

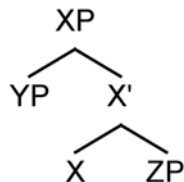
Some Additions to Iwo's Session Notes for April 4, 2008: On German Clause Structure

As I write, more than two weeks have passed since the April 4 session, and since Iwo already took up many of the points discussed there, I want to constrain myself to a few remarks on the topic that introduced the session, German clause structure.

We took up the point occasionally mentioned already previously, namely, how X-bar-structure can be generalized to the sentence, and from the sentence, even further to embedded sentences.

Just to recapitulate, X-bar-theory tells us that phrases are built by first merging head and complement (if there is one) and then merging the result with a specifier (if there is one). The head X of the structure first “projects” to X' and then to XP. Examples for this were given in some of the previous summaries.

Ignoring the problem of adjuncts, all structures would thus basically look like this:



Now in “traditional” generative grammar, this is of course not true for one of the most important structures, if not the most important structure, namely, the sentence, and it is also not true for the embedded sentence, which in the seventies were considered to have a structure approximately like this:



The sentence S would thus consist of the subject NP, an auxiliary if one is there as in “[_S Barak [_{Aux/I} has] seen Hillary]” or a tense/agreement morpheme such as present/3rd person/singular “-s” as in “Barak see-s Hillary,” with the necessary movement of “-s” to the verb, and the VP, which in the example would consist of the verb “see” and the NP “Hillary.”

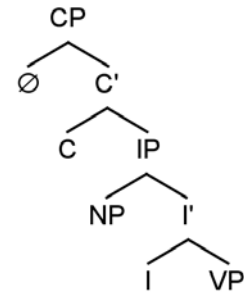
Embedded sentences, at this stage of the theory called S', were not much different: same structure of S, at least in English, and this S would in turn be the complement of a so-called “complementizer,” as in “Michael says [_{S'} [_{Comp} that] Barak sees Hillary]” for finite embedded sentences, or “We very much hope [_{S'} [_{Comp} for] [_S Barak [_{Aux/I} to] see Hillary]] for infinite ones (these are of course only examples for a variety of possibilities).

One feature of these structures is of course that there is nothing here in the way of head-complement structures that project to X' and then combine with another phrase to combine to the full phrase XP.

As given above, neither in the structure of S nor in the structure of S' anything projects to anything; their structural description simply doesn't conform to X-bar-theory. This sticks out like a sore thumb since it looks so arbitrary and unsystematic, but if one considers Aux/I and Comp respectively as structural heads, the problem can be remedied.

With that, we have integrated sentences and embedded sentences into X-bar-theory. In the development of GG, it happened in the mid-eighties:

Sentences (S) are now projections of the inflectional element I – in some sentences realized on Aux, and if no Aux is there, in need to be moved to the verb to attach to it.



Embedded sentences are projections of the complementizer C that introduces them.

And as we will see, this element C and its projections can have a lot more functions in addition to this.

And as it happens, the C-projection is particularly important for the German sentence structure. It creates all the positions that, together with a few syntactic movements, yield the curious patterns of German sentences.

As for the latter, we know that German main clauses, aka matrix sentences, display the V2 pattern, i.e., in declarative sentences the inflected verbal element is always positioned behind the first constituent of the sentence:

- (1) Der Mann hat gestern den Michael gesehen
- (2) Den Michael hat der Mann gestern gesehen
- (3) Gestern hat der Mann den Michael gesehen

On the other hand, in embedded sentences we find the following pattern:

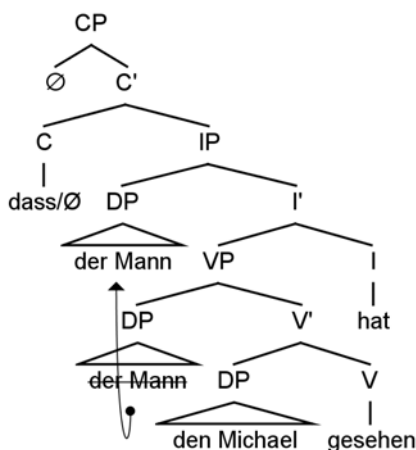
- (4) Ich glaube, [dass der Mann gestern den Michael gesehen hat]

Here, the inflected verbal element – in this case “hat” – is always at the end of the sentence. If that element is an auxiliary, the verb itself comes immediately before it. (I’m abstracting away here from the position of the other elements like subject NP, object NP, AdvPs such as “gestern” etc.)

