

## Chomsky's 1993 *Minimalist Program for Linguistic Theory* (MPLT) [pp. 24-32]

Having done away with deep structure is of course a deep achievement, but the next step then is to show that SS is also superfluous. I haven't really shown above that DS is superfluous, but have just tried to illustrate the mechanism that replaces it.

Some remarks on this. The operation Satisfy is representational, and even the GB operation Move  $\alpha$  has something very representational to it in that elements (apart from head adjunction) can only move to positions that are already there. The term "*movement*" is thus little more than a metaphor; we are more or less dealing with static *relations* between positions. E.g., in GB it really doesn't matter what moves first.

On the other hand, as was demonstrated so beautifully in Iwo's handout, in MP the ordering of the various movement operations (and, arguably, also of the GT operations which, crucially, interperse with Move  $\alpha$ ) does matter a lot!

In Chomsky's 1993 MP model – call it MP93 – the effects of this are filtered out by the interfaces PF and LF. If the syntactic operations lead to the delivery of a partially or wholly uninterpretable object at either PF or LF, the derivation crashes. So one could in principle state something like

(18) Syntactic **derivations** that lead to the wrong kind of **representations** crash.

As we know from Adger, more radically derivational models such as the phase-based models of the 2000s don't wait that long to filter illegitimate representations out; the complement of a phase cannot even be shipped to the interfaces unless its features are properly checked.

Be that as it may, the point now is to get from GB to minimalism. GB has four levels where incorrect structures are filtered out: DS, SS, PF, and LF. In MP, these are replaced by the two needed anyway, PF and LF. Section 4 of MPLT deals with the **elimination of SS**.

### Eliminating SS

One of the arguments to consider SS as a level where certain filtering conditions hold is binding theory (BT), and NC starts out with giving reasons where one *could* assume LF as the level where binding theory holds. The argument against SS on account of BT is thus not conclusive, but the way for an interpretation different from the one which assigns BT to SS is at least opened. He gives three examples which I will make slightly more didactic by asterisking them:

- (19a) \* You said he<sub>1</sub> liked [the pictures that John<sub>1</sub> took]
- (19b) [How many pictures that John<sub>1</sub> took] did you say he<sub>1</sub> liked
- (19c) \* Who [<sub>t</sub> said he<sub>1</sub> liked [ <sub>$\alpha$</sub>  how many pictures that John<sub>1</sub> took]]

What we see here is the SS of the three sentences. BT is satisfied:

- (20a) \* In (19a), the pronoun *he* c-commands the supposedly co-referential referential DP *John*, which is a violation of BT condition (BTC) C
- (20b) In (19b), there is no binding relation between *he* and *John* whatsoever, and thus the sentence is OK
- (20c) \* In (19c) again, the pronoun *he* c-commands the supposedly co-referential referential DP *John*, which is a violation of BT condition (BTC) C

As SS and LF are identical in (19a) and (19b) in relevant respects, sentence (19c) is the crucial argument for SS as opposed to LF as the level relevant for BT, namely, that LF can't be that level

here. A long-held assumption in GB was that at LF, all *wh*-phrases have been moved to the front of the sentence:

(21c)  $[_{CP} [_{\alpha} \text{how many pictures that John}_1 \text{ took}] \text{ who}] [t \text{ said he}_1 \text{ liked } t_{\alpha}]$

That would make the sentence OK again, contrary to fact, since *John* and *he* no longer c-command each other.

But instead of this, NC suggests a different LF that gets around this problem and is the basis for the much fuller treatment of the topic in section 5.

Questions in general are considered as **operator-variable constructions** in PPT. I will try to explain this informally, as I'm unable to really formalize it. In a question there is a variable ranging over certain items/individuals, and the operator serves to pick out some subset from this range:

(22a) The operator **who** stands for *which x, x one or more persons*

(22b) The operator **what** stands for *which x, x one or more things*

(22c) The operator **how many** stands for *how many x, x a person or thing*

Here, *x* is of course the variable. Let's check this out a little bit in old-style GB in order to get the point. So we could look at the sentences:

(23)  $[_{CP} \text{Who did } [_{IP} \text{Iwo trumped } t_{\text{who}}]]$

(24)  $[_{IP} \text{You told them } [_{CP} \text{who } [_{IP} \text{Iwo trumped } t_{\text{who}}]]]$

