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X-bar Syntax in a Pedagogical Setting

Hector Torres

In this brief essay I explore how X-bar syntax, the module in the theory of grammar that defines the head-complement relation in particular languages, may be used as an effective pedagogical tool when teaching college students encountering the theory of grammar for the first time. In particular, I pursue two distinct but interrelated objectives: (i) to show that X-bar theory, within its limits, can be used to teach such students the empirical nature of the study of constituent structure in an optimally simple way, and (ii) to propose a variant of X-bar theory that could supplement any English pedagogical grammar that already uses the syntactic categories of NP, VP, AP, and PP so represent and define constituent structure and functions.

Textbooks concerned with the teaching of English grammar rarely make use of the X-bar Convention. Veitz (1988) for instance, writes a grammar of English with the explicit goal, among others, "To Teach a Transformational Approach to Syntax" (xi), because as he says, no "...other approach lends itself so successfully to undergraduate teaching" (xi). And despite the fact that his grammar offers a compendium of phrase-structure rules and transformations, X-bar syntax does not play into the formulation of the former. Huddleston (1984) acknowledges the existence of constituents that stand between the lexical and phrasal levels of a given major phrasal category like NP or VP, but as he is pursuing a structural aim, does not offer a notation that would obey the X-bar template, $X^m \rightarrow \dots X^{n-1} \dots$. One tends to see X-bar theory in pedagogical textbooks when these textbooks have the aim of presenting an interpretation of generative grammar. Radford (1988) for instance gives a fully worked out variant of X-bar syntax using such familiar NPs as, [the student of physics with long hair]_{NP} and [the king of England]_{NP}. Current theoretical work in X-bar theory has addressed the question of how many projections, or levels, a major phrasal constituent contains, which is the question that concerns this paper as well. Proposals for the number of levels a major phrasal constituent contains have ranged from Jackendoff's (1977) Uniform Three Level Hypothesis to the more recent theory of Stuurman (1985) who argues that only the levels of 0 and 1 should be allowed. In Chomsky (1988) the structure of the clause is made to come under the X-bar template by subdividing S-bar into SPEC + C-bar, and S into SPEC + I-bar, where S-bar = COMP PHRASE (CP) and S = INFLECTIONAL PHRASE (IP). And yet, it is doubtful that these proposals, with their highly specific theoretical concerns, have anything explicit to say about the practical teaching of English constituent structure. In effect, X-bar theory remains chiefly within the bounds of linguistic theory and pedagogical pursuits such as Radford's tend to have the interest of elucidating the principles of generative grammar as a whole.

More to the point then, I think it is possible to take the simple notion of head-complement as expressed in X-bar syntax and use it in a pedagogical setting, that is, use it with pedagogical ends in mind and without invoking the entire architecture of the theory of grammar. In a sense, such an appropriation of X-bar syntax is a way to supplement English pedagogical grammars that either explicitly or implicitly rely on structural categories like NP, VP, AP, PP, and ADVP and on such common structural tests like deletion and WH-substitution. Such supplementation will be particularly useful for explaining just how complements and modifiers affect the structure and sense of a major phrasal category. The X-bar system I propose furnishes a simple vocabulary for discussing these structural and semantic relationships and exploits the disjunctive logic of the X-bar template, which is simply that, details aside, a given complement inside the projection line of a lexical head X will be a sister either of X or X -bar.

The X-bar system proposed here breaks down into three sections (see appendix A). In the first section, we assume a set of nodes $K = (l, k, \dots, m)$, where l = lexical level, m = major phrasal level, and k any intermediate level, i.e., k and potential successors form a single level. In the second section, we let the members of R designate the following possible structural relations:

