An introduction to Grammar: Syntax and the Lexicon

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1 # #Introduction.

We start this page with the hypothesis that the lexicon is initially underspecified: that some features may be NIL (not specified as either plus or minus). A NIL feature is represented either with no marker, or with NIL, or with '^{0}'. We may start our grammar either with phrase structure rules (bottom down) or rule apply bottom up. Let's start with phrase structure rules.

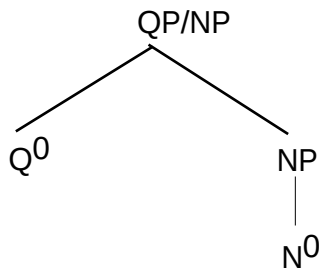
Actually, this system is ternary as opposed to binary. Binary implies a system of two choices: 0, 1; or off, on; or no, yes. Binarism is favour by many linguists as well as other areas such as computing sciences, but there is no unanimous agreement on this. The offender feature here is NIL. We will drop NIL and replace with a different system that is binary in nature.

Let us start with a simple expansion--that of QuP (quantifier phrase, based on the syntactic project Qu) which may also be written as NP (based on the semantic projection N). In the syntactic projection of Qu, Qu is the head, NP is its argument, and the phrase should be written QuP.

(1) QuP --> Qu + NP (alternatively, NP --> Qu + NP).
NP -> N (PP)

The NP expansion rule is an incomplete rule, but it will suffice here. N is the head of NP, and PP is an optional argument. Let us expand QuP and NP, choosing a noun which takes no complement:

(2)



Next a lexical item is selected and inserted in the appropriate nodes. Let us select TWO and CAT', respectively and insert them as underspecified lexical items. That is, the feature [Pl] is not an inherently specified as plus or minus. It must be specified by a grammatical rule. We assume here that the features of the lexical item are hard wired--that is, these features are stored directly in the mental lexicon. This is the underspecified hypothesis.

It is necessary, now, to introduce the concept of binary inherency as opposed to a ternary system. Rather than entering features as plus, minus, or NIL, we argue that all features come in a couplet: first, whether the feature has an inherent value, or whether it has no inherent value. In the latter case no value is given and a value for the feature must be found.

Let us start with the feature [Pl] (Plural). In most nouns of English, this feature is required for all nouns, but the value is of [Pl] is not specified. First we mark the lexical entry for such nouns as [Pl_Inh]. For example, the noun BOOK can be either singular or plural. In this case we mark the noun as [-Pl_Inh]:

(3)
$$\begin{bmatrix} \text{BOOK} \\ \text{+N, -V} \\ \text{[-Pl\_Inh]} \end{bmatrix}$$

The feature [-Pl+Inh] means that a value for the feature [Pl] must be found. Just how to determine this feature is discussed in the file on agreement. Let us suppose that the feature will be [-Pl]. then we add this feature to (3):

(4)
$$\begin{bmatrix} \text{BOOK} \\ \text{+N, -V} \\ \text{[-Pl\_Inh]} \\ \text{[-Pl]} \end{bmatrix}$$

Next, consider a noun such as *cattle.* CATTLE is inherently plural:

(5) a. *The cattle is grazing in the field.

b. The cattle are grazing in the field.

The auxiliary verb shows agreement for plural, but not for singular. Therefore, we shall enter CATTLE as [+Pl_Inh]. All nouns so marked must also include the value of [Pl], which is [+Pl] in this case:

(6)

$$\left[\begin{array}{c} \text{CATTLE} \\ \text{+N, -V} \\ \text{[+Pl\_Inh]} \\ \text{[+Pl]} \end{array}\right]$$

The lexical entry (3) is underspecified in that the value for [+Pl] has not been specified. The lexical entries (4) and (6) are fully specified in that no feature values have not been specified. There is growing evidence that speakers of natural languages have both underspecified and fully specified lexical entries in their each one's lexicon. Although this topic goes well beyond the scope of L322, the idea is that we are able to memorize in some sense both forms of the word, but retain knowledge of the logical base form of the word, which is written in CAPS here.