Relating Main and Embedded Clauses

Can these phenomena be related somehow? One application of the version of X-bar-theory just developed suggests that they can.

Suppose we take the V-Aux position of the embedded clause as the “basic” one. Then every German sentence would start out with a structure such as

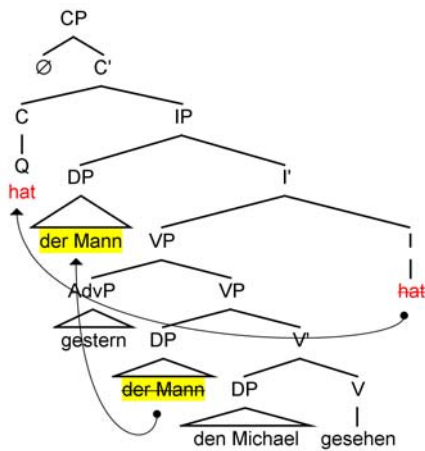
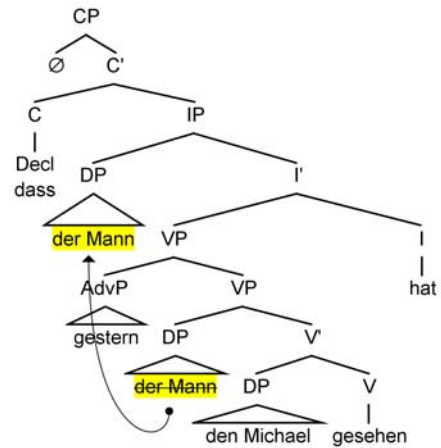


To make this more concrete in terms of the processes Merge and Move, we create the VP by first merging V and the object DP, and then – since we have already said that the subject should originate in VP – merging this subject DP with the product. Then we merge VP with I.

After this, there comes a further Merge operation, but once which has a special character in that *an element is taken out of the structure that has already been created, and merged with the structure as a whole*. This process is called *Move* or *internal Merge* – as opposed to *external Merge*, where two elements are merged *none of which is originally part of the other*.

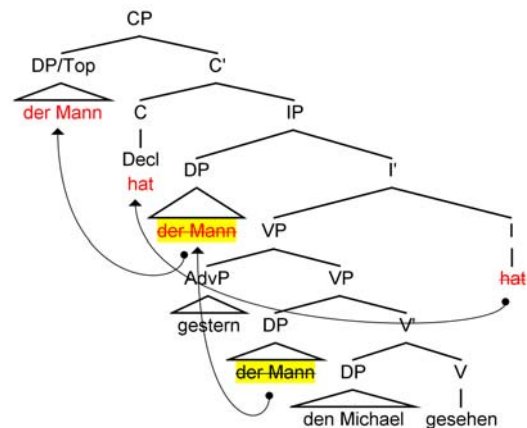
Merging the IP thus derived with a C element gives us a CP, which may or may not contain a specifier. In the drawing on p. 2, I have included one. The C element can be a complementizer such as “dass,” in which case we would have an embedded sentence. It can also be \emptyset , “introducing” a main sentence, a matter to which I will turn in a moment.

Before I do that, I’ll introduce yet another element into the structure, namely, the adverb “gestern.” Let’s assume it is adjoined to the left of the VP, yielding yet another VP, just as described in the section on Adjunction on p. 110-114 in the book.