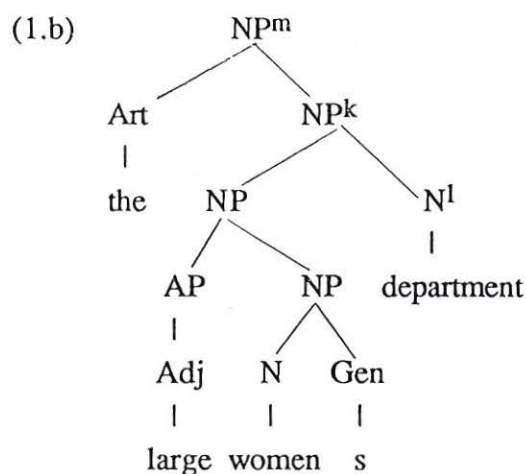
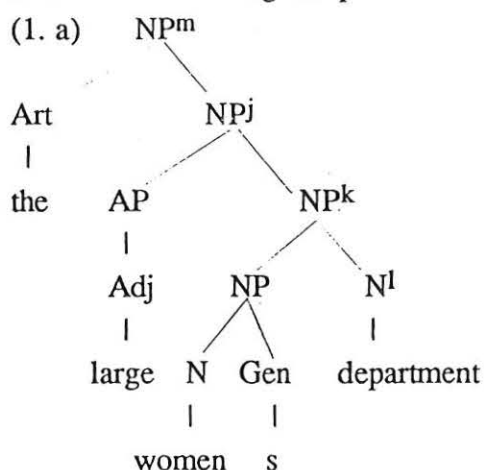
- A. m immediately dominates l iff $k = m$
- B. k immediately dominates l iff m dominates l
- C. j immediately dominates k iff k immediately dominates l
- D. i immediately dominates j iff j immediately dominates k

The sequence of steps A-C is intended to capture the manner in which a given XP may contain one or more complements, among them those that strictly subcategorize their head X , as well as those of the restrictive and non-restrictive type. For instance, step A allows k to equal m and thus "writes out" any intermediate constituent when none is present in some XP. Step B, on the other hand, allows an intermediate constituent k "to enter" into the formation of some XP when such a constituent is present. And likewise, steps C and D allow other k -level constituents to be represented when these are present in some XP. Finally, ^{section} action three contains the instruction to place a single bar over every k -level constituent contained in some XP, converting an XP constructed out of structural categories and tests into a representation of the X-bar template and for this reason I have called this instruction the X-bar conversion rule. From a pedagogical standpoint, the X-bar conversion rule in effect shows that learning to identify constituent structure and assign phrase-markers to sequences of lexical material is always ^a constrained process. As such, the X-bar conversion rule can be used to stimulate discussion about the linguistic goal of constructing a constraining theory of grammar and to help the student appreciate the nature of the empirical goals that confront linguistic theory.

To illustrate how this X-bar variant has a general level of applicability to the teaching of English grammar, consider the following ambiguous NP with and without the definite article (see Appendix B for additional examples):

(1). [(the) large women's department]_{NP}

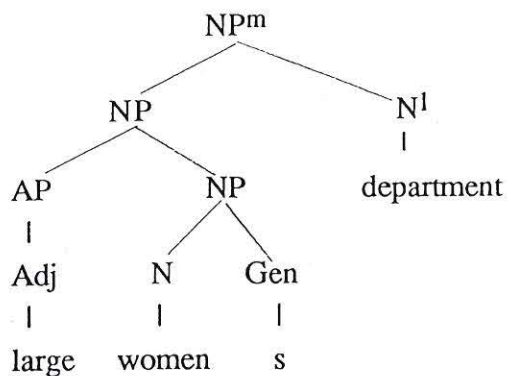
From a structural standpoint, the ambiguity of scope in the AP-large requires that (1) receive the following two phrase-markers:



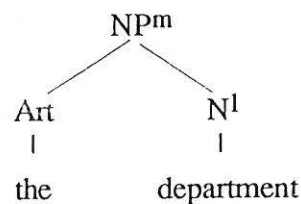
First, l is superscripted to the N and m to the topmost NP since the former is the lexical head and the latter is the containing major phrasal node. Next, notice that (1.a) contains two additional levels of intermediate structure between m and l. This warrants the application of steps B and C above and therefore the first NP that immediately dominates N gets the k superscript and the NP that immediately dominates NP^k gets the j superscript. The result is a way to talk about how AP-large modifies NP^k via an additional level of NP constituency, namely NP^j. Following the same logic to (1.a) shows that here only one additional level of intermediate NP constituency is needed since AP-large modifies not NP^k, but the genitive NP-women's. Applying the Xbar conversion rule shows that it is possible to convert a "regular" NP, i.e., one constructed with only structural methods in mind, into an NP that reflects the structural form of the X-bar template.