(25)  $[_{CP} \text{Who did } [_{IP} \text{you tell them } [_{CP} t'_{\text{who}} [_{IP} \text{Iwo trumped } t_{\text{who}}]]]]]$

In these sentences – a direct question, an indirect question, and a question with “**wide scope**” (about which more in a moment) –, SS and LF are identical. The interpretation of these LFs would be

(23a)  $[_{CP} \text{For which } x, x \text{ a person } [_{IP} \text{Iwo trumped } x]]$

(24a)  $[_{IP} \text{You told them } [_{CP} \text{for which } x, x \text{ a person } [_{IP} \text{Iwo trumped } x]]]$

(25a)  $[_{CP} \text{For which } x, x \text{ a person } [_{IP} \text{you told them } [_{IP} \text{Iwo trumped } x]]]$

In all cases, the variable *x* remains the object of *trumped*. But in (23a) and (24a), the operator *who*, now interpreted as *which x* with the **restriction** “*x* a person” since that is a piece of information related by the form *who* as opposed to *what*, has **narrow scope**, namely, only over the IP  $[_{IP} \text{Iwo trumped } x]$ . In (25a), it has **wide scope**, i.e., over both IPs.

Now restrictions such as the ones given in (22) are extremely general, and I'm not sure whether this is correct, but one could tentatively say they are **inherent** to both the operator and the variable in question. At any rate, the part “*x* a person” is not even visible syntactically, and thus, questions about binding or the appropriate antecedent do not even arise. One could add “*x* a person” to the *x* in “*Iwo trumped x*,” and nothing relevant would change.

With the examples introduced on p. 25 in MPLT, it is different. The phrase in question is of course  $[_{\alpha} \text{how many pictures that John}_1 \text{ took}]$ , and the restriction is no longer the semantically understood “a person or a thing,” but the syntactically present *pictures that John took*.

It is at this point that the question where to place the restriction, on the variable or on the operator, becomes relevant, since this is something that plays a role in syntax – either before spellout or after spellout in MP terms, or pre-SS / post-SS in GB terms. It is in this spirit that NC says that

(26)  $[_{CP} [_{\alpha} \text{how many pictures that John}_1 \text{ took}] \text{ who}] [t \text{ said he}_1 \text{ liked } t_{\alpha}]$

could also be replaced by

(27) [<sub>CP</sub> [[How many] who] [<sub>t</sub> said he<sub>1</sub> liked [[<sub>t<sub>how many</sub></sub> pictures] that John<sub>1</sub> took]],

which yields the right configuration where the referential DP *John* is bound by the pronoun *he*, leading to a BTC violation. LF (27) corresponds to the interpretation

(28) [<sub>CP</sub> For [which x, x some person, and how many y, y anything] [<sub>IP</sub> x said [<sub>IP</sub> x liked [y, y pictures that x took]]]

I haven't really understood the intricacies of cross-linguistic wh-movement treated on pp. 26/7, and will therefore not go into them at this point.

