contained deletion. In *Minimalism and Linguistic Theory*, Shosuke Haroguchi and Michio Funaki (eds.). Japan: Hituzi Pub. Co.

Thompson, E. 1995 Temporal Ambiguity of Clausal Adjuncts and the Syntax of Simultaneity. In: J. Beckman (ed.), *NELS 25*, 473-487.

Wilder, C. 1995 Antecedent Containment and Ellipsis. *FAS Papers in Linguistics* Vol. 4. 132-165.

Chris Wilder, Max-Planck-Gesellschaft, ASG, Jägerstr. 10/11, D-10117 Berlin
chris@asg.ag-berlin.mpg.de

Prenominal Arguments in Russian, German and Dutch

Petra de Wit & Maaike Schoorlemmer

Introduction*

Case theory has played a crucial role in the theory of how arguments are licensed in clauses. Relatively little attention has been paid to case within DPs. Most analyses make no distinction between possessors and arguments and assume they are all licensed by (some form of) genitive case. In this paper, however, we argue that a stronger parallel with verbal clause structure enables us to make a distinction between several 'genitive' arguments and allows us to explain a number of restrictions on 'prenominal' arguments which have largely been considered idiosyncratic in nature. The analysis will allow a conception of nominal structure and licensing of arguments within DPs that is very similar to clause structure. We will present evidence to show that the postnominal genitive argument, either realized morphologically or periphrastically, should be distinguished from arguments in prenominal position with the canonical marking for that position. Each argument type is licensed in the specifier of its particular agreement projection.

The paper is organized as follows. In the first three sections we present data concerning the behaviour of genitive phrases and prenominal arguments in noun phrases in Russian, German and Dutch. In section 4 we briefly go into previous analyses of 'prenominal' genitive and possessive pronouns. Section 5 presents our own analysis, some problems are discussed briefly in section 6. Section 7 contains the conclusions of this paper.

1. Prenominal Arguments and Genitive Phrases in Russian

In Russian, a subject or possessor argument of a noun can be expressed either as a prenominal argument (PA) or as a genitive phrase (GP). This is illustrated in the Russian examples in (1) from Kopčevskaja-Tamm & Šmelev (1994) (K&Š):

(1) a. V Nikolk-in-oj komnate
in *Nikolka-PA-LOC.FEM room-LOC.FEM*
'In Nikolka's room'

* We would like to thank Dorothee Beermann, Jan Don, Frank Drijkoningen, Wolfgang Herrlitz, Wolodja Klimonow, Marcus Kracht, Alan Munn, Ad Neeleman, Jan Odijk, Eric Reuland, Felisa Revuelta, Ed Ruys, Cristina Schmitt, Markus Steinbach, Ilse Zimmermann and Joost Zwarts for comments, discussion and judgements.

b. V komnate Nikolk-i
in room Nikolka-GEN
'in the room of Nikolka'

In (1b) the GP is characterized by its case ending; the PA in (1a) is a possessive pronoun or a derivate of the noun, usually with the affix *-in* followed by an affix expressing case, number and gender agreement with the head noun. Both GPs and PAs will be assumed to be arguments of the noun. This means that with ordinary nouns like *čaj* 'tea' PAs carry the POSS role which has been argued to be available with nouns that do not inherit an argument structure from a verb.

A PA occurs strictly prenominally, whereas a GP can only follow the N°:[1]

(2) a. *Portret devočkin
portrait girl-PA-M

b. *Nikolki komnata
Nikolka-GEN room

When a noun selects two arguments, it is no longer possible to choose which argument is to be realized as a PA or a GP, as was the case in (1). Assuming the thematic hierarchy POSS>AGENT>THEME (see Grimshaw 1990, Drijkoningen 1993), the lower argument occurs as a GP, the higher argument as a PA:

(3) a. Vanin obraz Bogorodicy (K&Š)
Vanja-PA-M icon Our Lady-GEN
'Vanja's icon of Our Lady'

b. Petino ispolnenie Šopena (Padučeva 1984)
Petja-PA-N performance Chopin-GEN
'Petja's performance of Chopin'; *'Chopin's performance of Petja'

It is not possible to express both arguments by using two GPs or two PAs:

(4) a. *Razrušenie Saraeva protivnika (Schoorlemmer 1995)
destruction Sarajevo-GEN enemy-GEN
'The destruction of Sarajevo by the enemy'

b. *Petino Mišino ispolnenie (K&Š)
Petja-PA-N Miša-PA-N performance
'Petja's performance of Miša', or 'Miša's performance of Petja'

We have seen that both PAs and GPs express arguments of the noun, but that they surface in different positions and that there is a strict division of labour in case a noun selects two arguments. There are more differences between the two, however. If the prenominal arguments in (3) were to be analyzed as involving (some form of) genitive case, one would expect them to occur in other

[1] The word orders in (2) can be saved by special intonation, and only with special stylistic effects.

environments, like the complement position of certain prepositions and verbs governing genitive case. This is not the case, witness the examples in (5).[2]

(5) a. Izbegat' sestry/*sestrino
avoid sister-GEN /sister-PA-N

b. Radi sestry/*sestrino
for-the-sake of sister-GEN /sister-PA-N

There is also a difference in internal complexity. PAs are limited to proper names and common nouns used as such and cannot be accompanied by modifiers or complements. There are no restrictions on the complexity of GPs:

(6) a. *Devočkin s persikami portret (K&Š)
girl-PA-M with peaches portrait

b. *Moej/*moja mamina stat'ja (K&Š)
my-GEN/-NOM mother-PA-F article

c. Portret devočki s persikami
portrait of girl with peaches

d. Stat'ja moej mamy
article [my mother]-GEN

The difference between an agreeing argument in prenominal position and a genitive argument in postnominal position is not particular to Russian but can also be found in another language with a morphological case system, such as German.