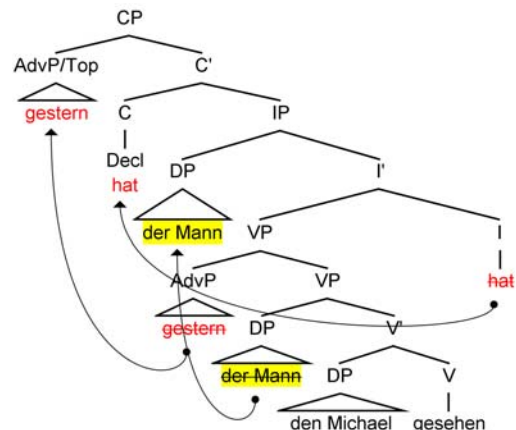
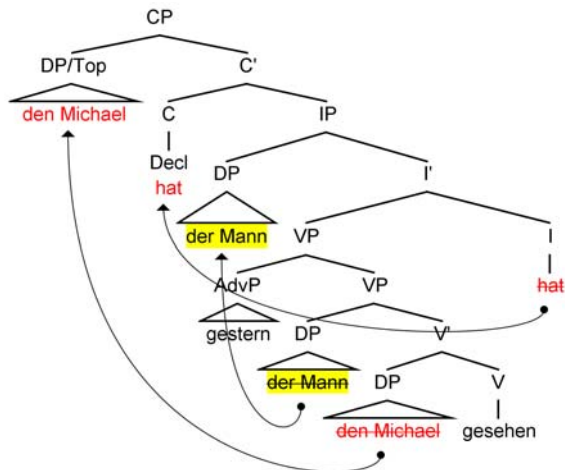
Now on to the main clauses. Replacing the complementizer “dass” by a silent – phonetically empty – element Q indicating that the following sentence is question, we only need a single additional Move – or internal Move – operation (of “hat”) to form a main clause, in this case, a so-called matrix question.

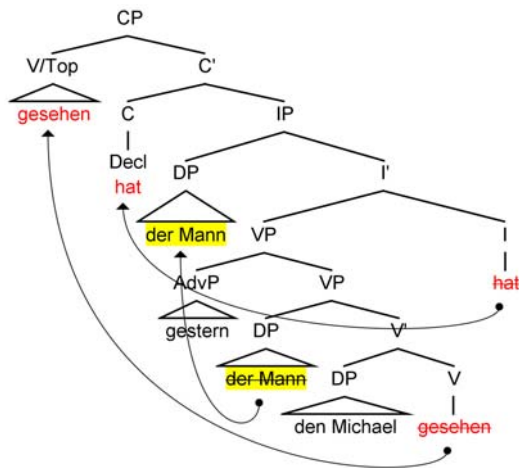
And the cool thing here is that it has *exactly the right word order*.



The same is true for the next structure to the right. Replacing the silent Q element by an equally silent Declarative element, keeping the movement of the inflected auxiliary “hat” and adding a single additional movement of the DP “der Mann” to the specifier position of CP, we get the canonical German main sentence for a transitive verb.

Our next step is to derive the V2 phenomenon of German matrix clauses. Not a big deal, since as it turns out, we only need to replace the movement of the subject DP “der Mann” by the movement of other constituents of the sentence:





In the example to the left, we see that even the verb V – “gesehen” – can be moved that way.

In my trees here, I have characterized the specifier position of CP by the category and phrasal status of the moved element and the notion Top, for *Topic*.

Indeed, this is what the communicative function of all these movements.

In the example involving “der Mann,” the DP first moves out of the VP and merges with I’ to form the specifier of IP. As we will see later,

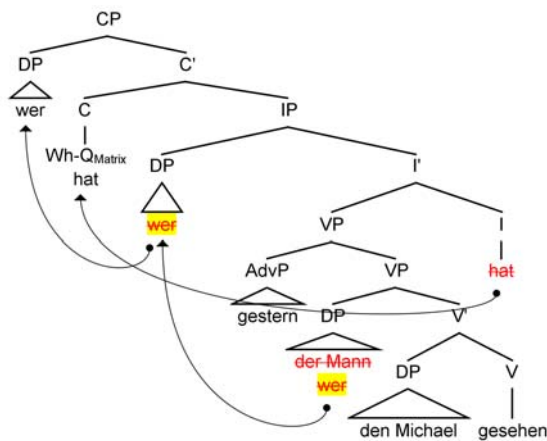
like everything in this model of syntax, this movement too happens for a reason, namely, in order to get nominative case from the inflectional element I.

