THE UNIFIED CASE-MARKING HYPOTHESIS AND THE SEMANTIC INTERPRETATION OF VERBAL COMPOUNDS

Caterina SANTINELLO
Università di Padova

The present work has been devised within the framework of a linguistic study trend considering morphology as a subset of the grammar organized according to independent principles (i.e. contrary to the transformationalist view that considers the morphological component as merely an extension of syntax in that a morphologically complex word is always obtained by means of transformations from an underlying sentence, cf. Lees (1968)).

Among the authors adopting a lexicalist hypothesis (i.e. words are contained in an independent component of the grammar which also contains the rules for the formation of words) some, like Williams and Selkirk, introduce the idea that, although morphological events obey independent principles, they are organized in a way that is fundamentally similar to that of syntax. In particular Williams (1978, 1981a)-b)) proposes that the study of phenomena like the assignment of Θ-roles in syntax may be integrated by a morphological study evidencing the contribution of the single word-constituents to the global argument structure of a complex word and Selkirk (1982), Bresnan (1982) and Di Sciullo (1987) discuss the possibility of Θ-marking also below the level of word (i.e. in compound structure) extending, in this way, the principles of the X-bar theory to morphology. Importantly they introduce the notion of 'head of a word', that necessarily matches the concept of Θ-marked constituent, and the definition, borrowed from syntax, of 'head' as the constituent providing the category feature complex of the whole.

My aim is to suggest that this framework offers more possibilities of assimilating morphology and syntax by means of a careful application of the basic principles of

the X-bar theory and a (tentative) extension of the Case Theory below the level of word. Before proceeding here is a brief survey of the above-mentioned studies on word-structure and on the rules governing the semantic interpretation of such structure. The survey is based, by way of example, on Williams' work for the notions concerning derivation and on Selkirk's for those concerning composition.

Like syntactic structures, morphological structures are generated by a set of context-free rewriting rules and associated with D-structure labeled tree representations (cf. (3) below). The chief object of Selkirk's investigation is the verbal compound, a compound where the right-hand member, which constitutes the head of the whole, is a verb-derived word and the left-hand member, the nonhead, is a Θ-marked complement of the head, e.g. [*song-writer*]$_N$, [*cake-baker*]$_N$, [*bank-robber*]$_N$; [*man-eating*]$_A$, [*water-resistant*]$_A$, [*dust-removing*]$_A$. Compounds where the head, although a deverbal item, does not Θ-mark the nonhead are not verbal compounds (*spring-cleaning, night-reader*).

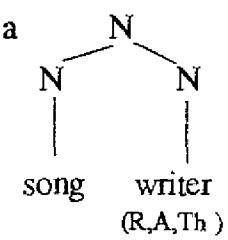
The headword of a compound is, in turn, made up of a head (the suffix) and a nonhead (the verbal base). The principle according to which the headword is endowed with an argument structure is established by Williams more or less as follows:

(1) The arguments of the nonhead, including the external argument, become (internal) arguments of the whole. (cf. Di Sciullo-Williams, 1987)

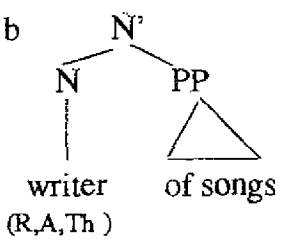
Thus a verbal derivative *inherits* the argument structure of its base (for apparent counterexamples to (1) cf. Di Sciullo-Williams, 1987 p. 39) and is enabled to Θ-mark its complements. Moreover Θ-role assignment must conform to the following

(2) **First Order Projection Condition** (FOPC): all nonsubject arguments of a lexical category X must be satisfied within the first order projection of X. (Selkirk, 1982, p. 37)

(3) a



b



Importantly, the FOPC determines the modalities of Θ-marking in both syntax and morphology, that is accounts for the wellformedness of both (3)a and (3)b.

In both cases the Θ-role Th of *writer* is assigned within the FOP of *writer*. As (3) above shows, Θ-marking is via coindexation between the Θ-role and the Θ-marked element[1]. These are the basic notions, as far as the present work is concerned. They need not be stated more precisely for the time being. Further clarifications will be given on occasion.

In the following discussion I will adopt Selkirk's terminology. Thus the opposition *syntax/morphology* will be often substituted by the *S-syntax/W-syntax* one. Finally, among the modules of generative grammar, I will mainly refer to the simplest version of the X-bar theory (cf. Jackendoff, 1977) and to the revised version of the Case Theory set forth in Chomsky (1986b), which ascribes the capability of assigning abstract Case also to nouns and adjectives.

The following considerations start from the observation of the different kinds of modifying relationship between a complement and its head. For example, the expression

(4) He plays the violin with a cigar.

is liable to two different interpretations, namely 'he plays using a cigar (instead of a bow)' and 'he plays with a cigar in his mouth'. But the personal nominalization of *play* in

(5) the player of violin with the cigar.

allows only one interpretation, the second one. Similarly in

(6) a a fighter with a sword
b a killer with a knife
c a worker at home

the complement adds some extra information on the condition of the referent of the NP's *head*, i.e. of the *person*, not of the *action* he/she performs. For instance, the killer of (6)b does not necessarily *kill with a knife*: the function of the complement in (6)b would be the same in *a man with a knife*. It seems that when an affixal head combines with a (verbal) nonhead, no nonhead modifiers may follow the derived word. Only

modifiers of *the whole word* may appear in NPs where said word is the head. This constraint seems limited to non-argumental modifiers only, since argumental complements of the base verb may well appear in complement position of the derivative. But this is possible in virtue of the fact that the derivative inherits the argument structure of its base, so that the argumental complements of the nonhead become argumental complements of the derived word (cf. below).

Yet compound structure does not seem to suffer the same restriction. Let us compare (6) with

(7) a night reader
b bitter-end fighter
c couch knitter
d hand weaver

In (7) the left constituent, although it is not an argumental complement, must be interpreted as a modifier *of the base verb* of the head constituent. Di Sciullo and Williams (1987) describe this phenomenon from a different point of view by observing that

"[...] words are *generic* in meaning in a way that phrases are not (p. 50)."

Let us consider the sentence *In this very moment John is reading and it is night, outside*. One cannot conclude that John is, therefore, a *night reader*. Instead, we may say *John is very fond of reading at night. He's an incurable night reader.* That is, *night reader* seems to denote a permanent specialization where an *action* is regularly associated with a given time of the day, so that it can only mean "one who (usually) [*reads* at night]" and not "[*one* who is reading] at night". Similarly *couch knitter* denotes "one who [*knits* on the couch] and not "[*one* who is knitting] on the couch" (modification affecting the italicized items).

More generally, the left sister position of a compound may be indifferently filled by:

1. an argumental complement of the head
2. a non-argumental modifier of the whole head
3. a non-argumental modifier of the head's base

The relationship described in 1 is of course the only possible one when the head is a word unprovided with any argument structure (cf. *paper doll, fire man*). Among

(non-verbal) compounds having a deverbal head, type 2 modification may be exemplified by *spring cleaning* and perhaps by *party drinker* which may be associated to two slightly different meanings, i.e."*one* who attends a party and drinks" and "one who *drinks* only at parties", b and c below, respectively (cf. also *baby-killer* in the meaning "a killer who is a baby", which will be referred to later in this work. However, for the moment, the meaning we are interested in is the argumental one, i.e. "one who kills babies"). The following table illustrates examples of the three cases:

(8)	a	baby killer	(argumental complement)
	b	party-drinker I	(head modifier)
	c	party-drinker II	(head's base modifier)

The type of modification exemplified by c may occur only in compounds and this fact is due to the relative positions of the constituents within a compound structure, where the suffixal element is allowed a **scope** it cannot have in phrases. This concept will be made clear by an example. Let us consider the sequence:

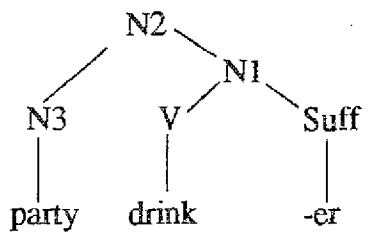
(9) party, drink, -er

The standard way in which the arrangement of this sequence in *party-drinker* is accounted for is the set of rewriting rules:

(10) a N1 ---> V Suff.
b N2 ---> N3 N1

visualized in the structure

(11)

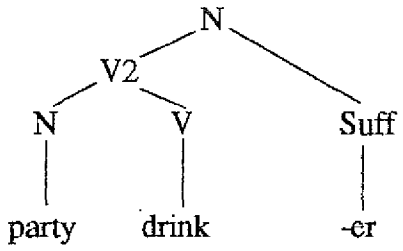


But this actually accounts for only one interpretation, the one associated to *party-drinker* I above, where the scope of *party* (i.e. the set of constituents modified by *party*) is the whole head, that is N1 in (11). N1, in turn, is rewritten as (10)a shows. This means that, from the position in which it is attached in (11), *party* must modify

the whole subsequence *drink, -er* of (9) and not just *drink*. Therefore (11) cannot account for *party drinker* II.

