HAS BARE PHRASE STRUCTURE THEORY SUPERSEDED X-BAR THEORY?[1]

(Hans-Martin Gaertner)

Chomsky (1995, p.233f) points out that

". . . the minimalist program, right or wrong, has a certain therapeutic value. It is all too easy to succumb to the temptation to offer a purported explanation for some phenomenon on the basis of assumptions that are of roughly the order of complexity of what is to be explained. If the assumptions have broader scope, that may be a step forward in understanding. But sometimes they do not. Minimalist demands at least have the merit of highlighting such moves, thus sharpening the question of whether we have a genuine explanation or a restatement of a problem in other terms."

Clearly, assessing the order of complexity and the scope of assumptions is not an easy matter. Competing assumptions, being as a rule embedded in widely diverging theories, require some careful analysis and rephrasing before one can take a stand on which of them might be preferred. Secondly, transferring parts of an explanation into an area of theorizing that is not well-understood often has - although it broadens the scope of assumptions - the effect of immunizing a theory against serious evaluation.

In this paper, I set myself the task of asking whether the assumptions related to the "Structure Preserving Hypothesis" (SPH) are best captured in a system that has access to something like inherent X-bar status or in the bare phrase structure model of minimalist syntax, that construes the X-bar status of elements as a relational property.[2]

Let's assume that the pre-minimalist system could have stated the intended generalization in terms of the X-bar format for syntactic structures in (1):

(1)	X^{α}	$\rightarrow$	$X^{\alpha}\ Y^{\alpha}$	[α = X° or X^{max}] [adjunction]
	X'	$\rightarrow$	X° (YP)	[YP = "complement"]
	XP	$\rightarrow$	ZP X'	[ZP = "specifier"]
	XP	$\rightarrow$	X° (YP)	[no specifier]

The grammar then rules out the unwanted cases on the basis of (1) interpreted as a filter on representations (cf. Chomsky 1986)[3]. We'll see below that as far

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[1] Thanks to Bob Frank for discussing some of the issues with me. The usual disclaimers apply.

[2] There seem to be quite different opinions on the usefulness of exercises as the one undertaken here. See Zwart (1994) and Gaertner & Steinbach (1994). I would count it as a success of the short remarks to follow if the questions surrounding current work on phrase structure in generative grammar became a little more tractable.

[3] Chomsky (1986, p.4) states the following principles for substitution:

a There is no movement to complement position
b Only X° can move to the head position
c Only a maximal projection can move to the specifier position

as representations are concerned, X' can be an adjunction site in the minimalist theory.
Now, bare phrase structure theory does away with explicit statements such as (1) on principled grounds and sets out to derive the desired constraints from independently motivated assumptions.
At the core of revising X-bar theory lies the idea ". . . that bare output conditions determine the items that are "visible" for computations" (Chomsky 1995, p.242). Roughly, this means that whatever need not be available at the interfaces (PF/LF) should not play a role in the computations of C_{HL}. For the case at hand, it suffices to note that "bare output conditions make the concepts "minimal and maximal projection" available to C_{HL}. But C_{HL} should be able to access no other projections." (ibid.) Crucially, bar-levels or markings of minimal and maximal status in the form of features should not figure in syntax either. Instead Chomsky adopts the strategy of "taking these to be relational properties of categories, not properties inherent to them. [. . .] There are no such entities as XP (X^{max}) or X^{min} in the structures formed by C_{HL}, though I continue to use the informal notations for expository purposes, along with X' (X-bar) for any other category." (ibid.)
The most important definition is then given as follows:

(2) "A category that does not project any further is a maximal projection XP, and one that is not a projection at all is a minimal projection X^{min}; any other is an X', invisible at the interface and for computation." (p.242f.)

It is immediately obvious that (2) achieves something that also follows from (1). X' can neither be moved nor can it be adjoined to. As mentioned before, in the strictly bottom-up generation of pre spell-out structures of Chomsky (1995), the latter point is not correct if looked at representationally. Outputs of the form in (3) are licensed.