It then merges with C’ to become the specifier of the CP. This, to, happens for a reason, since in German this is the topic position, marked here by a topic feature Top.

Wh-Questions and Relatives

So much for the declaratives (and one yes/no question). Let’s now turn to the so-called wh-questions, which in German (here: W-Fragen) as well as in English are formed by moving the questioned element – if it is only one – to the front of the sentence. And where in the structure would the “front of the sentence” be located?

How about the specifier of CP?



Together with the movement of the inflected auxiliary element “hat,” this seems to work well. We get a structure very similar to the English one:

- (5) [CP Wer hat [IP ...]
- (6) [CP Who has [IP ...]

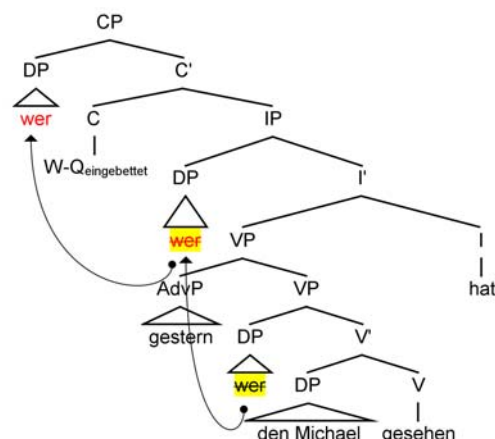
Similar things are true, not only of matrix wh-questions, but also of embedded questions and relative sentences.

Suppose we have an embedded question such as

- (7) Ich frage mich [wer gestern den Michael gesehen hat]

the appropriate structure would be as given to the right, i.e.,

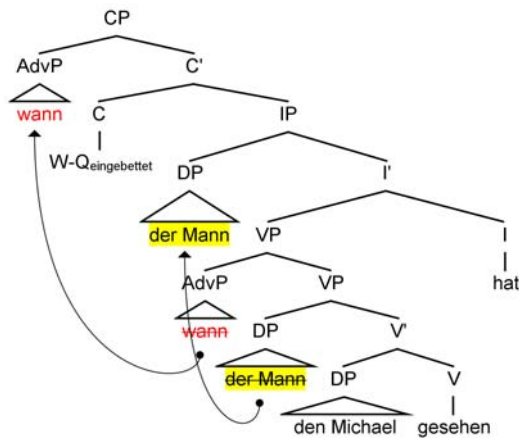
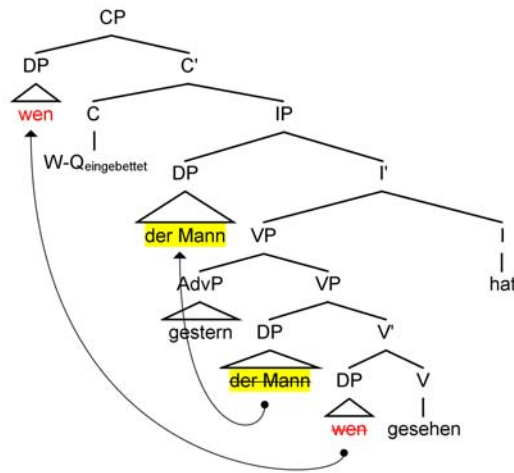
- (8) Ich frage mich [CP wer [C_Q Ø] [IP wer [VP gestern [VP wer den Michael gesehen]] [I hat]]]



Questioning (and therefore moving) other elements yields exactly the same results. In (9), the object is questioned by a wh-question, in (10), it is an adverbial time phrase:

- (9) Ich frage mich [wen der Mann gestern gesehen hat]
 (10) Ich frage mich [wann der Mann den Michael gesehen hat]

Different from the matrix question, we don't have V2 here, but rather, end position of the inflected verb. The trees accompanying the text here illustrate the positions.