Jackendoff (19--) and Halle (19--) and others have claimed that the lexicon is fully specified. Chomsky (1995) concurs noting that there should be some sort of rules that determine this form. It seems to us that the rules which we will be proposing are based on predicate logic from the semantic input plus whatever the grammar requires. It seems reasonable to suggest that the above rules and other similar rules apply in the formation of each lexical item. The resulting lexical item is then fully specified. These forms become learned and are stored in the lexicon. Let us adopt this point of view.

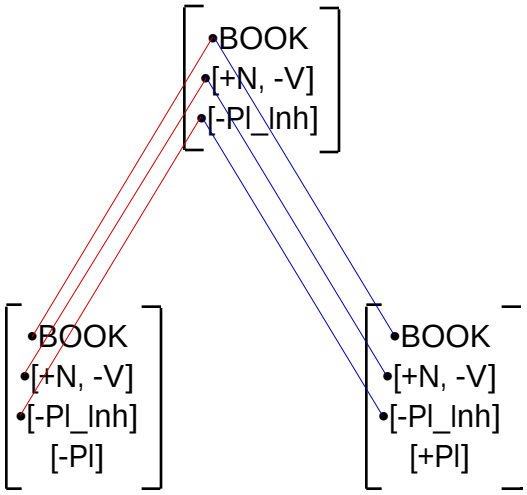
Now, if the result of the expansion and agreement rules becomes stored in the lexicon, it stands to reason that the result of the process must be too, generating the fully specified lexicon. As an optional extension to the class materials, the fully specified lexicon is processed only once, the results being committed to memory. But the logical connections determining the fully specified entries are still extant and are necessary in the event a rule

is broken. That is, we need the logical rules to account why a sentence such as below is ungrammatical:

(7) *A books is interesting.

We subconsciously know that BOOK is [-Pl_Inh], and that it must agree with the quantifier modifying it. This agreement rule has failed since *books* is [+Pl]. Both the fully specified lexical items are connected through derivational hard wiring to the initial underspecified lexical item. That is, BOOK,[-Pl] and BOOK,[+Pl] are linked directly to BOOK. The only items not fully connected are the values of plurality:

(8)



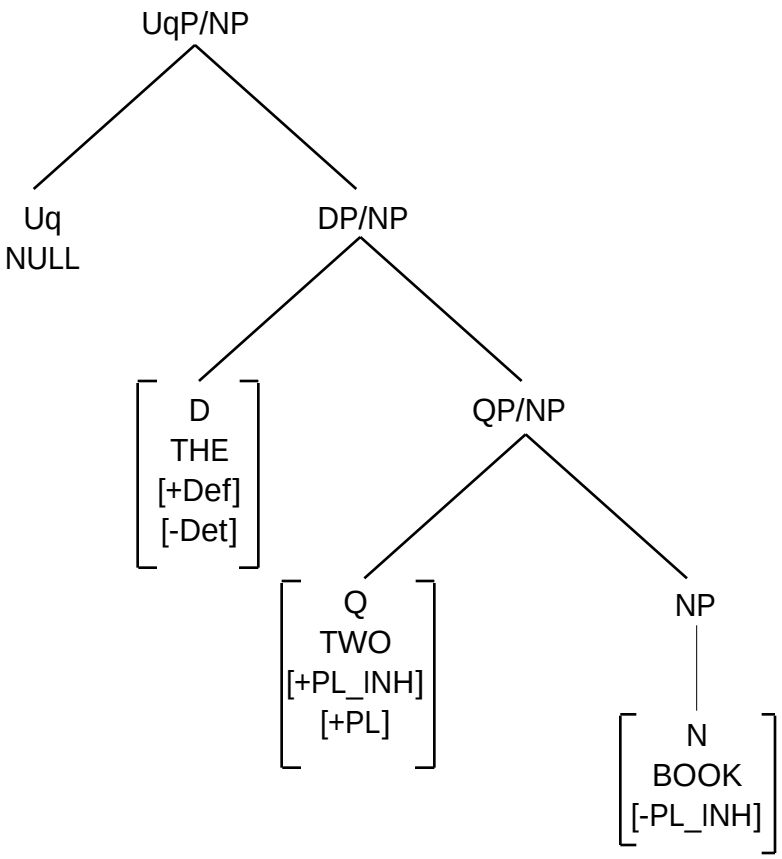
The two surface lexical items (word forms) are hard wired to the basic lexical entry. The red lines show the links to the singular form, the blue lines to the plural form. Note that there is no link to the feature [Pl], because the value is not inherent in these forms. The links indicate that the information is stored once and shared with the features that occur at the opposite end of the link.