2. *PAs and GPs in German*

A cursory look at German suggests that genitive-marked arguments occur on both sides of the noun. It turns out, however, there are many differences between prenominal and postnominal 'genitives' which strongly question an analysis of 'prenominal genitive' in terms of genitive case. In fact, the properties of 'prenominal genitives' are strikingly similar to the characteristics of PAs in Russian. First, a PA in German is always marked by means of *-s* regardless of the gender of the possessor or argument noun, whereas in the genitive case there is a different ending (*-r*) for a feminine noun. The feminine proper names marked *-s* only occur prenominally:[3]

---

[2] The PAs in these examples are in the default neuter form, the only conceivable one in this context.

[3] However, we do find examples like:

(i) Der Hut Annas the hat Anna-PA

There is variation among speakers as to whether they allow postnominal genitives on bare nouns. The pattern seems to be that postnominal genitives derived from bare feminine Ns are bad, but those derived from names (including names of countries) are good. It might be possible to explain some

(7) a. Annas/Mutters Hut
Anna-PA hat

b. Der Hut der Anna/Mutter
the hat the-GEN Anna

c. *Der Hut Mutters
the hat Mutter-PA

As in Russian, if a noun has more than one argument the PA always encodes the higher argument:

(8) a. Peters Behandlung seiner Mutter
Peter-PA treatment his mother-GEN

b. *Peters Behandlung des Artztes (Bhatt 1990:101)
Peter-PA treatment the doctor-GEN
'Peter's treatment by the doctor'

Also, there can be only one GP and one PA with each noun:

(9) a. *Die Behandlung Peters seiner Mutter (Bhatt 1990:101)
the treatment Peter-GEN/PA his mother-GEN

b. *Peters Mutters Behandlung
Peter-PA mother-PA treatment
'Peter's treatment of his mother' or 'Mother's treatment of Peter'

Again, PA arguments cannot contain complex expressions other than proper names. Example (10)a is ungrammatical because the input is too complex.

(10) a. *Meines Bruders aus Wiesbaden neue Wohnung (Bhatt 1990:117)
my-GEN brother-GEN from Wiesbaden new house

b. *Mein Bruder aus Wiesbadens neue Wohnung
my brother from Wiesbaden-PA new house

c. Die neue Wohnung meines Bruders aus Wiesbaden
the new house my-GEN brother-GEN from W.

The examples in (11) show that a true, complex genitive does not occur prenominally in modern German. Examples like (11)a, with a masculine or neuter head

---

restrictions on the formation of genitive case on bare nouns in terms of PA formation. Genitive on bare nouns is possible with names of countries but not mass nouns. This could be explained if these genitive forms were in fact post-nominal PAs. It would raise the problem how it is possible that the PAs occur postnominally.

of the prenominal genitive, inspire a 'Goethe-flavour' in native speakers; when the head is a feminine noun they are fully impossible.[4]

(11) a. ?Des Kindes Teddybär
the child-GEN teddy-bear

b. *Der Frau Haus
the-GEN woman house

Again, if one assumes a uniform 'genitive' analysis of *-s* in prenominal and postnominal position, the prenominal forms in (7)a would be expected to occur in canonical genitive environments outside the DP. Both *wegen* 'because of' and *bedürfen* 'need' select genitive case in German, and exclude PA forms.

(12) a. Wegen *Mutters/[ok]der Mutter
because of mother-PA/the-GEN mother

b. Wir bedürfen *Mutters/[ok]der Mutter
we need mother-PA/the mother-GEN

We conclude that in languages with morphological case in the noun phrase prenominal arguments can be licensed without being assigned genitive case. In the next section we will look at a similar phenomenon in Dutch, a language without morphological case.

3. *PAs and GPs in Dutch*

We assume that the Dutch equivalent to the PA and GP discussed so far are the 'prenominal genitive' and a PP headed by *van* 'of' respectively. The properties of the 'prenominal genitive' match those of PAs in Russian and German, which justifies an analysis of these elements as PAs and not genitives. To the extent that they are applicable the arguments discussed earlier to distinguish PAs from GPs will be repeated for Dutch.

If the noun has only one argument we can realize it either by means of a PA or a *van*-PP. If the noun has two arguments, we find a fixed distribution where the PA encodes the higher argument (see also (3)b and (8)a):

(13) a. Jans boek
Jan-PA book

a'. Het boek van Jan
the book of John

b. Mijn moeders boek
my mother-PA book

b'. Het boek van mijn moeder
the book of my mother

[4] Our hunch is that speakers are familiar with examples like (11)a only due to education, and that it is the morphological similarity with PAs that allows them to be in some way incorporated into the system. The fact that feminine nouns are excluded shows that this late formal learning is not enough to develop a full-fledged prenominal genitive as part of the speaker's grammar.