Let us now consider the following structure that I will call **reanalysed:**

(12)



(12) is possible since it satisfies the binary branching hypothesis (cf. Scalise, 1984). Moreover it presupposes the sequence $[party\text{-}drink]_V$ - a non-existent but a possible one, given that compound verbs of the form XV are commonly found in the English lexicon (e.g. *Case-mark*, *Θ-mark*).

It may be argued that this kind of compound verb always consists of backformations coined on the basis of already existing nominal or adjectival compounds. Thus *globe-trot* cannot be considered a native English compound since the grammar of English cannot generate it without recourse to backformation from *globe-trotter*. Such an objection is set forth in the same work by Selkirk which prompted my present observations, not to mention Baker (1988) (cf.also Marchand 1969). Their emphasizing an anomalous nature in the items which seem to have the structure $[XV]_V$ is convincingly conducted and leaves little doubt about the perfect likeliness and legitimacy of their conclusions (i.e. that the rule V --> XV is not found among the WFRs of English). Yet, to my own surprise, the inclusion of a structure like $[XV]_V$ among those afforded by the English lexicon leads to generalizations (of which only a part will be illustrated in this article) whose interest and extent of applications might induce the taking of the 'XV-hypothesis' into serious consideration. The following discussion will therefore explore the unexpected implications of such an assumption[2].

Skipping back to previous considerations, I will conclude that the possibility of analysing *party-drinker* as both (11) and (12) accounts for its double interpretation. In an earlier unpublished work I ascribed the phenomenon illustrated by (6) (i.e. a non-argumental modifier in phrase structure can only modify the whole headword

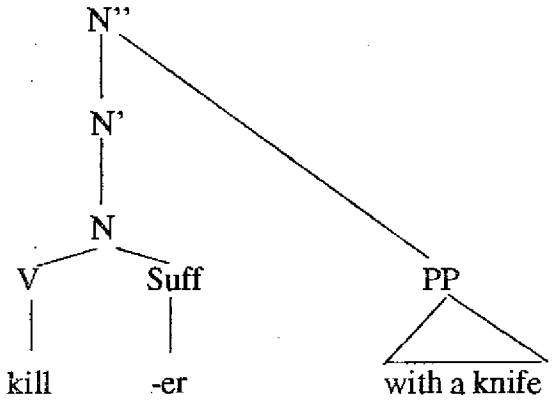
and not just the head's base), already noticed by Di Sciullo and Williams (1987), to a kind of principle establishing that

(13) The scope of a (W-syntactic or S-syntactic) constituent is its c-domain.

This would explain the fact that (12) is the only structure capable of having *party* modify only *drink* in (8)c, since in (12) the c-domain of *party* consists of V1 alone.

(13) would also predict that in phrases where the head is a derivative no modifier may have as its scope the head base. Thus in the structure

(14)



there is no way for the PP to restrict the meaning of *kill* alone, since the whole node N is in its c-domain. I subsequently noticed that (13), as it stands, curiously holds true only when the head is derived by means of some kinds of suffix, like the 'agentive' suffixes (producing personal nominalizations from verbs e.g. *writer*, *student*) or suffixes producing nominalizations of actions or abstract state (e.g. *creation*, *assistance*, *movement*). When other suffixes are used violations of (13) commonly occur. Let us consider the following oppositions:

(15) a disinfecting/disinfected/disinfectable with efficacy
b *disinfectant/*disinfector/*disinfection with efficacy

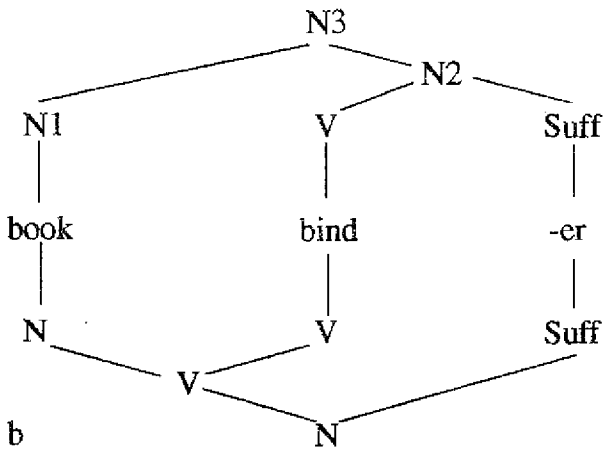
(16) a composing/composed/composable with skill
b *composer/*composition with skill

(17) a tolerating/tolerated/tolerable with effort
b *tolerator/*tolerance with effort

Examples a above are grammatical even if they violate (13) (they contain a modifier of the head's base). Examples b contain the same violation and turn out to be unacceptable. The items originating the ungrammatical expressions are obtained with noun-forming suffixes (*-er, -ant, -ion, -ance*) while those in the grammatical examples have adjectival endings (*-able*) or are verbal forms (that may be used as nouns or adjectives). It seems that, as far as S-syntax is concerned, (13) draws a distinction between items characterized by the [+N] feature and items characterized by the [+V] one. This, transferred to W-syntax, would entail that compounds showing the type of modifying relationship illustrated in (8)c need to be reanalysed only when they have a *noun* as headword, because they must conform to (13). Compounds having an item somehow bearing the syntactic feature complex [+V] as their head need not be reanalysed to be properly interpreted. I don't know how to deal with these facts, at the moment. Therefore, lacking a better explanation, I will henceforth assume with Di Sciullo and Williams that (13) applies throughout both S-syntax and W-syntax and that, for some reason, phrases like *tolerable with effort* do not violate (13).

Also argumental complements are head's base modifiers. This is evident if one thinks that the only paraphrase for *writer of books* is "one who [writes books]". Thus in phrase structure it seems that argumental complements may violate (13). Actually they do not if we think of the inheritance of the argument structure as a device so that the information contained in the complement may "restrict" the meaning of the verb indirectly, by first restricting that of the whole derived word. In other words, the

(18) a



b

interpretation of verbal compounds is a privileged process, given that it occurs in terms of satisfaction of argument structure - and argument structures may be inherited.

Therefore there is apparently no need to suppose a reanalysed structure for verbal compounds as well as in (18) above, where b is the reanalyzed version. In fact it could be argued that in a *book* may modify *bind* through the modification of the whole N2, because N2 inherits the argument structure of *bind*. But the following discussion will exhibit some reasons for the application of the reanalysis to verbal compounds, too.

Let us consider

(19) a the killer of John
b John's killer
c a baby killer

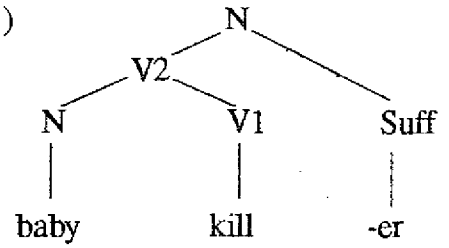
The acceptability of (19)a and b is straightforward in terms of Case Theory: the Case-marking of the complement is performed by *killer* through a D-structure Case-assignment and an S-structure Case-realization. The latter has two available solutions: either *of* is inserted (if the complement is kept in its basic position) or the possessive element *'s* is inserted (if the complement is transferred in subject position by *move*-α). But neither option for Case-realization is employed in (19)c. Here is the question: how does it happen that (19)c does not constitute any violation of the Case-filter or, rather, of the following

(20) **Visibility Condition:**"an element is *visible* for Θ-marking only if it is assigned Case." (Chomsky, 1985, p. 94) ?

What I will now attempt is to devise a model of explanation in which *baby* in (19)c receives Case but not from *killer*. If the latter were the Case-marker, then Case-realization should occur in one of the two ways appointed to nouns (i.e. *of*-insertion or *'s*-insertion). Since neither appears in (19)c Case-marking for *baby* must derive otherwise. In other words *baby* must not be governed by *killer* at D-structure.