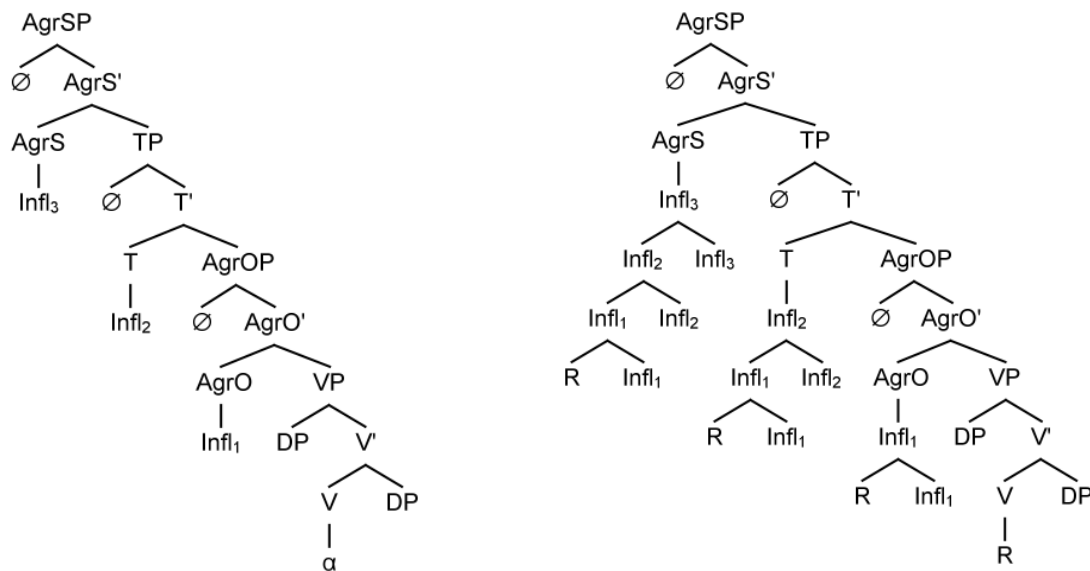
### The Mirror Principle

The next crucial point in this section is Baker's Mirror Principle BMP and its technical assumption within a non-syntactic theory of word morphology, that is, one where words are not actually composed in the syntax but enter them as already full formed and inflected entities.

Before we go into the question how the BMP is *implemented* in MP, we must first ask what the BMP actually is. It is clearly stated on p. 13 in Baker's book *Incorporation*:

(28) Morphological derivations must directly reflect syntactic derivations (and vice versa)

Baker's examples are different from the ones relevant in the discussion of the MP, but that doesn't matter for our purposes. Suppose a language actually has the tree structure assumed in MPLT, and – in order to simplify – has only inflectional *suffixes* on the verb.



The stepwise movement operations of the verb, in the figure to the left denoted as  $\alpha$ , leading it “through” the heads AgrO, T, and AgrS each lead to a suffixation, and in the figure to the right, we can clearly see that and how each movement step is *mirrored* in the final form of the verb. Here, *R* stands for root, and what happens here is that the root R picks up an inflection with each step. That was the usual GB model where inflectional morphology was supposed to be happening at least in part in the syntax. In MPLT, this strategy is changed into a checking strategy, with at least one clear advantage for the analysis of the verbal system of English.

What is this advantage? The advantage is that no longer do we need a lowering operation to combine the verbal inflection with the verb itself. Rather, we can now say that the verb enters the derivation already fully inflected, which takes care of the condition that inflectional elements must not stand alone but need to be attached to some other element.

The remaining difficulty is how to get the right word order, and that is done by having strong versus weak inflectional features on the verb, where strong features must be “checked off” before the derivation is shipped off to PF since PF can neither read nor ignore them. If they reached PF, the derivation would crash at this point. But before we go into this, let’s look into the implementation. The verb V itself, as it enters the derivation, is seen as a complex  $(\alpha, \text{Infl}_1, \text{Infl}_2, \text{Infl}_3, \dots, \text{Infl}_n)$ ; in our example, we wouldn’t have to go further than  $n=3$ .

$\alpha$  itself very closely reflects this, in that we have the two definitions

$$(29) V = (\alpha, \text{Infl}_1, \text{Infl}_2, \text{Infl}_3, \dots, \text{Infl}_n)$$

$$(30) \alpha = [\text{R-Infl}_1, \text{Infl}_2, \text{Infl}_3, \dots, \text{Infl}_n],$$

with  $\alpha$  reduplicating the structure of V and vice versa.

The Infl in (29) are only abstract features reflecting the actually morphologically present Infl in (30); they are the ones that are checked off in the syntactic derivation.

## L-Features

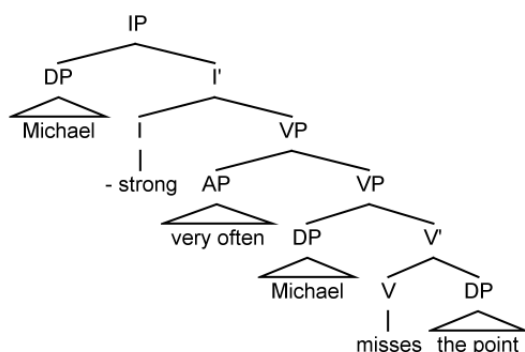
But for them to be checked off, there needs to be elements that do the checking, and these elements are the functional heads given in the figures on the preceding page.

We say that *functional heads* have *features* that *match* the features of certain *lexical heads/phrases*, and these are the features that are called *L-features*, for “lexical features” obviously. In the case of AgrS, T, and AgrO, as well as the inflectional features we have mentioned right now, we would be talking, not about L features in the abstract, but rather, about V-features.