(14) Jans behandeling van de arts
Jan-PA treatment of the doctor
'The doctor's treatment by John'

In prenominal position PAs can be derived from proper names and nouns used as such. DPs introduced by a referential determiner, indefinite determiner or quantifier cannot be PAs, nor can any modified DP.[5]

(15) a. *De/een/iedere jongens boek
the/a/every boy-PA book

b. *Alle jongens boeken
all boys-PA books
'All boys' books'

c. *De vrouw met die gekke bril's caravan
the woman with them funny glasses-PA caravan

We have presented evidence to support the distinction between PAs and GPs in Russian, German and Dutch. PAs occur strictly prenominally, they are derived forms and can show agreement, they always encode the higher theta role and are restricted to proper names. This calls for a unified analysis of PAs in the three languages.

4. *Previous Analyses*

We will now discuss some previous analyses of these and similar facts. English possessive *'s* has been analyzed as a D° element from the beginning of the DP hypothesis (Abney 1987). By analogy, many researchers have assumed the same for Dutch and German prenominal possessors, including Demske (1995), who argues that the entire PA in Modern German resides in D°. Demske's arguments include the fact that PAs occur in complementary distribution with determiners and behave as definite expressions, and that possessive pronouns cooccur with dative NPs which might then be argued to occur in SpecDP. Our main objection against this proposal is that it treats PAs as syntactic heads, an analysis that is incompatible with the fact that PAs can be assigned a θ-role by the head N° as independent morphological words (see (3)). Following the standard assumption concerning (argumental) θ-roles that they must be assigned to XPs this means that PAs cannot be D°s.[6]

---

[5] See section 6 for discussion of cases like *mijn moeders boek* 'my mother's book'.

[6] Baker, Johnson and Roberts (1989) propose that in a passive I° can be the recipient of an argument θ-role. They argue for this analysis on the basis of (among other things) the fact that a *by*-phrase may be inserted, expressing the semantics of the θ-role assigned to I°. The assumption that the external θ-role of an N° is assigned to D° would then predict the availability of an adjunct expressing this

An alternative approach is to analyze the PA as a combination of an argument DP in SpecDP and the D° head of the projection dominating the main N°, as in the structure of *Peter's hat* given in (16).

(16) $[_{DP}$ Peter $[_{D'}$ s $[_{NP}$ hat]]

Under this approach, *-s* cliticizes phonologically to the element in SpecDP, as proposed for English by Abney (1987). Proposals along these lines were also made by Haider (1987) for German and by Corver (1990) for Dutch. Attractive as they may seem to account for the body of facts presented above, there are problems with this approach for each of the languages discussed here. First of all, PAs cooccur with demonstratives in Russian and German, as shown in (17).[7]

(17) a. On nenavidit ėtu moju/Vasinu rabotu
he hates this my/Vasja-PA work
'He hates this work of mine/Vasja's'

b. Diese meine Frage (Giusti 1995)
this my question
'This question of mine'

Russian does not have articles, but demonstratives have a special status among modifiers that justifies treating them as occurring in a higher functional projection. Adjectives focus-scramble freely out of the DP, but they cannot in the presence of a demonstrative:

(18) a. Xorošuju on kupil knigu
good-ACC he bought book-ACC
'He bought a good book'

b. *Xorošuju on kupil ėtu knigu
good-ACC he bought this book-ACC
'He bought this good book'

Under the assumption that extraction out of a noun phrase proceeds via SpecDP, the fact that demonstratives block adjective extraction can be explained under the assumption that they occur in SpecDP. Since demonstratives can cooccur with PAs, as in (17), PAs cannot occur in SpecDP.[8]

---

semantics. This, however, is not the case. We therefore will not discuss this option any further.

[7] This type of example is possible with possessive pronouns, but not other PAs, as illustrated in (i).

(i) *Diese Ottos Arbeit this Otto-PA work

Also, the first element can be a demonstrative, but not an article.

(ii) *Die meine Frage the my question

We have no explanation for these facts, although solutions must quite clearly be sought in the fact that the possessive pronoun carries inflectional morphology, unlike the PA.

[8] If a demonstrative were to occupy D° a PA could only precede it. This word order is ungrammatical.

Possessives in this context (i.e. as in (17)) probably receive the particular interpretation also found in the English 'of mine' construction as found in the glosses. It could then be argued that the analysis should be as in English, which under some analyses involves a structure with two DPs, as in (18)b, (19) (see Schmitt 1996).

(19) $[_{DP}$ This house $[_{DP}$ of mine]]

However, we want to argue that there is no semantic feature that characterizes this position that does not also occur on complement DPs in other positions. Also, it is fully unclear, if the analysis of the Russian cases where analogous to the one in (18)b, (19) how the possessive could end up as high in the higher DP as it does. For these reasons, we will follow De Wit (1996) and assume that *this house of mine* involves DP-internal predication of *mine* over *this house*, with *of* as a licenser of the predicate.

An additional problem with the assumption that possessors are in D° is that it leaves unexplained Dutch cases like those in (20).

(20) Dit is mijn fiets; waar is de jouwe?
this is my bike, where is the your?
'This is my bike, where is yours?'

Here, a D° cooccurs with and precedes a possessive pronoun. Under the assumption that PAs always occur in the same syntactic position such examples are further evidence that in Dutch this position is not SpecDP nor D°.

Our conclusion is that the surface position of PAs is not in SpecDP nor D° of the higher noun in any of the three languages under discussion.[9]

Italian is very similar to Russian: prenominal possessors agree with the noun with which they occur. Also, like Russian PAs, Italian possessors cooccur with demonstratives. On the basis of these properties of Italian possessors, Giorgi & Longobardi (1991, henceforth G&L) reach the following conclusion (1991:54): 'possessive elements are syntactically specified to be realized on the surface either

---

[9] The behaviour of predicative possessors also raises some questions. In Dutch, only pronominal PAs can occur predicatively, in all other cases a *van*-PP must be used, as in (i). In Russian all PA forms can be used predicatively (see (iii)), in German PAs derived from proper names are good, pronominal possessors take on the same ending as all other PAs: *-s*.