(3) $[_{XP}$ YP $[_{X'}$ ADJ $[_{X'}$ X° ZP]]]

Looked at derivationally no problem arises. The adjunction operation is an application of Merge that takes ADJ and $[_{XP}$ X° ZP] as its input. [X° ZP], being a projection of X° and not having projected any further at that stage, is of the status [+max, - min] (= XP). Thus [X° ZP] is visible and the adjunction can occur. It would lead us far afield if we were to go into an empirical debate on "second-effects" and possible adjunction sites relevant to whether the operation in question is desirable. "Second-effects" had been a reason for disallowing it in earlier models (cf. Chomsky 1986, p.6). The revised line on this

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d Only minimal and maximal projections (X° and X") are "visible" for the rule Move-α.
He then assumes that b and c would "follow from an appropriate form of Emonds's Structure-Preserving Hypothesis . . . ".
Restrictions on XP and X° adjunction are given on pages 6 and 73, respectively, the latter amounting to ". . . a kind of generalization of Emonds's Structure-Preserving Hypothesis . . .".

is that such effects "may belong to the phonological component" (Chomsky 1995, p.368).
Here, I can only explore the theory-internal consequences of the invisibility of X'- categories. It is interesting, to begin with, to reflect on how C_{HL} computes the c-command relation at the PF-branch in order to construct the precedence relation for terminal elements. In keeping with Kayne's LCA, this can be done according to the following principle.

(4) α precedes β iff some node which dominates α (perhaps α itself) asymmetrically c-commands some node which dominates β (perhaps β itself) (Frank & Vijay-Shanker, 1995)

Crucially, X' because of its invisibility does not c-command the specifier and consequently does not asymmetrically c-command anything dominated by YP in (5).

(5) $[_{XP}\ [_{YP}\ Y°\ WP\ ]\ [_{X'}\ X°\ ZP\ ]\ ]$

At the same time, however, X° (and ZP) must be prevented from c-commanding YP and asymmetrically c-commanding Y° and WP. Otherwise, no precedence relation is defined for the relevant terminals. Thus, Chomsky (1995, p.391, fn.110) adds the assumption that "L [= X'] is part of the structure, however; otherwise we would have a new and inadmissible syntactic object. Thus, the branching structure remains, and *m, p* [= X°, ZP] do not c-command out of L." The result is that X° and ZP do not c-command YP, etc.
Now, this account seems to me to work by fiat only. Intuitively speaking, being part of the structure is not the same as being part of the *visible* structure. Conversely, not being part of the visible structure does not imply not being part of the structure.
To clarify the issue we must recapitulate what admissible syntactic objects are. For the purpose at hand we can take (6) to be a sufficient list. (ibid. p.243)

(6) a. lexical items
b. $K = \{ \gamma, \{ \alpha, \beta \} \}$, where α, β are objects and γ is the label of K.

The object K is the result of an application of Merge (potentially as a suboperation of Move) to α and β. Chomsky further defines the functioning elements of phrase markers in the following way. (ibid., p.247)

(7) For any structure K,
a. K is a term of K.
b. If L is a term of K, then members of the members of L are terms of K.

As a matter of explication Chomsky adds that "For the case of substitution, terms correspond to nodes of the informal representations, where each node is understood to stand for the subtree of which it is the root." (ibid.)[4]
We can infer that every term is a syntactic object. (The expression "structure" in (7) might be construed to refer to syntactic objects in (6)). We need a further step to fully understand the remarks on what it means to be part of the structure. (cf. ibid., p.339)

(8) The relations of dominance and c-command are restricted to terms.

For (5) we can take the set of terms to be

(9) T = {XP, YP, Y°, WP, X', X°, ZP }

The resulting dominance(D)- and c-command(C)-relation would be the following:

(10) D = {<XP,YP>,<XP,Y°>,<XP,WP>,<XP,X'>, <XP,X°>,<XP,ZP>,
<YP,Y°>,<YP,WP>,<X',X°>,<X',ZP> }
C = {<YP,X'>,<YP,X°>,<YP,ZP>,<Y°,WP>,<WP,Y°>,<X',YP>,<X',Y°>,
<X',WP>, <X°,ZP>, <ZP,X°> }

If one now eliminates all the pairs containing X', the desired result is obtained for C. YP asymmetrically c-commands the elements dominated by X', but nothing dominated by YP is asymmetrically c-commanded by anything reflexively dominated by X'.