Here is my proposal so that this may be achieved. Let us reanalyze *baby killer* and suppose that its D-structure is

(21)



In (21) *baby* is governed by *kill*, not *killer*. *Kill* may thus Θ-mark and Case-mark *baby* so that Visibility is satisfied and the absence of Case-realization is accounted for[3].

For the moment the same conclusion might be applied to non-verbal compounds like *night-reader* or *party-drinker* II where the nonhead is a non-Θ-marked modifier of the head's base and the D-structure may be assumed to be the same as (21) (cf. (12)). Visibility is not violated since it does not bar Case-assignment to non-Θ-marked constituents. This point, however, needs further investigation, which will be carried out in a forthcoming paper[4].

Non Θ-marked modifiers of the whole head, (e.g. *party drinker* I) are still generated in a position governed by the whole node N dominating the head's base. For reasons that will be made clear later in this work, the N governing them cannot Case-mark them, but, given that they are not Θ-marked, they do not need Case, and Visibility is not violated.

The hypothesis just outlined is still tentative and must be tested against possible drawbacks, the first of which will be set forth at once. According to Chomsky (1985), for a governor X_G to Case-mark the NP it governs is tantamount to saying that in the structure

(22) $[_{XP}\ X_G\ [_{NP}\ Det\ [_{N'}\ N\ ...\ ]]]$

X_G assigns Case to Det and to N by percolation. But how does Case-marking proceed once N in (22) is Case-marked? Or better, what does it mean for N to be Case-marked if N is a complex word? What about percolation of Case also below the level of N, to the internal constituents of N ? If so then *baby* in (21) might receive Case twice, that is from X_G (via Case-marking of the whole N) and from *kill* under government: an undesirable conclusion.

Before rejecting the hypothesis of percolation below N consider the structure illustrated in (22); percolation of Case from NP to N follows a precise criterion: all and

only the elements coindexed with NP are Case-marked. Why should not we suppose that percolation proceeds with the same criterion also below Word-Level? Let us therefore assume that

(23) in the structure

$$[_{XP}\ X_G\ [_{NP}\ Det\ [_{N'}N...]]]$$

if X_G Case-marks NP (Det and N), X_G may Case-mark, among the constituents of N, only the one(s)[5] bearing the same referential index of NP.

(23) as it stands, guarantees that *baby* in (21) cannot be Case-marked also by X_G and extends percolation also below Word Level (henceforth WL). Actually (23) might and should be perfected in order to account also for the fact that

1. any element in specifier position different from Det or Q(uantifier) is not Case-marked by X_G but by N;
2. X_G cannot Case-mark any element different from N within the bracket labeled N' in (23), i.e. cannot Case-mark the argumental complements of N.

Here is such a reformulation, although it is not imperative for the discussion that will follow:

(24) in the structure

$$[_{XP}\ X_G\ [_{NP}\ Y\ [_{N'}\ N\ [_{ZP}\ Z...]]]]$$

if X_G Case-marks NP then X_G may Case-mark all and only the (S-syntactic or W-syntactic) constituents of NP coindexed with NP.

The problem of avoiding double Case marking for *baby* in (21) might be equally solved simply by abolishing percolation of Case below WL. But the solution proposed in (23) has some conceptual reasons:

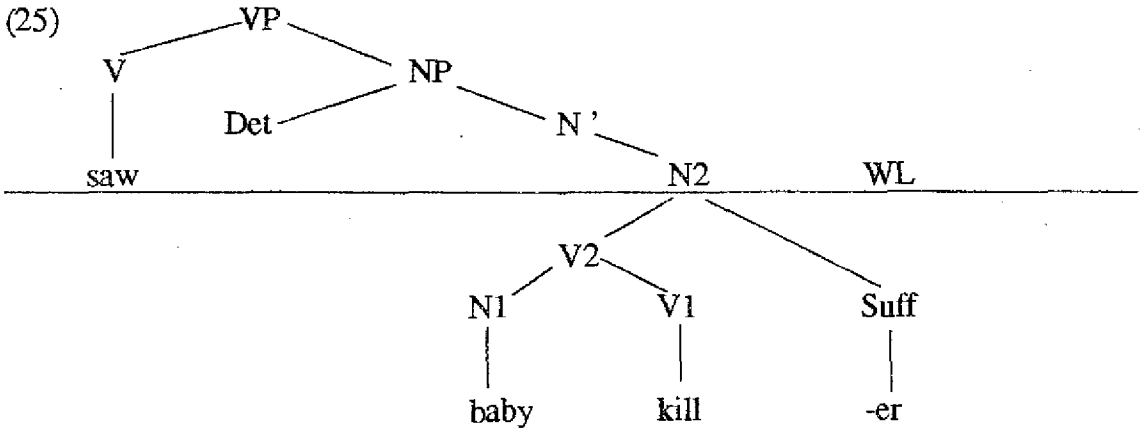
1. it completes a symmetry in the process of Θ/Case-marking. In fact NP is Θ-marked in virtue of the fact that the referential index of the head of N (head of N= the suffix, when N is a derivative like *killer*) projects until the NP level (cf. Selkirk, 1982). Then it might be supposed that NP is Case-marked in virtue of the fact that Case percolates from NP down to the lowest NP-coindexed node in the X-bar repre-

sentation, i.e. down to the head (or the absolute head, namely the suffix in a verbal compound) of N (if N is a simple word the head of N is, trivially, N itself). In other words we might figure out the process of Θ/Case-marking as covering a journey that goes from the level of the W-syntactic head to NP and back to the W-syntactic head again;

2. it prompts important generalizations across S-syntax and W-syntax. Before expounding upon point 2, some more considerations are in order.

(23), even in the revised version constituted by (24), is not enough to describe wellformed structures. Let us consider the following example

(25)



where *saw* = X_G. (23) guarantees that *saw* cannot Case-mark *baby* (so that V1 may Case-mark it) and that *-er* may be Case-marked by percolation, but does not *ensure* that *-er* must be Case-marked in this way or, better still, that there are no other possible Case-markers for *-er*. Let us consider the node V2 in (25), for example. V2 is the nonhead of N, thus it might be supposed that, as happens in S-syntax, the nonhead may not Case-mark the head. But S-syntactic nonheads (i.e. complements) are never lexical categories (i.e. level zero categories) which is an absolute requirement for Case-marking. On the contrary in W-syntax nonheads are always lexical categories (at least in the cases at issue here: compounds and derivatives obtained by suffixation): in fact nonheads are maximal projections (by definition from the X-bar theory) and the level of W-syntactic maximal projections is zero (because zero is the

highest number of bars attributable to an element under WL). Thus, given that the class of lexical categories comprises all level zero constituents, V2 in (25) is a lexical category[6]. V2, then, seems to satisfy the government conditions as well: V2 c-commands *-er* and there is no maximal projection node (a "barrier", cf. Chomsky 1986b) that contains *-er* but does not contain V2[7]. In order to prevent V2 from governing *-er*, one might appeal to two facts: a) the barrier condition is tantamount to saying that A may govern B only if the latter is in the maximal projection of A. Or that A cannot govern B if A is dominated by a node whose category label is different from A. Yet, these sound as alternative ways to state the concept that a *syntactic* maximal projection (i.e. a category with more than zero bars) cannot ba a governor, since the only elements satisfying these conditions are heads, in particular lexical categories. But *morphologic* maximal projections *are* lexical categories; b) Baker's reformulation of the government conditions (Baker, 1988) stresses the fact that a government relationship is a semantic selection relationship: the governee must be s-selected by the governor. And it is a head that selects its nonhead, not vice-versa. But again this is because selection is a property of lexical categories and, in syntax, only heads are lexical categories. In morphology also nonheads are.