(i) *Die fiets is de mijne/*Jans/van Jan*
that bike is the my-AGR/ John-PA/of John

(ii) *Das Fahrrad ist Peters/deins*
that bike is Peter-PA/yours

(iii) *Ėtot velosiped - Mašin/tvoj*
that bike (is) Maša-PA-NOM.M/your-NOM/M

The fact that Dutch dialects that allow inflection on PAs allow predicative use of them as well as the contrast between the bad instance of (i) vs. all other ones suggest that predicative use of PAs is possible only when some inflection is available. A related question is is why this is the only position where Dutch possessive pronouns other than *ons/onze* 'our' may carry adjectival agreement inflection in the first place.

as As (as in Italian), or as Ds (as in English and French).' Having discarded the D° analysis for possessors in Russian, German and Dutch, we could extend G&L's proposal for Italian to these languages and assume that PAs are adjectives. This assumption leads to the following problems.

The first problem is that even in Italian PAs do not always pattern with adjectives. In ellipsis contexts the element expressing definiteness with a PA form is *il*, with an adjective it is demonstrative *quello*.[10]

(21) a. Il mio — the my (mine)
b. Quello grande — this big (one)
c. *Il grande — the big (one)

Secondly, if PAs are treated as adjectives this means they occur in adjectival position. In most theories, adjectives occupy a position distinct from arguments, which again makes it difficult to account for the fact that they are assigned θ-roles by the head N.[11]

The third problem is that PAs do not have adjectival semantics. Consider the Russian examples in (22).

(22) a. Materinskaja ljubov'
motherly love

b. Mamina kniga
mother-PA book: 'mother's book'

The adjective *materinskij* is derived from the noun *mama* 'mother' by a productive morphological process of adjective formation. If forms like *mamin* were adjectives their semantics would be comparable to the semantics of *materinskij*. However, *mamin* refers to a particular person, someone's mother, whereas *materinskij* does not: Its non-deictic semantics is entirely modificational. Babyonyshev (1996) provides evidence that the nominal base inside a derived adjectives is non-referential, as opposed to the nominal base of a PA:

(23) a. Ja prinesla Nadinu^{i} knigu. Ona^{i} prosila ee segodnja vernut'
I brought Nadja-pa book. She asked it today return
'I brought Nadja's book. She asked me to return it today'

b. ??Ja prinesla detskuju^{i} knigu. On(-i)^{i} prosil(-i) ee segodnja vernut'
I brought children's book. He/they asked it today return.

---

[10] Quello grande exists with a marked deictic semantics.

[11] This reasoning prevents any adjective from carrying a θ-role, a prediction that seems to be violated by examples like *The Italian invasion of Albania* (see Grimshaw 1990). However, it is not clear whether the adjective here is a true bearer of the θ-role. It might be an adjunct expressing a θ-role in the same way that a *by*-phrase does in a passive clause. G&L provide evidence against an argumental treatment of these adjectives involving reflexivization (p. 125-6).

Finally, PAs inflect in a slightly different way from adjectives, using a paradigm that is sometimes referred to as 'pronominal'. This is illustrated in (24).[12]

(24) a. naš, naš*a*, naš*i*
our-NOM/SG/M, our-NOM/SG/F, our-NOM/PL

b. Vasin, Vasin*a*, Vasin*y*
Vasja-PA-NOM/SG/M, Vasja-PA-NOM/SG/F, Vasja-PA-NOM/PL

c. mil*yj*, mil*aja*, mil*ye*
dear-NOM/SG/M, dear-NOM/SG/F, dear-NOM/PL

Some pronominal PAs (*ego* 'his', *ee* 'her' and *ix* 'their') do not inflect at all.[13]

Our conclusion, added to the conclusion that PAs are not in DP, is that PAs are not adjectives either.

5. *Towards a structure for PAs and GPs*

We have reached the following conclusions concerning the status of PAs. i) PAs are not true adjectives, ii) PAs are structurally lower than D°, and iii) PAs are DPs carrying a θ-role, so they must project inside the NP projection. In order to derive a structure for DPs that allows us to account for the properties of PAs and GPs we combine these conclusions with the data presented earlier.

First, we want to make the following assumptions concerning argument projection in DPs. An N° assigns a θ-role to a complement, like a verb, it does so within its own lexical projection. If the noun can assign more than one θ-role the arguments will project following the hierarchy POSS>AGENT>THEME mentioned earlier. Again, similar assumptions must be made to account for argument projection in the verbal domain.

Secondly, we want to argue that genitive on complements of N° is structural case. Following generally accepted reasoning about inherent case, if the genitive were an inherent case we would expect it always to cooccur with a particular θ-role on the complement. We have seen that there is wide variation among genitive complements to nouns as to the θ-roles they carry - a property typical of complements with a structural case. In fact, GPs can carry any θ-role assignable by nouns.

---

[12] Some adjectives use a very similar paradigm, but all adjectives have an overt ending for masculine singular nominative, as opposed to PAs.

