

Two Instruments of Linguistic Analysis

I called it instruments for “linguistic analysis” – by that I do/did not mean what the linguist does but *what the language user has available*. If I want to express something or want to understand something another person wants to express to me, in natural language there seem to be basically two means to show/figure out how the elements of the message hang together: *word order*, which in turn depends on *phrase structure*, and, on the other hand, *morphological markings*.

a) Phrase-Structural Marking

A morphologically impoverished language such as English (or, more so, Chinese) *needs linear and/or hierarchical ordering* of the linguistic elements with regard to each other to show how they hang together. Most of the time, a rigorous analysis will show that the relevant thing here is not linear order, but hierarchical structure.

If some *linear notion* is used such as “1st inflected verbal element,” as in

(13) For question formation move the 1st inflected verbal element to the front,

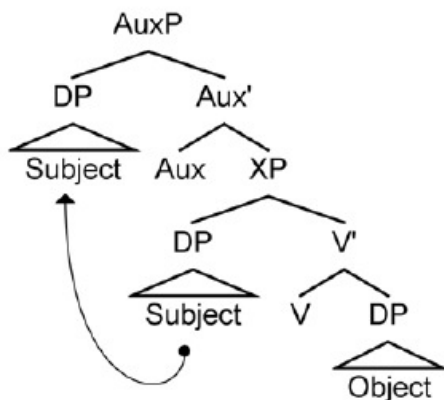
this (1) always turns out to be connected with structural (hierarchical) notions such as in

(14) For question formation move the 1st inflected verbal element *after the SUBJECT* to the front.

For the correct formulation of the question formation rule, we cannot dispense with hierarchical notions such as subject. But also note that since apparently it’s never the 2nd, 3rd, or whatever element, in these instances we can just as well say:

(15) For question formation move the inflected verbal element (perhaps: immediately) *after the SUBJECT* to the front.

No counting of words is thus required, but in the model we are developing, we can also dispense with “after” and just say:



(16) Put the head of the sister of the subject to the front,

which consists entirely of hierarchical notions. We will encounter many more examples for hierarchical relations in chapter 4, not least the all important notion of c-command.

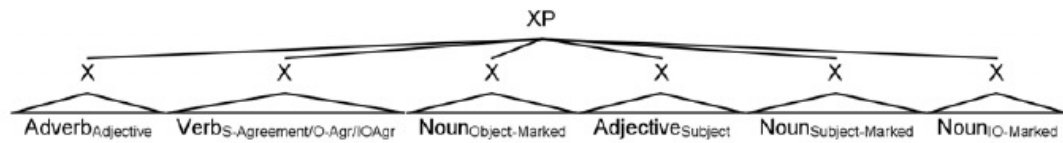
But of course we know that not all *syntactic relations* in all languages can be read off from word order, which itself in turn is *determined by hierarchical structure*. Such relations can often also be marked on the words in question themselves, i.e., *morphologically*.

b) Morphological Marking

In languages with rich *morphological markings* such as *case* and *agreement* on the DPs, subject-verb and object-verb relations are arguably coded differently, that is, on the verb and the DPs themselves. Of course that would entail that we have to define “subject” etc. differently.

These languages have a *much freer word order* than the ones, like English or Chinese, with poor or absent morphological markings. An extreme case are so-called polysynthetic languages such as Mohawk, Warlpiri, and others.

From there, the question arises whether in these, *hierarchical relations* play any role at all. Early theories on Warlpiri, such as developed by one of the specialists on the topic, MIT linguist Kenneth Hale, therefore postulated that the languages – or Warlpiri at least – instead had a flat structure:



Note that my “markings” here are invented ones and do not reflect real Warlpiri. (IO stands for Indirect Object.) The general idea behind saying the structure is flat is that the elements (in this case: six) can be *permuted freely*, with the relations between them remaining clear all the same by way of the morphological markings.

Of course, saying that the structure is flat amounts to saying there is *no hierarchical structure at all*. Whatever job in other languages is done by phrase structure is here done by morphological markings.