However there is no doubt that morphologic nonheads must behave as syntactic nonheads: they neither select nor govern their head, lest double Case marking of the head occurs. Evidently the number zero has different "values" under WL. In the discussion that follows a reformulation of the conditions for Case-marking will be attempted in order to achieve a uniform treatment of S-syntax and W-syntax and to avoid any *ad hoc* further specification in the definition of government. For the moment let us establish the following

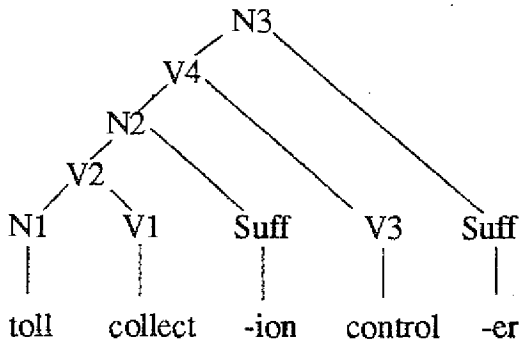
(26) In the structure

$$[_{XP}\ X_G\ [_{NP}\ Y\ [_{N'}\ N..]]]$$

if X_G Case-marks NP then X_G Case-marks all and only the constituents of NP coindexed with NP.

Could we devise some reformulation of (26) so that it may be applied in W-syntax (i.e. that it contains no allusion to S-syntactic categories like NP)? Let us consider the reanalysed structure of *toll-collection controller* ((27) below). According to the view illustrated in this work, in (27) *control* both Θ-marks and Case-marks N2, since it

(27)



governs N2. Here too, Case may be supposed to percolate below the level of N2 down to *-ion*, the head of N2. And here too it might and should be guaranteed that *-ion* receives Case only in this way and not, for example, from V2.

That is, as in the case of S-syntax, the following condition may be established:

(28) In the structure ($h_{X/Y/Z}$=head of X/Y/Z)

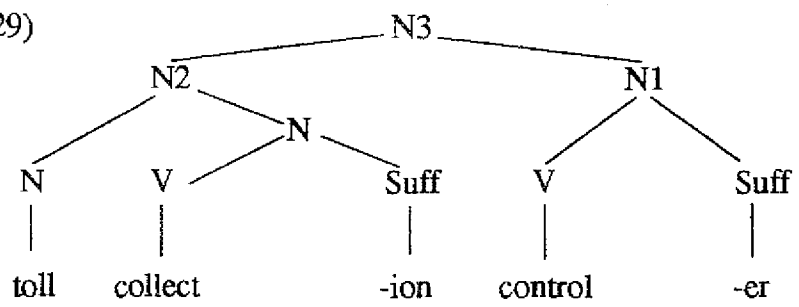
$[[[[h_Z\ Z]\ h_{Y..Y}]\ h_{X..X}]..._K]$

if h_X Case-marks Y then h_X Case-marks all and only the constituents[8] of Y coindexed with Y.

We should now pass to the reasoning that constitutes the kernel of the discussion. But before proceeding here are some other facts tied to the ones debated here:

1. It is worth recalling that, although (28) provides for both reanalysed and non-reanalysed structures[9], it establishes that the structure of verbal compounds is wellformed only if reanalysed. Let us consider the traditional structure associated with *toll-collection controller*:

(29)



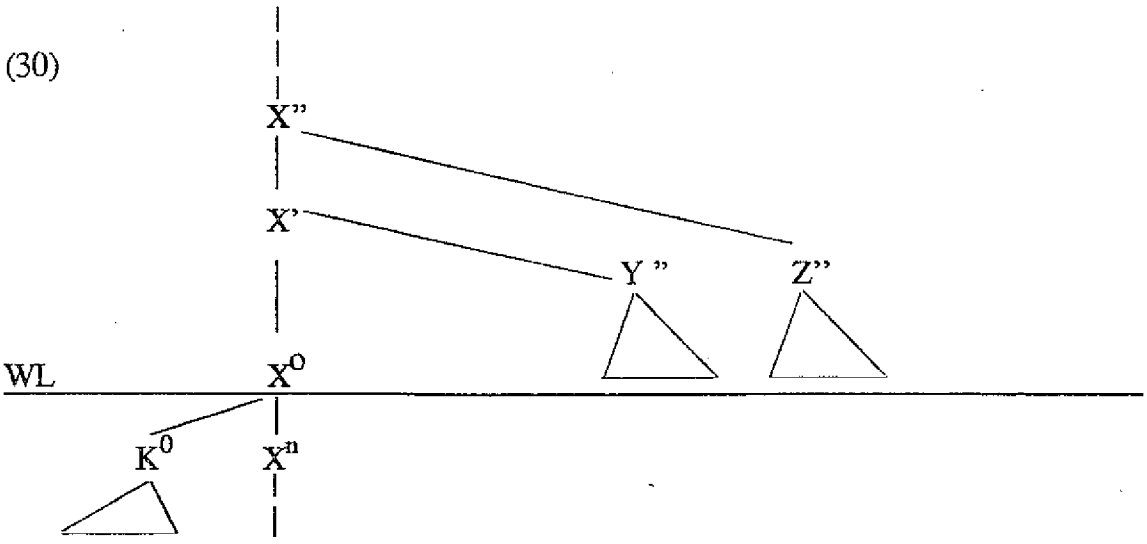
Here N1 would Θ-mark N2 which therefore would require Case. But, for some reasons, N1 is prevented from Case-marking N2, even if the former governs the latter. In fact, as has already been observed about (19)c), there is no sign of Case-realization attached to *toll-collection*, i.e. there is neither *of*-insertion nor *'s*-insertion. The discussion that will follow will support the reanalysis view exactly through hypothesizing the reasons why N1 in (29) is not a possible Case-marker for N2 and a structure like (29) violates Visibility.

2. Our hypothesis for Case-assignment applied to (21) contradicts Chomsky's statement that

> "in English [...] Case-marking by a lexical category should be uniformly to the right." (Chomsky, 1986, p. 193)

In our analysis, Case-marking *under Word-level* was, rather, uniformly to the left. Yet there are reasons to suppose that Chomsky's statement on the direction of Case-marking does not hold true for the domain of morphology. Let us compare phrase-structure and word-structure. Except for the subject argument, at D-structure all the arguments of a lexical head are satisfied *on the right* in phrase-structure and *on the left* in word-structure, as the scheme below shows

(30)



In other words a head must precede its complements in phrase structure and must follow them in word-structure. It is reasonable to suppose that, in general, any

statement involving the idea of "direction" must be formulated relative to the domain at issue.

Thus let us suppose that, contrary to what occurs in S-syntax, Case-marking in W-syntax is uniformly to the left (this is of course an English-specific statement and holds true for all languages with a left-oriented morphology. The opposite applies to languages with a right-oriented morphology like Italian or Spanish). Now we can explain why X_G in (22) is the only possible Case-marker for *-er* in (21) or, more explicitly, why *saw* in (25) is the only possible Case-marker for *-er*, despite the presence of V2. The latter is below WL, thus it can Case-mark only on its left. Instead *saw* is above WL (or *at* WL; not below) and may Case-mark on its right. *Saw* does not govern *-er* but governs the NP with which *-er* is coindexed and may therefore Case-mark *-er*. Similarly, in (27) *-ion* cannot receive Case from V2, because Case-marking is impossible on the right in W-syntax; thus it is *control* that Case-marks *-ion*, which is possible since it governs N2 (it is worth emphasizing that the direction of Case-marking is uniquely tied to the position of the governor. (25) shows that, if the latter (i.e. *saw*) is above WL Case will be assigned to the right even if the governee (i.e.-*er*) is under WL). However it will be evident that the direction of Case-marking is not god-given, but comes, in turn, from the same general principles that select the possible Case-markers among governors in the syntactic representation.