[13] They can still be shown not to be genitive forms of the corresponding pronouns. Observe the contrast in (i) and (ii):

(i) Ja ėto delala iz-za *nee* I did this because-of her-GEN

(ii) Ja eto delala iz-za *ee* mamy I did this because-of her mother-GEN

After some prepositions, personal pronouns must be preceded by n-. The seemingly homophonic possessives do not show this behaviour.

Allowing genitive as an inherent case with all these different θ-roles doesn't solve the problem (apart from being extremely suspicious from a theoretical point of view), because we would then expect such different genitives to cooccur with the same noun. This is not the case, as illustrated in (25).[14]

(25) *Razrušenie Saraeva protivnika
destruction Sareva-GEN enemy-GEN

Again, genitive case behaves like a structural case: it is available for one argument only. Of course claiming that inherent case is normally assigned only once too cannot serve as an argument here, because the uniqueness of inherent case can only be dependent on whether or not a head can assign more than one θ-role that comes with a particular case. If it can, we expect more instances.

We want to argue that since genitive in a DP is a structural case it is assigned in a way comparable to structural case in clauses. This means that the DP to be assigned genitive raises from an NP-internal complement position to the specifier of a functional projection dominating NP, which we will call AgrP. This is illustrated in (26)a for an internal argument, and (26)b for an external one.

(26) a. $[_{NumP}$ N $[_{AgrP}$ DP_{GEN} t_N $[_{NP}$ t_N $t_{GP}]]]$
b. $[_{NumP}$ N $[_{AgrP}$ DP_{GEN} t_N $[_{NP}$ t_{GP} t_N $]]]$

Since head nouns precede subject and object arguments, we follow Cinque (1993) and assume that N^o moves into a higher functional head position Num^o.

Like a GP, only one PA may occur in any DP ((27)a), and again, in the absence in the DP of a GP it may have any of a wide range of thematic relations to the noun (27)b.

(27) a. *Petino Mišino ispolnenie
Petja-PA Miša-PA performance
'Petja's performance of Miša', or 'Miša's performance of Petja'

b. Jans boeken
Jan-PA books
'John's books'

Jans ontslag
Jan-PA dismissal
'John's dismissal (by ..)'

We therefore assume that, like a GP, a PA occurs in a unique position where it is formally licensed. Since a PA precedes the head noun ((27)b) our assumption is that it occurs in the specifier of a functional projection dominating NumP, which we will refer to as PosP (see also Longobardi 1995, Veselovská 1995).

(28) $[_{DP}$ $[_{PosP}$ PA Pos^o $[_{NumP}$ N $[_{AgrP}$ DP_{GEN} t_N $[_{NP}$ t_{PA} t_N $t_{GP}]]]]]$

[14] We ignore picture nouns here.

Since in the languages discussed adjectives precede nouns but follow PAs we assume adjectives to reside between Pos° and Num°.[15] Independent evidence for the existence of a projection dominating NumP and dominated by DP can be given on the basis of Dutch facts like those in (29).

(29)	a.	Drie artikelen three articles	Drie uur three hour: 'three hours'
	b.	Een artikel of drie an article or three 'about three articles'	Een uur of drie an hour or three: 'about three hours'

The noun following the numeral is usually in the plural, but some counted nouns remain singular (like *uur* 'hour'). In the approximate construction (29)b the noun is always singular, and the noun is separated from the numeral by an element homophonous with the coordinating conjunction *of* 'or'. A possible analysis of the latter type of DP would involve raising of the head noun to a head position dominating the numeral in SpecNumP but dominated by D°.

An analysis in terms of coordination, even though it might provide a way to explain the semantics, would not explain numerous other properties of this construction. Crucially, the pronunciation of *een* indicates that it is an article, not a numeral, and therefore a semantic paraphrase like 'one article or three' cannot be taken too seriously, apart from the fact that 'one or three' does not generally mean 'about three'. Also, such an analysis would have nothing to say about the similarities between this construction and its Russian cognate, which does not involve any overt coordinator. See Billings (1995) for an analysis of approximate inversion in terms of N-movement.[16]

(30)	a.	*Tri stat"i*	three article-GEN: 'three articles
	b.	*Stat"i tri*	article-GEN three: 'about three articles'

Complements to nouns are usually optional (except objects in complex event nominals). In (1), (7) and (13) we illustrated the fact that complements of nouns can occur either as PAs or GPs, yet another form of optionality in argument realization in nouns. Within the minimalist program, there is only one way of solving the second type of optionality, which is to identify a difference between the two options which could be described in terms of a syntactic or semantic feature. We can see no such difference in these cases, the optionality seems to be

---

[15] If numerals occupy SpecNumP the assumption must be that adjectives are adjoined to Num', thereby deriving a position between the numeral and the head noun.

[16] Of course, this brief introduction fails to explore all the intricacies involved in approximate inversion in Dutch, in particular with respect to the semantics and the distribution of adjectives (see (i)).

(i) *Een interessant artikel of drie*
an interesting article or three

We will leave those for further research.

a true one. Therefore, writing down triggers for movement to the various structural positions in terms of feature attraction seems to be a pointless exercise, which we will refrain from.