There is evidence, however, that the word order in Warlpiri (and other polysynthetic languages is not quite as free as it appears to be. Take the Warlpiri versions of the sentence (and skip over the question where all the articles have gone):

- (17) Child is chasing dog
- (18) Kurdunku **ka** wajipinyi maliki

A totally free word order involving these four elements would yield $4! = 24$ different orders. But what we actually find is the following:

- (19) Kurdunku **ka** wajipinyi maliki
- (20) Wajipinyi **ka** kurdunku maliki
- (21) Wajipinyi **ka** maliki kurdunku
- (22) Maliki **ka** wajipinyi kurdunku
- (23) Maliki **ka** kurdunku wajipinyi

The auxiliary element *ka* always has to be in the position immediately after the first phrase in the sentence (a position that can also be defined in terms of hierarchical phrase structure configuration), a fact which *reduces the number of possible configurations quite radically* to $3! = 6$. Of course, this description as given in Charles Yang’s book *The Infinite Gift* p. 113/114 is also quite reminiscent of the German *V2* phenomenon.

According to Yang’s wife Julie Ann Legate, who is a Warlpiri specialist, there are more arguments for phrase structural configurations in Warlpiri, some of which have to do with the notion of c-command that is introduced in chapter 4. Once again, I’m just giving the flavor of the argument without any claim that this is the way Warlpiri actually works since for that I’d have to read Legate’s work on this carefully, which I don’t have the time for.

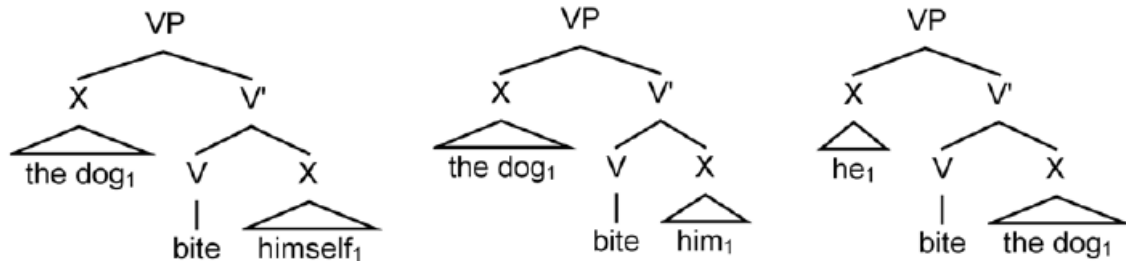
The general idea is this: Over the years, it was discovered that c-command play a huge role in so-called binding phenomena. For English, three principles – very much simplified here – were developed:

- A) A reflexive or reciprocal pronoun must be c-commanded by an antecedent in the same clause.
- B) An ordinary pronoun must not be c-commanded by an antecedent in the same clause
- C) An ordinary NP/DP must not be c-commanded by anything.

To understand this, we must define c-command:

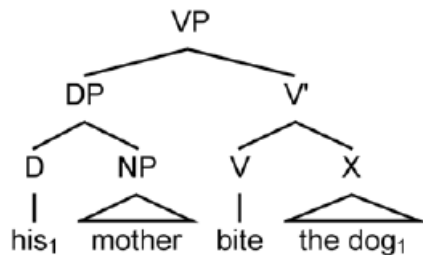
(24) A node c-commands its sister and everything inside it.

The three principles can be illustrated by the following examples (inflection -s deleted):



The drawings reflect the principles A), B), and C) respectively. The left example conforms to **A)**: The reflexive element “himself” is c-commanded by the antecedent “the dog,” since it is inside the sister – V’ – of the subject “the dog” and therefore c-commanded by it. **B)** tells us that the example in the middle is not OK since the pronominal element “him” *must not* be c-commanded by “the dog” according to B). C) tells us that the example to the right is also not OK since “the dog” is c-commanded by the pronoun “the dog,” which it must not be, according to principle C).

Now according to Legate, *similar processes where c-command seems to play a role* obtain in Warlpiri, one possible example being that “he₁ bites the dog₁” in Warlpiri is also illegitimate, whereas “his₁ mother bites the dog₁” is OK, as in English.