Deleting the definite article reveals that X-bar constituents may occupy major phrasal node positions. In other words, it is DET + N sequences that constitute the unmarked NP sequence in English. Hence, when an NP constituent appears without a determiner such as an article, a major phrasal node precedes the lexical head of that NP. In the case of (1), for instance, the result is a phrase marker like (1.c) that resembles the unmarked DET + N sequence as in (2):

(1.c)

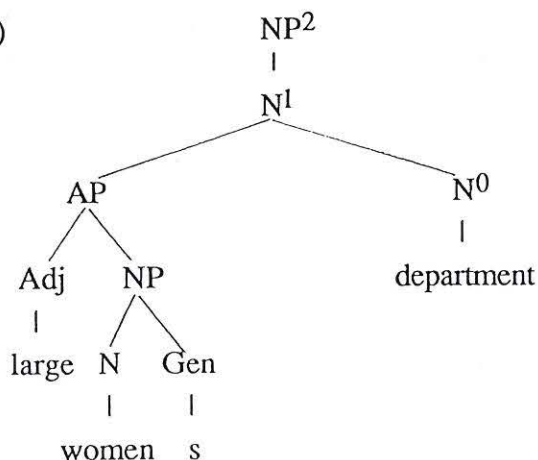


(2)



In this X-bar system, to say that an X-bar constituent may occupy a major phrasal node position is to say that binary branching is preserved and that there is no need to have a major phrasal node expand via a single branch, as most current X-bar variants allow (for example, see Jackendoff [1977]) in the manner of (3):

(3)



To close, I would add one final comment. For students from New Mexico encountering the theory of grammar for the first time, the empirical and formal nature of the X-bar convention seems forbidding. Yet when the simplicity of X-bar syntax and what it is intended to explain is emphasized, I have found that those students who at first resist it the most, end up being those that appreciate it the most.

APPENDIX A

I. Assuming the X-bar template in the following form, $X^m \rightarrow \dots X^k \dots$, where $k \leq 2$, and,

A. Given the set of nodes $K = \{l, k, \dots m\}$, where

- (i). l = lexical level
- (ii). m = phrasal level
- (iii). k = (n-ary) intermediate level(s)

II. Then, in order to assign the members of K to some XP in phrase-marker M , let:

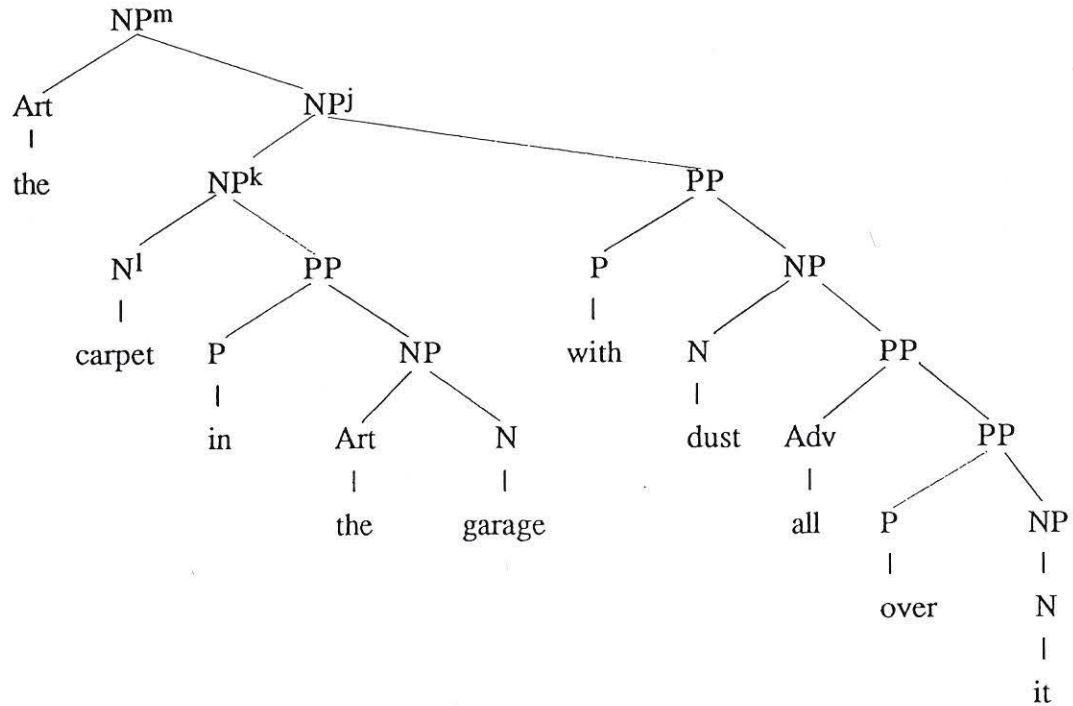
- A. m immediately dominate l iff $k = m$
- B. k immediately dominate l iff m dominates l
- C. j immediately dominate k iff k immediately dominates l
- D. i immediately dominate j iff j immediately dominates k