(11) D = {<XP,YP>,<XP,Y°>,<XP,WP>,<XP,X°>,<XP,ZP>, <YP,Y°>,
<YP,WP>}
C = {<YP,X°>,<YP,ZP>,<Y°,WP>,<WP,Y°>,<X°,ZP>, <ZP,X°> }

There is one problem though. For C to be constructed from D, C_{HL} had to be able to see the pairs containing X' in D. The strict invisibility of X', however, would require C to be constructed from D in (11). Yet, application of c-command as defined in (12) to D in (11) yields C' in (13).

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[4] It is not entirely clear why the term-node correspondence should not hold for adjunction. "Adjunction differs from substitution, then, only in that it forms a two-segment category rather than a new category." (Chomsky 1995, p.248) As long as the definition of terms is as in (7), both segments of an adjunction structure count as terms. Differences affect the label. Thus no such thing as a term <α,α> will result. As long as (8) below holds, both segments will also - unless invisibility interferes - figure in the computation of dominance and c-command. Pages 338-340 contain a discussion of c-command relations for adjunction structures. The intention is to let adjuncts c-command outside of their adjunction site. This might be welcome for X°-elements. In structures like (3), however, no precedence order will result for ADJ. and the specifier. The subsequent discussion terminologically mixes terms and categories for the dominance relation and refrains from making a number of crucial decisions. It is therefore hard to draw any conclusions from it.

(12) X c-commands Y if (i) every Z that dominates X dominates Y and (ii) X and Y are disconnected. (ibid., p.339)

(13) C' = {<YP,X°>,<YP,ZP>,<Y°,WP>,<WP,Y°>,<X°,ZP>, <ZP,X°>,
<X°,YP>,<X°,Y°>,<X°,WP>,<ZP,YP>,<ZP,Y°>,<ZP,WP>}

C' will not be totally ordered for precedence as soon as the head of ZP is taken into account - an unwelcome result.
Still, it is arbitrary to say that C_{HL} can "see" X' while it is constructing D and C but that it cannot "see" it when precedence is computed.
Note, that a dynamic solution[5] of the problem does not improve the situation. It could be argued that at the point where X' is operated on it is still of the status XP. Dynamic computation of D would give us a sequence of results:

(14) a. Merge X°,ZP D_a = {<XP,X°>,<XP,ZP>}
b. Merge Y°,WP D_b = {<XP,X°>,<XP,ZP>,<YP,Y°>,<YP,WP>}
c. Merge YP,XP D_c = { ?? }

A number of factors are involved in constructing D_c. Should we update the pairs that we carry over from D_b to read X' instead of XP or should these pairs not be carried over at all because of invisibility:

(15) D_c1 = { <X',X°>,<X',ZP> . . . } (?)

Should D_c contain <XP,XP>, <XP,X'>, or none of these? Whatever the answer is. D will either contain all or none of the pairs mentioning X'. The same reasoning that applies to the "static" computation above will then apply for the dynamic computation and no progress has been made.[6]
The invisibility of X' will have its welcome results and avoid the unwelcome ones by fiat only. I take it therefore that in that respect no advance has been made over the rival assumptions in (1). Although the scope of the proposal has been broadened by bringing to bear considerations of output conditions on a subpart of X-bar theory, that broadening doesn't appear to be felicitous.[7]

Let's turn to the principle that specifiers and complements have to be maximal projections. This follows directly from (2). Specifiers and complements being the categories that do not project when paired with another must be [+ max].

[5] For some intriguing empirical results see Steinbach & Vogel (this volume, footnote 5).
[6] Epstein (1995) comes closer to giving a way of deriving the intended results for the LCA. His system, however, creates problems of a different kind to do with among other things X°-movement and adjunction. I therefore skip a detailed discussion of his proposals.
[7] Although it may not directly be obvious, nothing of the above reasoning has to be changed if we adopt Chomsky's notation instead. [$_{XP}$ [$_{YP}$ Y° WP] [$_{X'}$ X° ZP]] is translatable into { X, { { Y, { Y, WP }}, { X, { X, ZP }} } }. The question would be whether or not D and C can integrate the term { X, { X, ZP }}.