The above-mentioned general principles are arranged as follows. Let us suppose, referring to S-syntax, that the requirement that Case-markers are major lexical categories amounts to the fact that the Case-marked element must be governed by a preterminal (i.e. a level zero) node. In (25) NP is governed by the preterminal node V dominating *saw*, thus *saw* may Case-mark NP. In S-syntax the correspondence between level zero nodes and preterminal nodes is straightforward (cf. below for more debating on this subject). But it is evident that in W-syntax level zero nodes are not necessarily preterminal. In (29) N1 is a level zero node but is clearly not preterminal. Therefore it cannot assign Case. Similarly, in (27) V4 is a level zero node, but is not preterminal and is not a possible Case-marker for the element that it governs, whereas V3 is preterminal, thus a possible Case-marker for N2 and *-ion*. Notice that in (29) *control*, although it is preterminal, cannot Case-mark N2 since the former does not

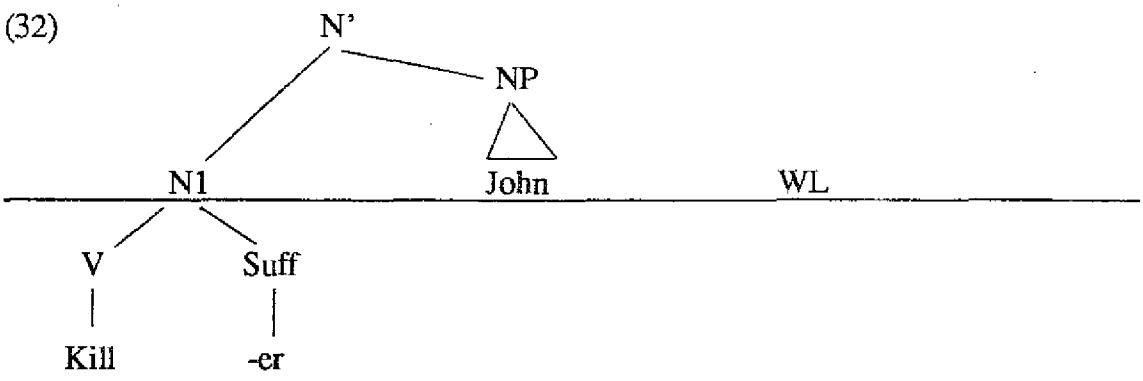
govern the latter On the contrary, in a reanalysed structure, *control* correctly governs the element requiring Case, as (27) shows.

In conclusion it is not just government, but, rather, government *by a preterminal node* that constitutes the relevant condition for Case-marking. Therefore, once the reanalysed structure for verbal compounds illustrated here is adopted, I propose that the modalities for Case-marking in both S-syntax and W-syntax are contained in the following

(31) **Unified Case-marking Hypothesis** (UCH): a maximal projection α is Case-marked by β if and only if α is **terminally governed** by β.

(31) as it stands, accounts for the majority of grammatical cases, including Case-marking of the subject by INFL. It would account also for an expression like *John's killer* (cf. below), provided it is required that β terminally governs α at D-structure; in fact *John's* is not governed by *killer* at S-structure but is a t D-structure. Nevertheless in this way we exclude from (31) the subjects of *seem* and of the passive periphrasis, since they are governed by INFL at S-structure. I leave to others the task of adapting (31) in order to account for all the possible cases. But I cannot avoid facing an evident shortcoming of (31). Consider the D-structure of an expression like *killer of John*:

(32)

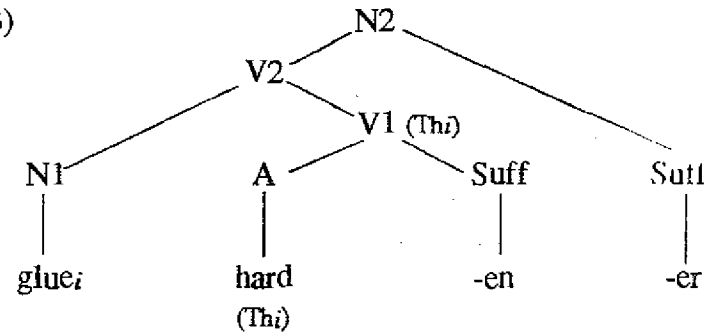


(it is worth recalling that at D-structure there is no PP node so that N1 governs NP and, according to the version of the Case theory set forth in Chomsky (1986b), Case-marks NP). (32) shows that the node N1 is not preterminal, since *killer* is a complex word. The power of (31) is therefore hypogenerative since it would bar a grammatical example like (32). We might thus need to confine (31) to the role of

describing W-syntactic structures only, since Case-marking in S-syntax seems conditional on simple government, not on terminal government. Yet it may be observed that the node N1 above is separated from its daughters by the boundary of WL. It may be thus assumed that over WL a level zero node is always preterminal, even when it dominates a complex word, and may perform terminal goverment. Once the notion of terminal government is considered to be relative to the domain at issue, the scope of the UCH remains unchanged and, waiting for a better solution I will rely on this one throughout.

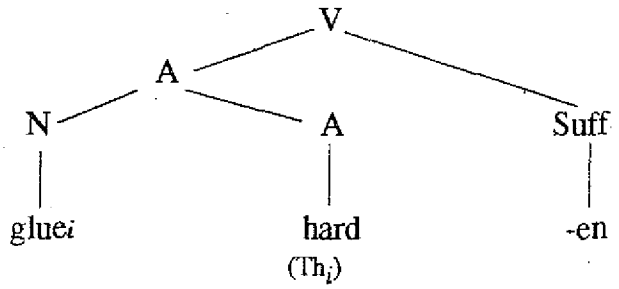
But the possible objections to the UCH are not over yet. In the verbal compound *glue-hardener*

(33)



glue is not terminally governed, because *harden* has an internal structure, being obtained by an adjective plus a verb-forming suffix. Yet *glue-hardener* is grammatical, thus *glue* must receive Case somehow. Let us first determine how *glue* is Θ-marked. On analogy with *baby-killer*, it must be V1 that performs Θ-marking on *glue*. According to Williams (1981) *harden* inherits its internal argument Th from *hard* so that coindexation of Th with *glue* may occur within the FOP of V1 as the FOPC requires. But given that *hard* has an argument structure of its own and that adjectives are Case-markers (cf. Chomsky 1986) one might conclude that also the subsequence *glue-harden* may be reanalysed as

(34)



where *hard* both Θ-marks and Case-marks *glue*. Intuitively this would presuppose in English the presence of compounds of the form $[NA]_A$ where N satisfies a nonsubject argument of A. Such compounds are commonplace (e.g. *self-destructive*, *germ-resistant*[10]), but all of them have a *deverbal* head, so that their possibility of Θ/Case-marking their complements may be explained in terms of a reanalysed structure that emphasizes the presence of a verb in the head (for apparent counter-examples cf. my forthcoming work). In other words, a compound like $*[glue\text{-}hard]_A$ (*glue* = argumental complement of *hard*) seems not only non-existent but also an *impossible* one, which I tentatively assume to be tied to the absence of a verbal element in the head constituent (cf. below).

The reason for the unacceptability of **glue-hard* is the following one. The argument Th of *hard* is its *external* argument, according to Williams (1981). As Selkirk (1982) demonstrates, external arguments cannot be satisfied in W-syntax, i.e. the nonhead of a compound word cannot satisfy the external argument of the head. Thus in **glue-hard*, the head *hard* cannot assign its argument to *glue*. The whole expression therefore violates the licensing principle. But *hard* may be derived by means of a verb-forming suffix producing *harden* which, according to (1), inherits the argument structure of *hard*, where Th has become an *internal* argument and may thus be properly assigned to *glue*. We may then conclude that, in this particular circumstance, V1 in (33) has the possibility of Case-marking *glue* even if it does not terminally govern N1. That is, V1 in (33) has a property we might call "exceptional" terminal government - a way to say that some words behave as non-compositional with regard to some options like terminal government.

Some observations are now in order. First: the derivation of a simple word of category A into a *verb*[11] (e.g. *harden*) converts its external argument into an internal

argument, making it possible for a W-syntactic constituent to be assigned such argument and to be Θ/Case-marked. Second: complex nouns and adjectives (e.g. *writer*, *destructive*) are endowed with internal arguments by inheriting the argument structure of their base *verbs* (since the suffix can only afford R, the external argument of the derivative). Third: except for some non-derived nouns and adjectives (e.g. *fear*, *proud*) only *verb-derived* Ns and As are possible Θ/Case-markers i.e. only those that may be reanalysed as (21) shows. In conclusion whenever the process of Θ/Case-marking occurs, a verb is "involved", one way or another. One cannot fail to notice that reanalysis provides a model of explanation that accounts for these facts. In fact in the reanalysed version of any structure in which the first member is in a Θ-relation with the second, the element requiring to be Θ/Case-marked is systematically governed by a verb and not by a N/A. Practically, whenever a linguistic unit capable of assigning Case/Θ-role has the "surface" category N or A its "deep" category is V. Reanalysis seems to visualize Chomsky's intuition that all the elements of a paradigm like, say, *create, creator, creative, creation* are just different outcomes of the same semantic "base" (cf. Jackendoff, 1977 p. 11). Said base (that, in a language with an additive morphology like English, we can still label "V") is actually responsible for licensing in general.