In this *model case*, grammaticality or non-grammaticality of is determined exclusively by the placement of the 3rd person singular masculine personal pronoun and thus the question whether it c-commands the NP (or, in our new terminology, DP) “the dog.”

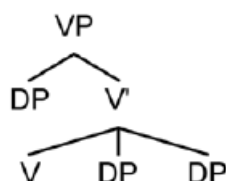
The important point here is that if Warlpiri indeed has either a flat structure or no hierarchical structure at all,

the notion of c-command is vacuous: Either everything c-commands everything and there should be no distinction in grammaticality between the two sentences just mentioned, or nothing c-commands any other element.

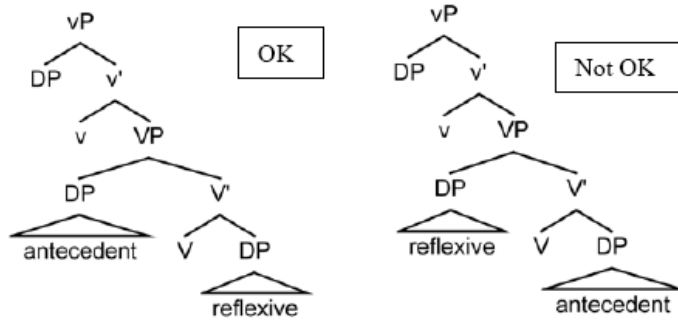
In the first case, according to principle A) a reflexive could *refer to any NP/DP* in the sentence, in the latter, *to none*. But apparently, the facts are different – you can learn more about this in “The Configurational Structure of a Nonconfigurational Language” by *Julie Ann Legate*, which I am attaching. Note that this is a scientific research text which I think we can read with profit only at the end of our course.

The logic of the situation is thus that linguistic research over many years lead to the postulation of *c-command as an important principle* operating in binding phenomena.

Once this principle is established, we can use it in turn as a *diagnostic tool* to find out about the structures of phrases and sentences which are unclear and hard or impossible to figure out by other criteria. An important example will be given in the second half of chapter 4 (§ 4.4), where the structure of *double objects* is discussed.



The traditional analysis would yield a ternary – flat – structure for the verbs and the object, as given to the left, but it turns out that there are binding phenomena involving *asymmetric* c-command that militate



against such a structure and make a binary structure involving a VP “divided” into two parts more plausible – see the two structures to the left with a c-commanding antecedent for the reflexive in the example that is OK and the reflexive not being able to be co-referent with the lower, non-c-commanding antecedent in the second

example. But that will be one of the subjects of our session on April 4.

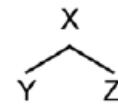
Feature Checking

This brings me to the final and most important point of what we did:

We got the notion of feature checking in place.

The basic syntactic operation Merge is driven by unchecked and uninterpretable features. The simplest case of this is that of a verb “demanding” its arguments, i.e., subject, object and second object. If we have a verb, apart from its own intrinsic and interpretable features (e.g., that it *is* a verb, denotes a certain action or state etc.), it has other features that are said to be uninterpretable in that they are not part of the verb itself but must be added to it to make it complete.

Such features are checked under *sisterhood*, i.e., a relation such as the one holding between Y and Z in the mini-tree to the right. Elements such as verbs or prepositions or adjectives or nouns might demand supplementation by other syntactic objects to yield a grammatical structure, and this “supplementation” is done under sisterhood.



For the definition of this, I refer you to p. 85/86 of the book, where this is spelled out quite clearly.

As notes above, feature checking is actually also what drives Merge. In the Minimalist Program, everything is supposed to happen for a reason, or otherwise it would not happen at all. *The features on the syntactic items or atoms thus both tell us what can happen and what has to happen.*

The Plan for the Friday, March 28

For next Friday, I would suggest *to go through this summary* very quickly – 15 minutes or so, to recap what is said in it. As far as I can see, our discussion of the question of *how singular and plural can yield a dual* will have to wait for another week.

The session should basically consist of discussing the *Exercise part of chapter 3*, since we didn’t manage to get there last week, and then go on to carefully discuss the first part of chapter for (§§ 4.1 to 4.3, p. 108-122).

This should lay a thorough groundwork for going through the rest of the chapter on April 4.