For movement theory, things are more complicated. We are left with explaining why it is the case that

(16) a XP is not allowed to adjoin to X°,
b X° is not allowed to move to specifier position, and
c X° is not allowed to adjoin to XP.[8]

(16) b and c are ruled out by an additional assumption. (ibid., p.253)

(17) A chain is uniform with regard to phrase structure status

X° being of the status [- max / + min] in its base position would change into [+ max / + min] in the target position given (2) since it would not project any further there. Thus, (17) is violated and (16) b and c cannot arise. The ungrammaticality of (16)a, which does not lend itself to the same kind of treatment, is - not implausibly - attributed to morphological requirements checked on the PF-branch of C_{HL}, i.e. after spell-out. (ibid., p.319)

(18) Morphology deals only with X° categories and their features

"On this natural assumption, the largest phrases entering Morphology are X°s, and if some larger unit appears within an X°, the derivation crashes." (ibid.)[9]

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[8] Adjunction to XP by movement might actually be ruled out by checking theory if elements not included in the maximal projection of α are not in the checking domain of α. Since movement is licensed for reasons of feature checking alone, no movement to an XP-adjoined position can take place. Chomsky (1995, p.319/326) seems to be inclined to define checking domains in the required way.

[9] Although broadening the scope of explanation potentially deepens the interest and understanding created by syntactic theory, this move might run into factual problems of the following kind. There are certain nominal constructions that appear to require a CP to occur inside N°.

(i) diese [$_{N°}$ [$_{CP}$ jeder-sorgt-für-sich-selbst] Einstellung]
<this everyone-provides-for-oneself attitude>

One argument for taking CP to be inside N° is the fact that the resulting structure has exactly the distribution of N°. Thus, adjectival modifiers precede CP but cannot intervene between CP and N.

(ii) diese egoistische jeder-sorgt-für-sich-selbst Einstellung
(iii) * diese jeder-sorgt-für-sich-selbst egoistische Einstellung

Secondly, the CP induces the same stress pattern that compounding results in.

(iv) diese jeder-sorgt-für-sich-SELBST Einstellung
(v) diese EgoISTeneinstellung

The main stress - marked by capitals - falls into CP in (iv) as well as into the incorporated nominal element in (v). Standard syntactic modifiers, like adjectives and prenominal genitives, however, are less prominent than the head N°, unless a contrastive reading is intended.

(vi) diese egoistische EINstellung
(vii) Peters EINstellung

The question, of course, arises how X°-movement fares under that proposal. In fact, given (17) X°-movement should be blocked in principle. Whatever the landing site turns out to be is irrelevant since the moved X° will not project in its target position and thus - relationally - count as [+ max/ + min], in violation of (17). Clearly, condition (17) is imposed on chains at LF where C_{HL} filters out illegitimate objects, well-formed chains being the only legitimate objects. Thus, another principle is required to allow X°-movement to escape (17).

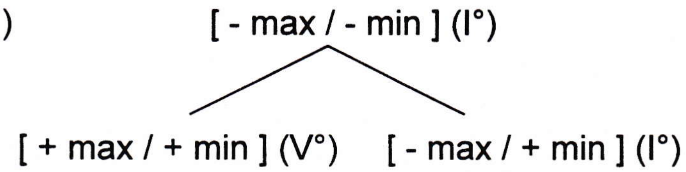
(19) At LF, X° is submitted to independent word interpretation processes WI "where WI ignores principles of C_{HL}, within X°." (ibid., p.322)

(17), thus, appears to be harmless for X°-chains. Morphology, at the same time seems to be able to distinguish an element marked [+max / + min] from a "real" maximal category, i.e. [+ max / - min]. This may be achieved by the simple principle (20).

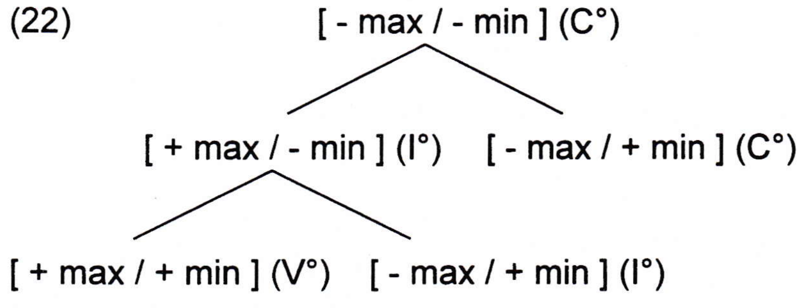
(20) [+ min] must not dominate [- min] (in morphology)

Of course, not much is known about WI to be able to assess the scope of that additional proposal. It is possible, however, to inquire into the technical execution of (18)/(19), since it is not directly evident how the components morphology and WI actually recognize X°-elements in the first place. Call this the "recognition problem". Surprisingly, it is not sufficient to appeal to (2) above. According to (2), only categories that are not projections at all should be [+ min]. Adjunction to X°, however, requires X° to *project*. (ibid., p.249/ p.260/ p.321) Consequently, the object created by adjunction relationally acquires the status [- min]. If we only go by phrase structure status, we want morphology/WI to accept configurations like (21) and (22) for e.g. V°-to-I° and V°-to-I°-to-C° respectively.