Instead, we assume that features are picked up as a result of movement into particular positions and spelled out by a special module of morphology (see section 6). The idea is then that argument movement to formal licensing positions inside the DP is free in principle, but some notion of equidistance must be involved in blocking movement of the lower argument into the higher Spec position. Also, AgrP must be assumed to be inactive in some cases to allow an argument to move to the higher SpecPosp, in the same way that AgrOP is inactive in clauses with unaccusative verbs or passives.[17]

As opposed to what happens in the verbal domain, the morphology resulting from SHAGR occurs on the specifier, not the head.[18] Our claim is that this fact is a possible explanation for another difference between CPs and DPs, viz. the absence in nominals of a phenomenon comparable to the EPP; a DP may remain without any arguments at all. Analyzed as the absence in DPs of a formal requirement that SHAGR take place in PosP[19] we can also account for the fact that a single argument of a monadic noun may move either to SpecPosP or SpecAgrP (see (1)). In a clause with an unaccusative verb, AgrOP must be inactive in order for the argument to be able to satisfy the EPP. We propose that in a DP either projection may be inactive, thereby allowing a single argument to be licensed in the other specifier.

6. *Getting the Morphology Right*

So far, we have treated a PA as a nominal whose morphology reflects formal licensing as an argument. However, Russian PAs show agreement with the noun, a property that makes them look more like adjectives. Our proposal is that they are an instance of the more widespread phenomenon of mismatches between syntactic and morphological category. The general idea is the following.

We assume a model of morphology along the lines of Borer and Baker where morphology is a module of grammar which may operate and be accessed at any time in the derivation of a sentence: before syntax, in parallell with it and afterwards. We will follow Borer's terminology in referring to this kind of system as Parallel Morphology; we will refer to the module of grammar involved as Morphological Form (MF). It is irrelevant for the present discussion whether the

[17] See Laka 1996 on 'active nodes' in ergative and non-ergative languages.

[18] A verb has no phi-features of its own, and in many cases expresses those of the element it agrees with morphologically. An N^0 does have phi-features (number, gender), and expresses those morphologically. The fact that it does not also express the phi-features of the element it agrees with can be attributed to the inability of a form to express the same type of features twice.

[19] See Schoorlemmer 1995 for an analysis of the EPP in these terms.

input to MF consists of head-adjoined structures of the Lieber type or feature annotated stems. Both of these are assumed to trigger rules adding morphological elements to the stem in the course of a syntactic derivation. The restrictions on this 'spellout' are the following (Elsewhere, see also Schoorlemmer 1995, ch. 3):

- Be non-distinct in the strict sense (don't insert morphology that spells out features not present on the stem);
- Spell out as many features as possible;
- Spell out as early as possible;
- Use a lexically listed element spelling out the features.

The fact that MF may operate during the derivation of a sentence as well as before it does not mean that there are no restrictions on the way MF operates. For instance, only morphology that occurs before syntax may be of the result of operations on a verb's argument structure, otherwise we would derive Projection Principle violations. We take as a defining property of derivation that it is the result of a morphological rule operating presyntactically, irrespective of the type of morphology involved. All other morphology will be referred to as syntactic morphology, which includes inflection and the morphological phenomena involved in clitic clustering.

So, apart from syntax and PF there is a module of morphology, MF, which operates in parallel to the syntactic derivation, with mutual access at any point. This approach precludes the insertion in syntactic trees of fully formed morphological items; instead, it builds up the morphological shape of the word by inserting the morphological elements corresponding to the features in the course of the syntactic derivation.[20] MF output is correct if there is no alternative that checks more features and if no features have been added to the derivation in MF.

Apart from providing a straightforward account of the Mirror Principle effect (see Baker 1988, Halle & Marantz 1993) this model has the additional advantage of allowing an explanation of mismatches in syntactic and morphological category. In the case of a passive participle, for instance, MF will spell out whatever constitutes the passive feature on a verb by inserting *morphologically* adjectival material. However, syntax is oblivious to the morphological effects of MF, and therefore the participle continues to behave as a verb syntactically. We will refer to a case like this as a *syntactic verb, morphological adjective.*

Having outlined our assumptions about the interaction between syntax and morphology let us now return to the PA and its adjectival appearance. The idea to account for this is the following: The DP that derives the PA moves to SpecPossP, and receives a feature [Pos] as a result of SHAGR. [Pos] percolates

[20] This view on morphology and checking could be reconciled if what is inserted in syntax is not fully inflected forms but roots (either abstract or actual morphemes) with bare features to be checked. We would then have to assume that features become visible for MF spellout only after they have been checked, and deriving a successful spellout at MF would have the result of eliminating the features so as not to offend PF.

down to the head of the DP, like a case feature would. The head is input to MF, and the feature is spelled out *-in/-ov*, deriving a PA of the *morphological* category A (*mamin* from *mama*, for instance). This form is equivalent to a structural case form in the sense that it expresses a SHAGR relation. The morphological A continues to behave as a syntactic N, nothing changes in syntax. The German and Dutch *-s* morpheme deriving the PA is equivalent to the Russian *-in/-ov*. The presence of further phi-features resulting from SHAGR may lead to the appearance of agreement morphology on the PA, but we claim that this is not a syntactic fact.This happens in Russian but not German and Dutch.[21]

The proposal that an MF rule is responsible for deriving the actual PA immediately accounts for some of the input restrictions, most importantly, for the fact that the input can be a single word only. Also, the fact that the input to the rule is restricted to a particular lexical class of N°s, i.e. those that can be proper names, can be accounted for in a straight-forward way: in order for the MF rule to operate the input must carry a feature [proper name]. A similar restriction must also be assumed to be operative in blocking certain forms of compounding and derivation with proper names. If the *-s* morpheme were a phonological clitic it would be impossible to define the lexical restrictions on cliticization.