But given the whole discussion in the preceding parts of MPLT, it is clear that the inflectional heads AgrS, T, and AgrO must also have NP/DP features, since it is the specifier of these elements where the agreement and case features of NP/DP are checked. So

(31) **L-features** are features that are checked by functional heads and checked off from lexical heads or phrases

## Strong and Weak Features

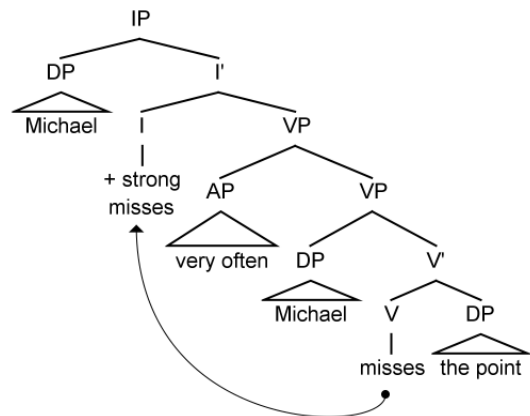


Now the features we are talking about here can be important both in terms of head movement and phrase movement (and, in the latter case, particularly argument movement). Let’s first illustrate the matter with regard to head movement, namely, the – as we now assume – **overt movement**, movement before spellout, of the verb to Infl (a shorthand which I now use for AgrS, T, and AgrO) in French, and after spellout in English, due to strong V-features of Infl in French and weak V-features

of Infl in English. Above, you see the structure for English; the fully inflected verb *misses* can wait with its movement to check off its inflectional feature until after spellout, whereas this is not

possible in French. In French, the equivalent of *misses* must **overtly** move to I to mutually check off the strong V-feature on I and the strong I-feature on V (I suppose the relative strength of these features to go hand in hand).

Note that in the MPLT model, the movement indicated in the figure to the right **always** takes place. The only question is **when** it occurs; if after spellout, the features are checked by **covert** movement, if before, we say they are checked **overtly**.



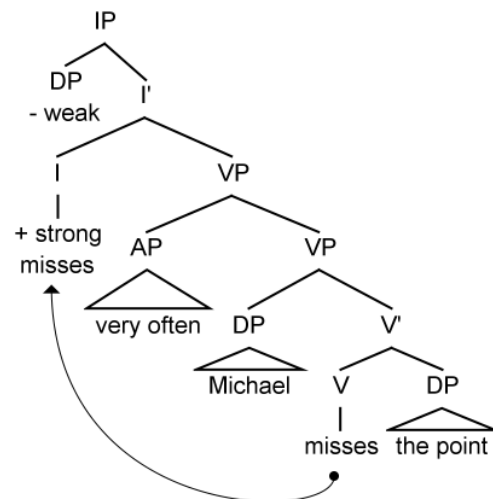
This is what Mark Baker in his 2001 book *The Atoms of Language* calls the **Verb Movement Parameter (VMP)**.

Of course, there are many other parameters, and these also have to do with the **strength and weakness of L-features**. One of them is discussed on p. 31 of MPLT, where NC entertains the hypothesis that – and I’m simplifying again by collapsing AgrS, T, and AgrO to I – whereas a language such as Irish, Welsh or (in part) Arabic has a strong V-feature on I, the DP-feature on I is weak, leading to a VSO configuration:

The word order for these languages would thus correspond to

(31) Misses very often Michael the point,

indeed VSO. A finer point would be to find out whether this is indeed the adverb placement we find in these languages; if the subject is spoken/spelled out before the adverb, this would indicate the presence of at least one additional projection into whose specifier the subject would have had to have moved to.



Of course, in this connection we should also mention **V2 languages** such as German where there is obligatory verb movement to the C position of the matrix clause.

Given the theoretic machinery introduced so far, we at once know that in order to move to C, the verb first had to move through and adjoin to the heads of the inflectional system since all other movement would be barred as non-local.

Something similar is true for **operator movement** as discussed in the preceding pages: If there is **overt** operator movement as in English, French, German, and many other languages, C has to have a strong operator feature; if there is no such movement such as in Chinese and, optionally, in colloquial French, this very same movement will take place only after spell out.

Interestingly, on p. 32 NC says that **topicalization** and **focalization** might be treated the same way, which points into the direction of the split-C hypothesis.

The following section 5 of MPLT tries to deepen all the previous points, mainly by giving a more detailed treatment of questions of LF. In that section, I will try to pick up some questions I put to one side so far, for example, what counts as “**gibberish**” and how that relates to derivational crash.