(21)



(22)



It turns out that even if one takes into account the shape of the label in adjunction structures ($\langle\alpha,\alpha\rangle$, α = head) one cannot distinguish the unwanted structures from licensed ones on purely configurational grounds. (I refer readers to the appendix for an illustration of why I think this is the case). Moreover, the recognition problem is not the only complication we run into within the system set up so far. Recall that categories of the status [- max / - min] were supposed to be invisible to C_{HL}. (This - by the way - makes the recognition problem even harder to overcome.) Thus, successive-cyclic X°-movement should not be able to take place. The complex I° in (23) is relationally assigned the phrase structure status of (21).

(23) $[_{I'} [_{I^\circ} V^\circ\ I^\circ] [_{VP} \ldots t_v]]$

Consequently, it is frozen in place. A further step to adjoin the complex I° to C° is not an option for C_{HL}, given the invisibility of [- max / - min]. There surely is a way out. Assuming the recognition problem can be solved, successive-cyclic X°-movement might be attributed to PF properties entirely.
For the LF branch of the computation, however, even the latter strategy is not sufficient. One of the innovations of Chomsky (1995) is allowing features to move on their own at LF via "Move-F". For subjects, objects, or verbs that do not overtly leave their base positions, feature checking is assumed to take place in I°-adjoined positions. (ibid., p.370f) (T = I° / Vb = verbal complex)

(24) $[_T\ FF(Obj.) [_T\ FF\ (Subj.) [_T\ Vb\ T]]]$

This time, as soon as the first adjunction has taken place, the resulting structure should count as (21) in terms of phrase structure status and thus be rendered invisible. Any further adjunction to it must be blocked by C_{HL}, on a par with adjunction to X' nodes. To avoid this problem, the elements in (24) could adjoin to each other in a successive-cyclic way.

(25) $[_T [_{Vb} [_{FF(Subj.)}\ FF(Obj.)\ FF\ (Subj.)]\ Vb]\ T]$

Although it is conceptually quite unattractive to assume that the formal features of the subject attract the formal features of the object, this seems to be required if both phrase structure status is computed relationally according to (2) and at the same time X'-categories are assumed to be invisible.

Indeed, Chomsky (1995) already contains a caveat concerning X° categories. Thus (2) has to be qualified for X° categories. (ibid.,p.243) The adjustment is made in the following passage (ibid.,p.245):

"To review notations, we understand a *terminal element* LI to be an item selected from the numeration, with no parts (other than features) relevant to C_{HL}. A category X^{min} is a terminal element, with no categorial parts. We restrict the term *head* to terminal elements. An X° (zero-level) category is a head or a category formed by adjunction to the head X, which projects. The head of the projection K is H(K). If H = H(K) and K is maximal, then K = HP. We are also commonly interested in the maximal zero-level projection of the head H (say, the T head of TP with V and perhaps more adjoined). We refer to this object as $H^{o max}$."

The introduction of $H^{o max}$ is a departure from the relational concept of phrase structure status. As far as I can see (cf. appendix) $H^{o max}$ must be an inherent property (perhaps assigned as an (affixal) feature) of certain structural configurations. In that respect, no progress has been made over the traditional view of X-bar status as expressed in (1).
One might still argue that resorting to certain features in a single case is less costly than a full-fledged assignment of inherent X-bar status to syntactic categories, the latter disregarding the minimalist warning that

". . . with sufficiently rich formal devices (say, set theory), counterparts to any object (nodes, bars, indices, etc) can readily be constructed from features. There is no essential difference, then, between admitting new kinds of objects and allowing richer use of formal devices; we assume that these (basically equivalent) options are permitted only when forced by empirical properties of language." (ibid., p.381, fn.7)

Since the use of such concepts as ordered pairs (p.248/ p.252) (and even numerical indices (or multisets) in the case of numerations(ibid., p.227f) is allowed - forced by empirical properties of language, supposedly - it is not entirely clear to me why one cannot interpret syntactic categories as ordered pairs in the first place. One element of the pair being a numeral constructed in the classical fashion from the empty set and interpreted as the phrase structure index of the respective structure.