It might be thus concluded that in W-syntax verbs are the only possible Θ/Case-markers or, better, that the requirement of terminal government may be simply reduced to the requirement of government *by a verb*. But this conclusion would be incorrect for two reasons at least: in first place, it would clearly apply to W-syntax alone. In fact in S-syntax N and A may be said to be Θ/Case-markers indeed (provided they are verb-derived). Let us consider (32): NP is governed by the node N. It may be assumed that the latter, according to (1), actually and *necessarily* inherits the property of Θ/Case-marking from the base verb. In fact a configuration like (32) *cannot* be reanalysed or, better, from the position in which it is found, V in (32) can in no way govern NP. Thus in (32) N becomes the likeliest candidate to the role of Θ/Case-marker for NP.

In second place, some reformulation of the notion of government should be devised in order to prevent the nonhead from Θ/Case-marking the head in W-syntax, since here the nonhead is often a verb and its status, as far as the possibility of governing its head, has already been described. I therefore think that, unless these two objections

are voided somehow, the content of the UCH should remain unchanged and possibly paralleled by the observation that it amounts to say that in W-syntax verbs alone are possible Θ/Case-markers.

However a reformulation of the UCH may be devised in order to avoid resorting to the notion of 'exceptional' terminal government. This notion derives from the observation that some elements (e.g. *harden*) behave as if they were noncompositional (i.e. immediately dominated by a preterminal node) with regard to the element they govern, being thus enabled to Case-mark it (cf. above). In other words their internal structure is *invisible from the point of view of the governed element*. Thus in (33) N1 "interprets" V1 as a preterminal node because the two lower nodes (A and Suff) are invisible to N1 (and this is a consequence of a feature contained in the semantic representation of *harden* or, rather, of *hard*: its Th argument is an external argument and cannot be satisfied, cf. above). We may sum up these concepts by defining a word like *harden* an **opaque** word, an item whose internal structure is invisible *from a given point of view*. The latter specification is necessary in that it will be shown that the same item may be opaque or transparent according to where it is "seen" from. We have already met such a case. Let us consider (32). The node N1 is interpreted as preterminal *by NP* because the two nodes V and Suff are *under* WL and are invisible to an element which is *over* WL. Very interestingly, this agrees with the general hypothesis of the autonomous nature of the lexical component of the grammar: WL is an (almost) opaque barrier through which very little information about the internal structure of words may reach the syntactical component (cf. Di Sciullo- Williams, 1987). In the case at issue (i.e. the assignment of Case performed by a complex word to an S-syntactic constituent) said information amounts to nothing at all: as far as NP in (32) is concerned, *killer* is opaque (= noncompositional). But the internal structure of a word like *killer* would be visible to some element governed by *killer* under WL as in the non-reanalysed representation of *baby-killer*. According to our view, *killer* could not be interpreted by *baby* as an element dominated by a preterminal node and a possible Θ/Case-marker. Instead, reanalysis would provide a representation where the UCH would be satisfied. The latter can now be revised as follows:

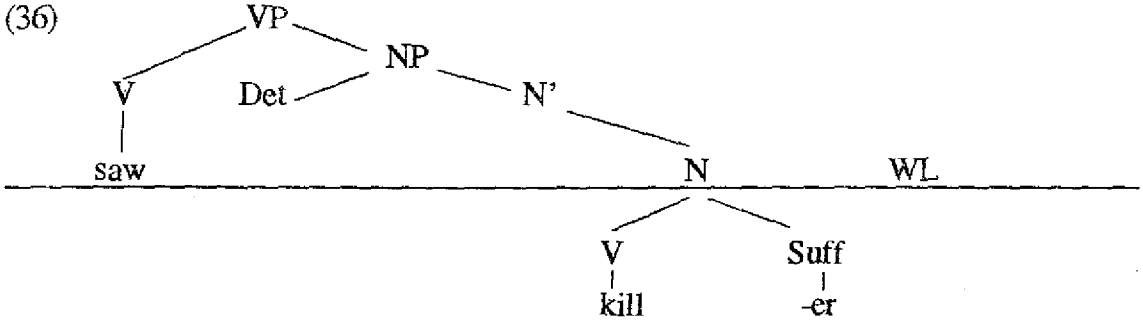
(35) **Modified UCH** (MUCH): a maximal projection α is Case-marked by β if and only if α is **opaquely governed** by β.

The MUCH establishes that Case (but also Θ-roles, at least for complement constituents[12]) must be assigned by opaque items, where opacity seems to be of two kinds: *semantic* as in the case of *harden* and of simple words (the latter are opaque by definition) and *structural*, that is, deriving from the relative positions of the governor and governee: if the barrier of WL intervenes the former is opaque to the latter. In other words the term *opaque* identifies the range of all the possible Θ/Case-markers throughout both S-syntax and W-syntax, since it simultaneously refers to preterminal elements and to pseudo-preterminal ones (i.e. complex words behaving as non-compositional), thus voiding the notion of exceptional terminal government and any other conceptual device used to face the apparent shortcomings of the UCH.

Let us now pass to the remaining considerations. It is now clear that the direction of Case-marking is tied to the relative positions of those elements that require Case and the possible Case-markers. In English, in W-syntactic structures, the former are systematically on the left of the latter; in S-syntax vice-versa occurs. More precisely (35) would restate why a head may Θ/Case-mark its complements but cannot be Θ/Case-marked by them. According to the X-bar theory, complements (or, in general, nonheads) are necessarily maximal projections. Thus they cannot perform opaque government (they are not preterminal nodes and are transparent to their head, being on the same side of WL) i.e. are not possible Case-markers. On the other hand a head is not a maximal projection and is not subjected to (35) but, rather, to (26) and (28), i.e. heads, as all the elements below α coindexed with α, are Case-marked by percolation.

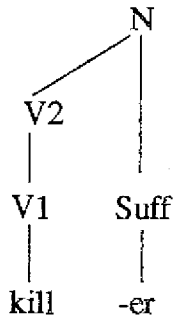
Importantly, nonheads are *always* non preterminal. As far as the following structure is concerned

(36)



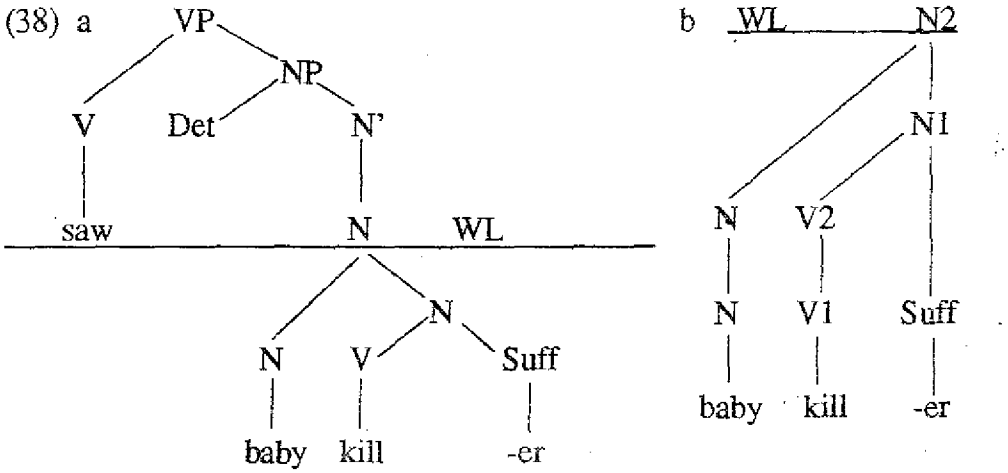
one might object that (35) cannot bar double Case-marking for *-er*, given that *-er* is terminally (and therefore opaquely) governed by *kill*. Actually *kill* does *not* terminally govern *-er* because it is a nonhead, i.e. the structure of *killer* is not, as Selkirk (1982) claims, the one shown by (36) but should rather be more precisely represented as

(37)



In (37) the head *-er* is dominated by two nodes: the first (labeled Suff) is the preterminal node, i.e. the node that in any tree representation directly dominates the lexical entry. It corresponds to the node X^0 in phrase structure. The second (labeled N) is the first order projection node. It corresponds to the node X' in phrase structure. The analogy is evident in that N may branch with a nonhead constituent. At the present stage of research it seems that there are no further nodes above *-er*. Thus N in (37) is the maximal projection of the head *-er*. Now we know that under WL a maximal projection is at least a **two-level** constituent. In (37) *kill* is the nonhead of N and nonheads are maximal projections, by definition. Therefore the lexical entry *kill* must be dominated by two nodes, a preterminal node and the first order projection node, that I called V1 and V2, respectively[13]. *Killer* in (36) constitutes the case when the node V2 does not branch. When this node branches an expression like *baby-killer* ensues.