Let's now finally at least tentatively consider another but not unrelated structure, namely, the relative clause.

More is involved in this structure – or rather, these structures – than is useful to go into here, but all the same, there are some striking parallels with the wh-structures of embedded wh-questions.

In order to see this, just look at

- (7) [_{IP} Ich frage mich [_{wer} gestern den Michael gesehen hat]]

Again and compare it to

- (11) [_{DP} Der Mann [_{der} gestern den Michael gesehen hat]]

In English, even the pronoun is not different:

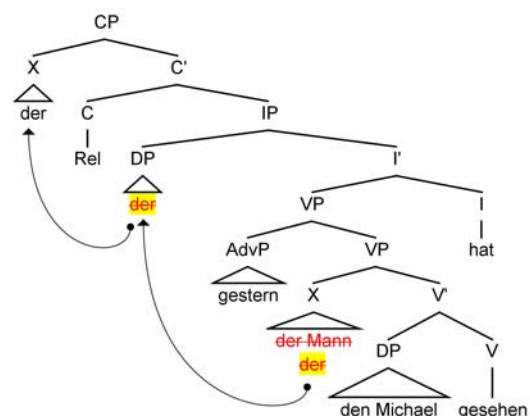
- (12) [_{IP} I asked [_{who} saw Michael yesterday]], and
 (13) [_{DP} the man [_{who} saw Michael yesterday]]

So to form a relative construction, one would basically do the same as in forming an indirect question. If we were to formulate a rule for this, it would be something like this:

- (14) Replace the occurrence of the relevant nominal expression or DP (in this case, “the man”) in the relative sentence by an appropriate relative pronoun, here “der.”

- (15) After moving this replacement of the relevant nominal element/DP out of the specifier of VP and merging it to I' to become the specifier of IP (by which it gets case), it is further moved to create the specifier position of CP.

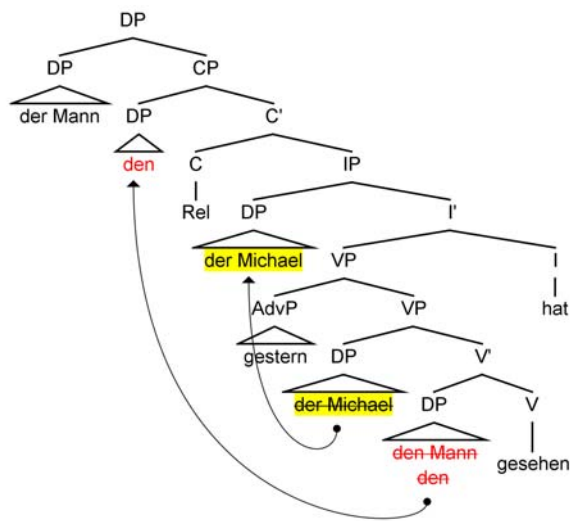
Effectively, what we have in a relative sentence is a structure where an NP/DP has a sentential



adjunct. In the analysis I'm giving here, that adjunct is a CP. The specifier of this CP is occupied by a relative pronoun, which in turn refers to the same person, entity, or thing as the word that is at what one could call the lexical the center of the DP in question, in this case, "der Mann."

Adjoined to a DP such as "der Mann," a CP relative clause such as "der gestern den Michael gesehen hat" effectively contributes a – syntactically appropriately restructured – proposition saying "Der Mann hat gestern den Michael gesehen."

Out of the set of men which the phrase "der Mann" could possibly refer to, the constraining relative picks out the one for whom "Der Mann hat gestern den Michael gesehen" is supposed to be true.



And finally, here is a tree including the so-called head of the relative construction, with the relative pronoun in the accusative:

(16) der Mann [_{CP} den [_{C'} [∅_{Rel}] [_{IP} der Michael gestern gesehen hat]]]

There is no point in deepening the analysis of relative clauses here – the essence of the argument is that the extension of X-bar-theory to IP and even more so, to CP, seems to work well here as well.