III. A. X-bar Conversion Rule: to convert some XP in M into a representation of the X-bar template, assign a single bar to every k taken from the domain of K .

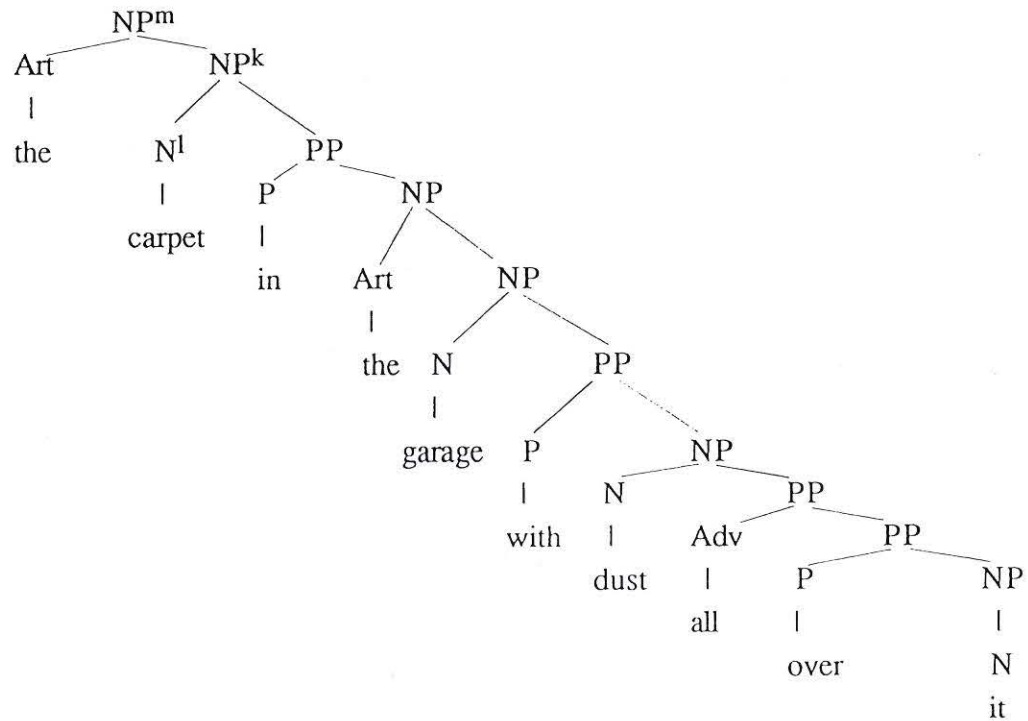
APPENDIX B

- 1.a Sandy owns [the carpet in the garage with dust all over it]_{NP}
 b Sam cares about [the average person on the street's any opinion]_{NP}
 c Mole [read the notice under the street light without his glasses]_{VP}

1. a.



1. a'



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