7. Some Problems and Possible Answers

We will now briefly discuss some problems.

In German and Dutch, PAs can be modified by a possessive pronoun or PA, as illustrated in (31) ((31)a is Dutch, (31)b is German).

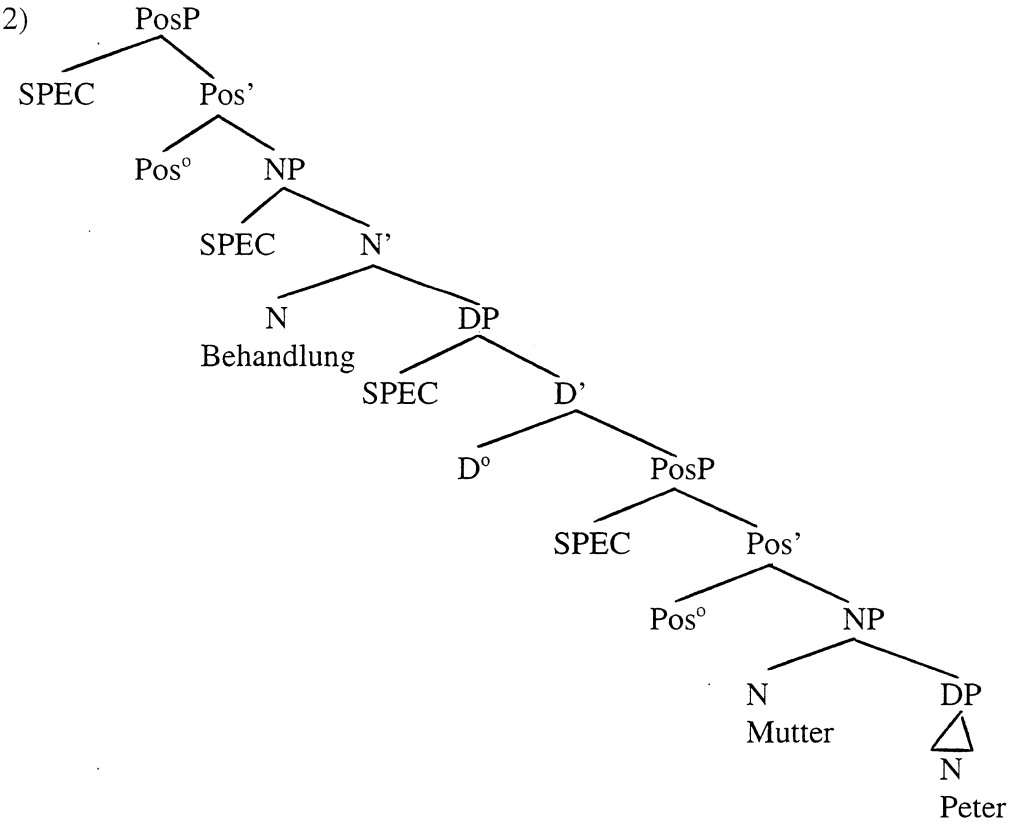
(31) a. Mijn moeders boek
'My mother's book'

b. Peters Mutters Behandlung
Peter-PA mother-PA treatment
'The treatment of Peter's mother'

This stacking of PAs can be derived successive cyclically, where each of the PAs is licensed in their respective SpecPosPs, as in (32).

[21] The inflectional morphology is slightly different from that found on ordinary adjectives (see section 4). Probably, the morphological category is not A but 'Pronominal A', which accounts for the identity between the endings in PAs and demonstratives.

(32)



The DP headed by Peter moves to SpecPosP of the DP headed by Mutter, and the agreement feature is spelled out as *-s* on Peter. Now the DP headed by Mutter is inserted as the complement of *Behandlung*, and it raises to the SpecPosP of the projection of this N°. The DP headed by *Mutter* now receives the [Pos] feature involved with SHAGR with *Behandlung*, which in turn allows *Mutter* to acquire the PA form in *-s*.

This approach predicts the absence of such stacking in Russian. In Russian, the PA agrees in phi-features with its θ-marker, which in overt syntax occurs in Num°. When the higher DP moves to SpecPosP of the matrix DP its head, (the equivalent of) *Mutter*, must now be marked with a [Pos] feature due to SHAGR with *Behandlung* (either by movement to its own D° or by percolation). The assumption is now that agreement between *Mutter* and *Peter* needs to spell out a case feature. In *Petina mama* 'Peter's mother' the case is nominative, and *Petin* agrees with it. However, in the larger structure (the equivalent of (31)b) *mama* is going to end up marked as a possessor, which would force *Petin* to express [pos] in the lower structure and once again in the higher structure. Our assumption is that MF in Russian does not have a form to spell out this double marking.

Observe that such cases are possible in Slovak and Upper Sorbian, where the lower possessor takes on the genitive form (see Corbett 1987, Ružička 1993). Our

assumption is that in these languages, stacked or multiple [pos] features are spelled out with the genitive form.

The second problem also involves PAs derived from a complex DP, where the entire DP functions as a proper name. Examples are given in (33).