Before concluding let us recall some notions. In the traditional (=non reanalysed) version the VP *saw the baby killer* would be thus represented:

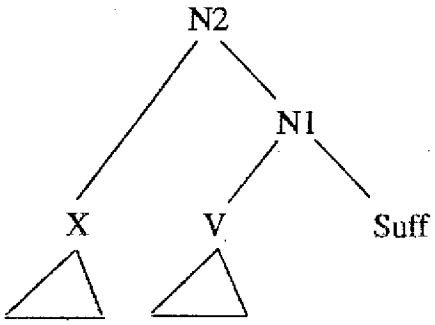


where b evidences all the nodes below WL. It is worth noting that the structure of N1 in b is exactly the one shown in (37). In other words (37) can be indifferently inserted in reanalysed and non-reanalysed structures[14]. (38)b shows that, no matter whether we adopt reanalysis or not, (35) is enough to block double Case-marking for *-er* (in that V2 does not opaquely govern *-er*, cf.(37)). Yet, as we know, (38) remains non wellformed because *baby*, which requires Case for Visibility, is not opaquely governed. Instead, reanalysis produces a structure like (25) where the MUCH is satisfied throughout. But suppose that we substitute *baby* in (38) with a constituent that does not require Case, i.e. a non Θ-marked modifier of the head, as in *party-drinker* I. Then no violation of Visibility occurs and this constituent may stay in a non-opaquely governed position. Of course a reanalysed structure must be associated to compounds containing a non Θ-marked modifier *of the head's base* (cf. *party-drinker* II) in order to account for the logico-semantic relationship between the head and the nonhead[15].

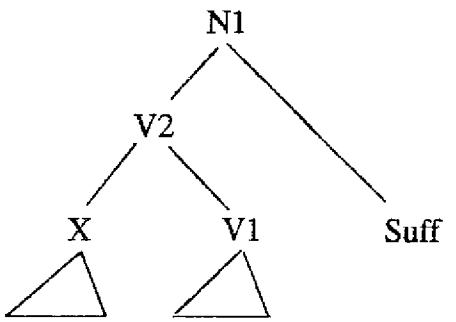
In summary, this is the conceptual sequence set forth thus far. The observation of different semantic relationships between the members of compounds having the same surface structure leads, according to a conviction that lies at the very foundations of the X-bar theory, to the intuition that such relationships must spring out of as many D-structures. The range of the possible D-structures associated with compounds in

English has been therefore enriched if compared to the one proposed by Selkirk (1982) and amounts to the following list:

(39) a type *party-drinker* I: X= non Θ-marked modifier of the whole head



b type *baby-killer*: X= Θ-marked modifier of the head's base
type *party-drinker* II: X= non Θ-marked modifier of the head's base



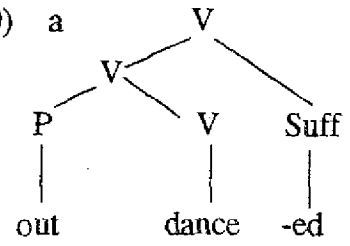
In the light of (39)a and b it is now clear that also the opposition between the two meanings of *baby-killer* (cf.above) corresponds to two different D-structures. In other words the existence of one instance of *baby-killer* where the left member is *not* interpreted as an argumental complement (rather, the whole is an appositional compound, cf. Bauer, 1985), is an even stronger reason to distinguish between reanalysed and non-reanalysed structures. In fact one can fail to notice the difference between the two *party-drinker*: such difference is rather slight, given that it reflects the two kinds of non-argumental relationship between head and nonhead. But one cannot fail to

notice the contrast between the two *baby killer*, given that one instance displays an argumental relationship whereas the other displays a non-argumental one.

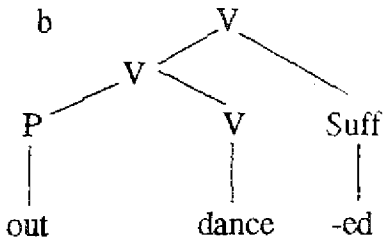
On a parallel path, a model of explanation has been worked out for a phenomenon that inevitably can't escape being noticed once the semantic interpretation of verbal compounds is analysed in terms of Θ-role assignment and satisfaction of argument-structure: verbal compounds must satisfy the Visibility condition. This model is structured compatibly with the proposal here found of an enlarged range of D-structures associated with English compounds. In fact the modalities for Case-marking contained in the MUCH establish, as a consequence, that a *reanalysed* structure (cf. (39)b) is the only way in which a verbal compound may be properly described. On the other hand we arrived at the further conclusion that, in W-syntax, verbs are the only possible Θ/Case-markers, as the discussion on *glue-hardener* suggests (with some exceptions constituted by non derived nouns and adjectives with an argument structure, e.g. *fear, proud*; but these bring no fundamental flaws into the theory, if correctly dealt with, a task in which I will engage). This last hypothesis cannot be worked out in depth at the moment. However what we are certain of is that if one accepts reanalysis, then a reanalysed structure will *simultaneously* account for both Θ-marking and Case-marking in W-syntax. Secondarily, as I already hinted at, opaque government turns out to be the cogent requirement for both Θ-marking and Case-marking throughout both S-syntax and W-syntax, so that the MUCH might, to a certain extent, be converted into a general 'unified *licensing* hypothesis'[16].

There remains the problem of whether to consider the structure (39)b as an intermediate level preceding the semantic interpretation (as is implied in the use of the term *reanalysis*), or as generated by the grammar of English. Selkirk proposes for some derived words a double possibility of D-structure that closely resembles the opposition debated here between reanalysed and non-reanalysed structure. Let us compare:

(40) a



b



In Selkirk's view the problem of considering a as reanalysed or generated does not present itself. Given that the correct interpretation ensues whatever structure the item is associated with, according to Selkirk the grammar *generates* a or b above indifferently. In the present discussion a structure like a, applied to verbal compounds, not only engenders an interpretation different from that of b but accounts also for the possibility of Case-marking in W-syntax in agreement with a systematic absence of Case-realization. Thus a verbal compound is associated only with a structure like a, one way or another. We might somehow keep in line with Selkirk's opinion and conclude that what we called 'reanalysed structure' is, actually, a base generated structure. This would indeed be the simplest solution, the immediate consequence of the initial hypothesis that the X-bar theory principles apply both in S-syntax and W-syntax. In this case, though, I am unable to devise how to relate such D-structure, i.e. (39)b, to the actual morphological representation which merges any kind of underlying logical relationship between the members of a compound under a surface form of the kind shown by a. I leave this problem for future reesarchers.

However other authors have come across this issue, known as "bracketing paradoxes"; Williams for instance,

> "proposed that certain paradoxes in morphology could be resolved by regarding "relatedness" among lexical items to be a phenomenon not fully reflecting the morphological structure of lexical items." (Di Sciullo-Williams, 1987, pp. 71-72)

and worked out the following definition of "relatedness":

(41) X is related to Y if X can be gotten from Y by substituting for a head of Y, including substituting 0 for a head of Y. (Di Sciullo-Williams, 1987, p. 72)

Thus *baby kill* is related to *baby killer* because the former can be obtained from the latter by substituting 0 for *-er*. We go further than Williams in that we suppose that the logical relationship that does not appear in the surface form of a compound actually springs out of a "logical" D-structure. Future research will possibly complete the discussion (how are these D-structures related to their surface-structures?). Alternatively one may choose to keep to the ordinary notion of 'reanalysis'.

As has been repeatedly stressed, our reanalysed structure results from the effort of having Visibility satisfied also in W-syntax accounting, at the same time, for the

absence of Case-realization (showing in the meanwhile how the reanalysis view affords a model highly compatible with a W-syntax organized according to the X-bar theory and with the basic ideas of the lexicalist hypothesis). Of course nothing prevents us from devising a different solution, including demonstrating that Visibility does not hold true for W-syntax or that no requirement like terminal government forbids a derived noun to Case-mark its complement in compound structure. Then there would apparently be no more need of reanalysis in dealing with verbal compounds. My future task will be, instead, to illustrate further reasons for the application of reanalysis in morphology, among which the elimination of apparent counterexamples to Aronoff's Unitary Base Hypothesis (discussed in Scalise, 1984) and an explanatory hypothesis capable of unifying the treatment of the Θ-marking properties of two particular sets of derived items.