2 P-rules

Let us move on to the issue of phrase structure rules. Although it is rarely mentioned if ever at all, phrase structure rules seem to be regarded as process rules. I was certain they were. But we are now suggesting that phrase structure rules may be presyntactic ones--ones that develop structures through which features must agree. That is, the structures derived by the

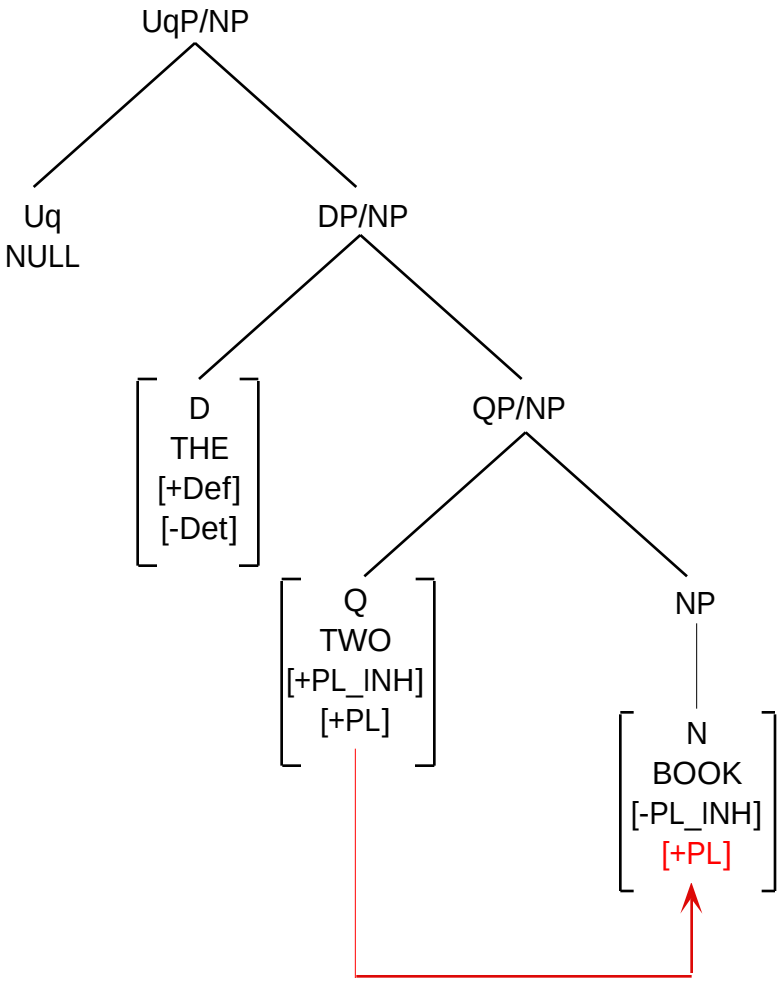
phrase structure rules become hard wired and remain so. This means that the figure at the top of the page is now hard wired. It is reproduced in black.

(9



In an encoding process the speaker of English would select TWO (or ONE) and place it in Qu, and select CATS and place it in N. However, before he can do so, CATS must occur there. So far, all we have generated is {BOOK,[+Pl],Ú,} the lower right hand lexical item in (5) above. {BOOK,[+Pl], Ú} is spelled out as books, but how is it done? We propose how to do this in Deriving the Number of the Noun. There, we spell the feature bundle out as (10). The features and links acquired through logical syntactic rules are shown in red:

(10)



‘α features’ means that whatever features that in one place marked with a must occur in another place also marked with a. This is the final step of the lexical rule deriving cats It is the hard wired form.

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