(26) $< X, \varnothing > = X°$
$< X, \{ \varnothing \} > = X'$
$< X, \{ \varnothing, \{ \varnothing \} \} > = X'' = XP$

Summing up, I consider the following points to argue against a departure from systems like (1) in the way proposed in Chomsky (1995):

- The relational concept of phrase structure status as formulated in (2) cannot be fully adhered to when it comes to X°-adjunction. The system has to partially retain inherent phrase structure status in any case.
- The invisibility of X'-categories leads into contradictions when it comes to the computation of the precedence relation and it produces a "recognition problem" for the components of morphology and word interpretation.

- No invisibility argument has been advanced for other elements operated on by C_{HL} that play no role at the interfaces (e.g. uninterpretable formal features). The argument for the invisibility of X'-categories, thus, appears to be less than compelling.
- The uniformity condition on chains wrt phrase structure status (17) requires the components of morphology and word interpretation to act as filters on phrase structural outputs, which additionally produces a "recognition problem". The uniformity condition on chains would follow directly from (1).

Note, finally, that I do not object to any of the principles (2), (17), (18), and (19) if taken in isolation.

<u>APPENDIX:</u>

I) Take the following to be an abbreviation of [+/- max, +/- min] ("max" being the value on top, and "min" the value below)

+/-
+/-

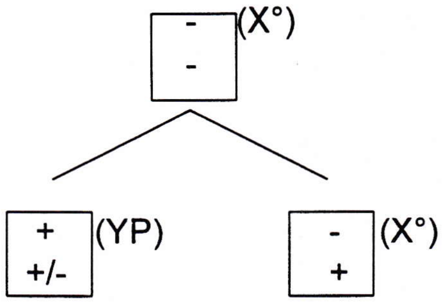
There are 16 configurations of values for the immediate dominance relation:

A	-		-
	-		-
B	+		-
	-		-
C	-		-
	+		-
D	-		+
	-		-
E	-		-
	-		+
F	+		-
	+		-
G	+		+
	-		-
H	+		-
	-		+
I	-		+
	+		-
J	-		-
	+		+
K	-		+
	-		+
L	+		+
	+		-
M	+		-
	+		+
N	+		+
	-		+
O	-		+
	+		+
P	+		+
	+		+

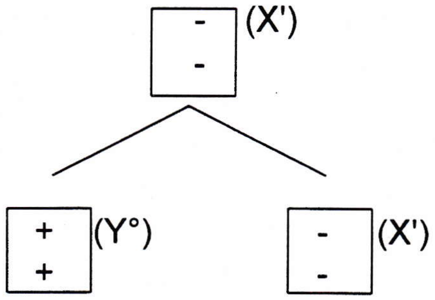
(the left pair of values immediately dominates the right pair; values standing for the terms that carry them)

The following are "illicit configurations" crucial to the "recognition problem"

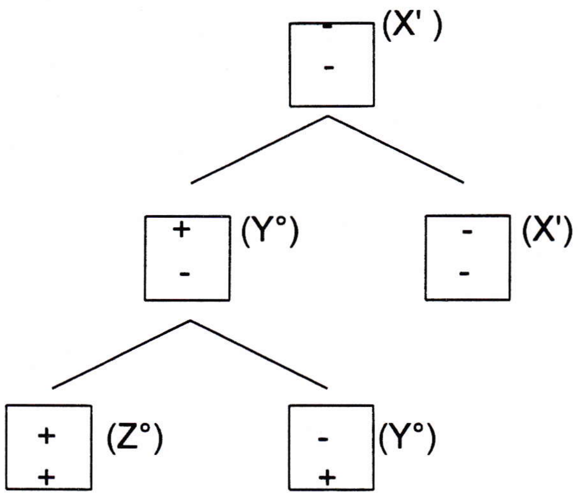
1) XP-adjunction to X°



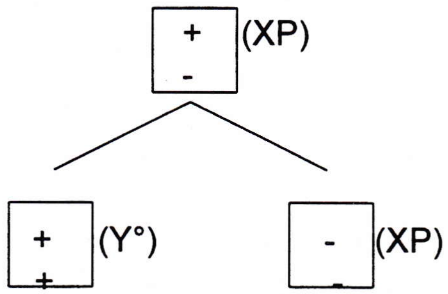
2) X°-adjunction to X'