Notes

1. I will follow Williams' hypothesis according to which *writer* inherits the argument structure of *write* (i.e. both Th and A) and an argument R afforded by the suffix. In Selkirk's theory there is no such R, but this divergence is of no matter in the present discussion.

2. A possible confirmation of the XV-hypothesis might lead to an extension of Baker's Noun Incorporation theory (cf. Baker, 1983, 1985, 1988) to the English language. Actually I agree with Di Sciullo and Williams' objections to Baker (cf. Di Sciullo-Williams, 1987) and will be intent on showing, in addition, that some facts, tentatively ascribed by Baker (1988) to an instance of Noun Incorporation in English, may be as satisfactorily explained by the XV-hypothesis.

3. According to Baker (1988), level zero categories do not receive any Θ-role and therefore do not need any Case. Thus, in (21) *baby* exhibits no Case realization because it has no Case. Selkirk, however, has a completely different view on the possibility for an X^0 to receive a Θ-role and the present study is modelled on such view.

4. In fact different semantic relationships must correspond to different D-structures. However, given that *party-drinker* II contains a non-argumental constituent, i.e. an element that is out of the scope of Visibility and, given that such elements are not the main concern here, the D-structure of *party-drinker* II will be dealt with in a forthcoming paper.

5. Let us consider (21), here repeated as

(i) [N [Vbaby kill V] -er N]

In a reanalysed structure there is only one element below Word-level coindexed with NP: the head of N (i.e. the suffix, which is coindexed with N and therefore with NP). In other words reanalysis allows a uniform treatment of both derivatives and compounds: in either case there is only one W-syntactic constituent coindexed with the whole word. But it must not be forgotten

that in one case the structure of a compound is not a reanalysed one, namely when it contains a non-argumental modifier of the whole head (cf. *party-drinker*I):

(ii) [N3 [N1 party N1] [N2 drink -er N2] N3]

here both the right-hand constituent (i.e. N2, the head) and the suffix (i.e. the head's head) are coindexed with the whole, i.e. there is more than one W-syntactic constituent coindexed with NP.

6. Or better a lexical category of type *word*, i.e. an *unbound morpheme*. According to Selkirk and Williams lexical categories comprise also Affixes, Roots and Stems, belonging to a level lower than zero, i.e. lower than word (in a forthcoming paper I will nevertheless argue against Selkirk's proposal that Root and Stem are categories lower than word). In this article, however, *lexical category* is used as a synonym of *word*.

7. In Baker (1988) some observations on the two notions of "barrier" are found. Among them, one relevant here is that, for Chomsky, barriers are relative only to the potential *governee*, not to the governor.

8. Again we must speak of *constituents* in order that (28) may account also for the case when Y refers to a non-reanalysed structure as that of *party-drinker* I in *party-drinker controller*:

(i) [N3 [N1 party N1] [N2 drink -er N2] N3] control] er]

here N3 contains a non argumental modifier of the whole head. According to (28) if *control* Case-marks N3 it Case-marks N2 and *-er*.

9. Cf. notes 5 and 8.

10. These examples are taken from Selkirk, 1982, p. 23.

11. Although also a simple N can be converted into a V by an affix, one cannot say that the argument of the N changes from external into internal, because simple Ns are commonly assumed to have no argument structure at all. One could say that only predicates are enabled to assign Θ-roles (i.e. are provided with an argument structure), and, *among simple words*, only A and V are traditionally predicates (they *must* have a subject).Thus a verb like [*en*[*shrine* N] V] does not inherit its Th argument from *shrine*, but must receive it in some other way.

But it is worth recalling that Chomsky (1986) includes P among the categories capable of assigning Θ-role. A new explanatory model might be devised in which also simple Ns are considered predicates, so that verbs like *enshrine* and *harden* might be dealt with in a uniform fashion (could we say that *John* in *John is a man* is Θ-marked in the same way as in *John is crazy*? If so, we should at least conclude that simple Ns *may* (not must) behave like simple Vs/As. However the optionality of a predicate-like behaviour is also typical of complex Ns, cf. *John's suggestion* versus *the suggestion*. Yet they are regularly included among possible Θ/Case-markers). Alternatively I have a different view, but more on this would be beyond the point here.

12. I.e. constituents assigned *internal* Θ-roles, since for these the Θ-marker coincide with the Case-marker. It must not be forgotten that
1. the *subject* argument is never assigned to any constituent in W-syntax;

2. for the subject of sentences the Θ-marker is distinct from the Case-marker. In particular the Θ-role of the subject is componentially determined by the whole VP, unquestionably a non-opaque item.

13. It is worth recalling that, according to Selkirk (1982), in compound structure both the parent node and the sister nodes below are level zero nodes. In other words in a compound the whole word, the head and the nonhead are level zero constituents, practically the only violation of the X-bar theory principles found in W-syntax. (37) shows an analogous violation in derivation. Within the nonhead both the first order projection node V2 and the preterminal node V1 are level zero nodes. The former must have zero bars because it is a maximal projection and the latter must as well because it dominates *kill*, i.e. a *word* (= a level zero unit, by definition). Unless some new notation is attempted so that under WL heads have a level distinct from the one of maximal projections (cf. Scalise 1984) this will remain the main difference between S-syntax and W-syntax in the application of the X-bar theory.

14. The structure (37) is adaptable to both reanalysed and non-reanalysed structures, yet it is evident that a two-level structure for W-syntactic nonheads becomes totally superfluous if reanalysis is not adopted too. In fact only in a reanalysed structure the first order projection node (V2) is supposed to branch. Otherwise it would be a "useless" node. Once more reanalysis seems to afford a more coherent model.

15. Cf. note 4.

16. Which would sound as follows:

(i) **Unified Licensing Hypothesis** (ULH): a maximal nonsubject projection α is licensed by β if and only if α is opaquely governed by β,

the subject constituent being excluded for the reasons set forth in note 12. However, if the ULH cannot be extended to subjects, this is somehow possible for the MUCH (cf. the discussion that immediately follows (31)). Thus, between the two, the MUCH remains the statement which best generalizes over both S-syntax and W-syntax.

References

ADAMS, V. (1973), *An Introduction to Modern English Word Formation*, Longman, London.

ARONOFF, M. (1975), *Word Formation in Generative Grammar*, MIT Press, Cambridge, Mass.

BAKER, M.C. (1983), "Noun Incorporation in Iroquoian" Ms., MIT, Cambridge Mass.

BAKER, M. C. (1985), *Incorporation: A Theory of Grammatical Function Changing*, doctoral dissertation, MIT, Cambridge, Mass.

BAKER, M.C. (1988), *Incorporation. A Theory of Grammatical Function Changing*, The University of Chicago Press, Chicago and London.

BAUER, L. (1983), *English Word Formation*, Cambridge University Press, Cambridge.

BRESNAN, J. (1982), "Polyadicity", in J. BRESNAN (ed), *The Mental Representation of Grammatical Relations*, MIT Press, Cambridge, Mass/ London, England.

CHOMSKY N. (1981), *Lectures on Government and Binding*, Foris Publications, Dordrecht.

CHOMSKY, N. (1986a), *Barriers*, MIT Press, Cambridge, Mass.

CHOMSKY, N. (1986b), *Knowledge of Language*, Praeger, New York

DI SCIULLO, A.M.- WILLIAMS, E. (1987), *On the Definition of Word*, MIT Press, Cambridge, Mass.

JACKENDOFF, R. (1977), *$\overline{X}$-Syntax: a Study of Phrase Structure*, MIT Press, Cambridge, Mass.

LEES, R.B. (1968), *The Grammar of English Nominalizations*, Mouton, The Hague.

MARCHAND, H. (1969), *The Categories and Types of Present-Day English Word Formation*, second edition, C.H. Beck'sche Verlagsbuch-handlung, Munich.

SCALISE, S. (1984), *Generative Morphology*, Foris Publications, Dordrecht.

SELKIRK, E. (1982), *The Syntax of Words*, MIT Press, Cambridge, Mass.

WILLIAMS, E. (1981a),"On The Notions 'Lexically Related' and 'Head of a Word'", *Linguistic Inquiry* 12: 245-274.

WILLIAMS, E. (1981b), "Argument Structure and Morphology", *Linguistic Review* 1: 81-114.

WILLIAMS, E. (1984), "Grammatical Relations", *Linguistic Inquiry* 15: 639-673.