(33) a. De buurvrouws fiets
the neighbour-PA bike

b. De president van Amerika's toespraak
the president of America-PA speech

c. Teti Mašina kniga
aunt Maša-PA book

A solution to this problem must be sought in the following direction. We assume that there is a post-syntactic evaluation of the context in which a proper name occurs, and if it is modified or otherwise elaborated on the structure is ungrammatical. However, if the extra structure is part of the proper name as listed in the lexicon the PA is acceptable.[22]

Another problem is that in German and Dutch but not Russian PAs occur in definite DPs only. The solution to this problem is based on the idea that PAs without overt inflection need to move to SpecDP to license the agreement features not spelled out morphologically. This movement, which occurs in German and Dutch but not Russian (or Italian), puts the PA in a SHAGR relation with D°, and forces both elements to share their definiteness properties. Since PAs can be derived from proper names only, D° of the main projection will always inherit the [+def] value for definiteness of the proper name. This approach probably also explains some cooccurrence restrictions on PAs with other D elements in Dutch and German.

Further problems are the behaviour of Dutch PAs under ellipsis (see fn. 9) and the correct analysis of picture nouns, which we leave for further research.

8. *Conclusion*

We have argued that prenominal arguments in Dutch, German and Russian, even though they may look very much like genitive case forms in the language or in its

[22] Corver (1990) attributes the grammaticality of (33)b to the fact that the final element can occur as a 'prenominal genitive' independently. The prediction is then that all and only DPs ending in such elements allow PA formation. This is not a valid prediction, as illustrated in (i) and (ii).

(i) **Mijn nichtje uit Amerika's brief*
my cousin from America's letter

(ii) *Jantje van de overkant's caravan*
Johnnie from across-the-street's caravan

previous stages, are in fact different syntactic entities. They share with genitive arguments the property that they occur in a unique syntactic position and that they are licensed by SHAGR with a functional head. They differ from genitives in being the product of a morphological rule that is applicable only to a limited set of lexical items, viz. proper names.

The analysis of PAs accounts for the ways in which they differ from GPs in a manner that allows a very high degree of parallel to verbal clause structure to be maintained. Also, the analysis accounts for the restrictions on the input to PA formations without forcing syntax proper to be sensitive to a content feature.

References

Abney, S. (1987) *The English Noun Phrase in its sentential aspect*, Ph.D Dissertation, MIT, Cambridge, Mass.

Babyonyshev, Maria *The possessive construction in Russian: a crosslinguistic perspective*. talk given at FASL 5, Wabash College, Indiana, May 1996.

Baker, M. (1988). *Incorporation; A theory of grammatical function changing*. University of Chicago Press.

Baker, Mark, Kyle Johnson and Ian Roberts (1989). 'Passive arguments raised', in *Linguistic Inquiry* 20:219-251.

Bhatt, C. (1990) *Die syntaktische Struktur der Nominalphrase im Deutschen*. Gunter Narr Verlag, Tübingen.

Billings, L. (1996). 'Russian approximate inversion', talk held at ZAS, Berlin, May 31st 1996.

Borer, H. (1993). 'Parallel Morphology', ms. Utrecht University/ UMass at Amherst.

Chomsky, N. (1995). *The Minimalist Program*. Cambridge: MIT Press.

Cinque, G. (1993). 'On the evidence for partial N-movement in the Romance DP', ms. University of Venice.

Corbett, G. (1987). 'The morphology-syntax interface: evidence from possessive adjectives in Slavonic', in *Language* 63:299-345.

Corver, N. (1990). *The syntax of left-branch extractions*. Doctoral dissertation, Tilburg University.

Demske, U. (1995). 'Prenominal Genitive Phrases as Definite Determiners', ms. University of Tübingen/Stuttgart.

De Wit, P. (1996). 'Double genitives', in J.Don, B. Schouten & W. Zonneveld (eds.) *OTS Yearbook 1995*.

Drijkoningen, F. (1993). 'Movement theory and the DP-hypothesis', *Linguistics* 31:813-853.

Giorgi, A. and G. Longobardi (1991). *The syntax of noun phrases; Configuration, parameters and empty categories*. Cambridge University Press.

Giusti, G. (1995). 'A unified structural representation of (abstract) case and Article', H. Haïder *et al.* (eds.) *Studies in Comparative Germanic Syntax*, 77-93. Dordrecht: Kluwer.

Grimshaw, J. (1990). *Argument structure*. Cambridge, MA: MIT Press.

Haider, H. (1988). 'Die Struktur der Deutschen Nominalphrase', *Zeitschrift für Sprachwissenschaft* 7: 32-59.

Kopčevskaja-Tamm, M. and A. Šmelev (1994). 'Alešina s Mašej stat'ja', *Scando-Slavica* 40:209-228.

Longobardi, G. (1995). 'On the typological unity of Indoeuropean and Semitic structural genitive', ms. University of Venice.

Padučeva, E. V. (1984). 'Pritjazatel'noe mestoimenie i problema zaloga otglagol'nogo imeni', in V.P. Grigoriev (ed.) *Problemy strukturnoj lingvistiki 1982*, 50-66. Moscow: Nauka.

Růžička, R. (1993). 'Struktur und Funktion zwischen Zentrum und Peripherie', in S. Kempgen (ed.) *Slavistische Linguistik 1992; Referate des XVIII. Konstanzer Slavistischen Arbeitstreffens*, 255-267.

Schmitt, C. (1996). *Aspect and the syntax of Noun Phrases*, doct.diss. University of Maryland at College Park.
Schoorlemmer, M. (1995). *Participial passive and aspect in Russian*, doct. diss. Utrecht University.
Veselovská, L. (1995). *Phrasal movement and X^0-morphology*, doct. diss. University of Olomouc.

wit@let.ruu.nl
maaike@fas.ag-berlin.mpg.de *or* schoorlemmer@let.ruu.nl