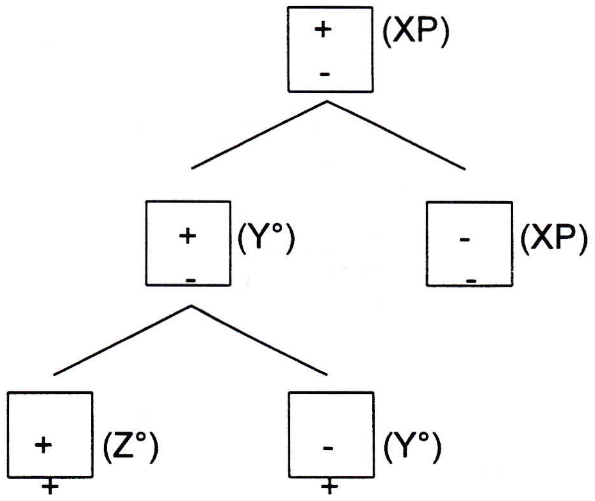
3) Complex X°- adjunction to X'



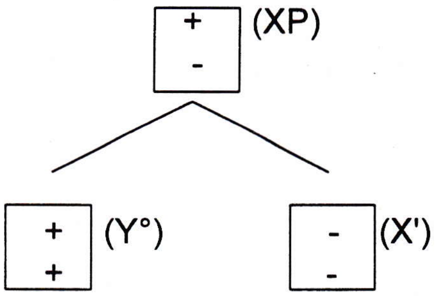
4) X°-adjunction to XP



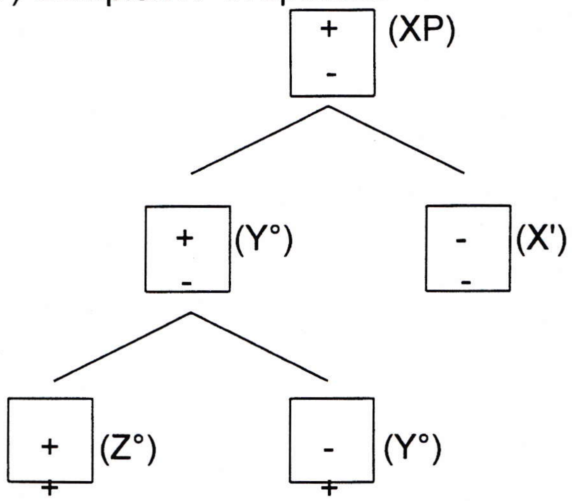
5) Complex X°-adjunction to XP



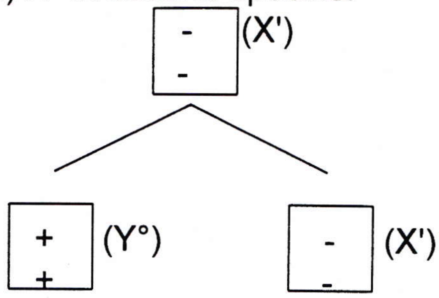
6) X° in specifier



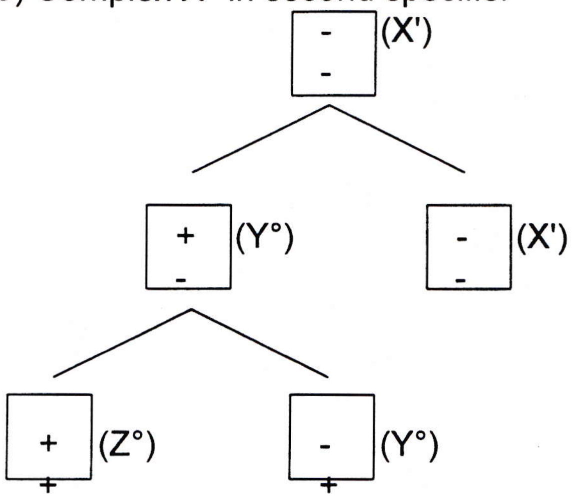
7) Complex X° in specifier



8) X° in second specifier



9) Complex X° in second specifier



The immediate dominance (ID) relations for (1)-(9) according to types A-P are the following:

ID1 = { D/K, E }
ID2 = { A, K }
ID3 = { A, D, H, N }
ID4 = { B, N }
ID5 = { B, G, H, N }
ID6 = { B, N }
ID7 = { B, G, H, N }
ID8 = { A, K }
ID9 = { A, D, H, N }

The following configurations are supposed to be licensed (among others):

10) [$_{XP}$ YP [$_{X'}$ . . .]]   (XP in specifier)

11) $[_{XP}$ YP $[_{X'}$ ZP $[_{X'}$ . . .]]] (XPs in multiple specifiers)
12) $[_{XP}$ YP $[_{XP}$ . . .]] (XP adjoined to XP)
13) $[_{X'}$ YP $[_{X'}$ . . .]] (XP adjoined to X')
14) $[_{X'}$ X° YP] (X° and complement)
15) $[_{XP}$ X° YP] (X° and complement)
16) $[_{X'}$ $[_{X^\circ}$ Y°X°] YP] (complex X° and complement)
17) $[_{X^\circ}$ Y°X°] (X° adjunction)
18) $[_{X^\circ}$ $[_{Y^\circ}$ Z° Y°] X°] (complex X° adjunction)
19) $[_{X^\circ}$ Z° $[_{X^\circ}$ Y° X°]] (multiple X° adjunction)

The resulting ID-type sets are:

ID10 = { B, G/N }
ID11 = { A, B, G/N, D/K }
ID12 = { B, G/N }
ID13 = { A, D/K }
ID14 = { D/K, E }
ID15 = { H, G/N }
ID16 = { A, E, D/K, K }
ID17 = { E, K }
ID18 = { D, E, H, N }
ID19 = { A, E, K }

<u>Result:</u>

- ID1 cannot be ruled out because it is matched by ID14.
- ID2/ID8 cannot be ruled out because they are overlapped by ID11/ID13/ID16/ID19.
-ID4/ID6 cannot be ruled out because they are matched by ID10/ID12 and overlapped by ID11

- ID3/ID5/ID7/ID9 cannot be ruled out because they are overlapped by an extended ID11': $[_{XP}$ YP $[_{X'}$ $[_{ZP}$ Z° WP] $[_{X'}$ . . .]]]
= { A, B, D, G/N, (G/N), H }

- (ID18 can be extended to yield ID18': $[_{X'}$ $[_{X^\circ}$ $[_{Y^\circ}$ Z° Y°] X°] WP]
= { A, D, D/K, E, H, N }
to overlap and rule out ID3/ID9)
- etc.

Recoding these results in terms of sisterhood or c-command-relations does not alter the picture.

The illicit structures cannot be distinguished from licensed configurations.

II) It might alternatively be attempted to distinguish the unwanted from the licensed structures by identifying their configuration of labels. Again, the structures in (1)-(9) find their match among (10)-(19), since the only distinction are straight (X) labels and labels resulting from adjunction (<X,X>).

1/2/4) $[_{\langle X,X\rangle}$ Y X]
3/5) $[_{\langle X,X\rangle}$ $[_{\langle Y,Y\rangle}$ Z Y] X]
6/8) $[_{X}$ Y X]
(7/9) $[_{X}$ $[_{\langle Y,Y\rangle}$ Z Y] X]

12/13/17) $[_{\langle X,X\rangle}$ Y X]
18) $[_{\langle X,X\rangle}$ $[_{\langle Y,Y\rangle}$ Z Y] X]
10) $[_{X}$ Y X]
extended 10'
= $[_{XP}$ $[_{YP}$ ZP $[_{YP}$ . . .]] $[_{X'}$ . . .]]
= $[_{X}$ $[_{\langle Y,Y\rangle}$ Z Y] X]

The illicit structures cannot be distinguished from licensed configurations.

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Hans-Martin Gaertner
Max-Planck Gesellschaft
Arbeitsgruppe Strukturelle Grammatik
Jaegerstrasse 10/11
10117 Berlin
e-mail: gaertner@asg.ag-berlin.mpg.de
