Wh-Copying in German without Copying

Abstract   Based on both already reported and new data from *wh*-copying in German, we will show that the element in intermediate SpecCP is a genuinely pronominal element that cannot be analyzed as either a full or a partial copy of the moved interrogative *wh*-phrase. We will argue that a mechanism is required to introduce these pronominals syntactically, and suggest such an analysis within the framework of Metagraph Grammar ([4], [9]).

The Lower Copy Problem   *Wh*-copying is a construction in which a *wh*-phrase that is moved out of an embedded clause is repeated in the intermediate SpecCP position, cf. (1).

(1)   Wen glaubst du, wen sie liebt?
             who   think   you who she loves
             Who do you think she loves?

As the repeated element (henceforth *lower copy*) is often identical to the moved *wh*-phrase (henceforth *higher copy*), it is usually analyzed as a spelled-out copy of the moved *wh*-phrase, cf. (2).

(2)   [CP wen_i glaubst du [CP wen_i sie ~~wen_i~~ liebt]]

It has been known that this idea faces the problem that *wh*-copying is subject to the restriction that not every *wh*-phrase can be repeated in intermediate position, cf. (3).

(3)   * Welchen Mann glaubst du, welchen Mann sie liebt?
             Which man do you think she loves?

In order to cope with this problem, two lines of research have been pursued. The first direction is to interpret this restriction as a morphological condition on the *wh*-phrase ([7]). More specifically, it is assumed that only those interrogative *wh*-phrases are licensed that can also be analyzed as heads by PF. The second direction assumes that the *wh*-phrase in the intermediate SpecCP position is not a full but only a partial copy of the moved interrogative *wh*-phrase ([2], [3], [6], [8]). Except for [2], all these approaches share the idea that only the higher copy contains the [+wh]-feature. Both views, however, face problems when confronted with the data in (4), first reported in [5], and (5), first reported in [1].

(4)   Wen glaubst du, den sie liebt?   [same meaning as (1)]
(5)   Welchen Mann glaubst du, wen sie liebt?   [same meaning as (3)]

(4) is a problem for the first direction because d-pronouns can never be used as interrogative elements, and therefore, cannot be a full copy of the higher copy. Additionally, (5) can't be derived either as no mechanism is available to turn *welchen Mann* into *wen*. The analyses of the second direction also face problems with (4) and (5). As [3]'s approach assumes the partial copy to be identical to an indefinite pronoun, (4) is problematic: d-pronouns can never be used as indefinites in German. It is also at odds with the observation that certain *wh*-phrases are licensed as lower copies that cannot be used as an indefinite, e.g., the temporal *wh*-phrase *wann*. The account by [6] faces the same problem with (4), but vice versa: although d-pronouns can be used as relative pronouns, *wh*-pronouns like *wen* can never. The approaches by [2] and [8], on the other hand, can and do provide analyses for (4) by assuming either subextraction or default spell-out rules, but both accounts fail when trying to apply their ideas to (5). The first one ([2]) fails because its system is only able to derive structures where the higher copy is a subset of the lower copy. (5), however, shows exactly the opposite pattern. The approach in [8] fails because in this system the lower copy is predicted to be the higher copy minus and *only* minus the [+wh]-feature; this, however, is not the case in (5) as lexical material is missing as well.

New Data   Results of a data collection carried out with five native speakers of German indicate that the problems with (4) and (5) are real, and not due to some possibly marginal status of these structures. The sentences we tested (approx. 300), all of which were structurally similar to (4) or (5), were judged either clearly grammatical or clearly ungrammatical, with only very few borderline cases. Starting with (4), for the four speakers accepting such structures, there was no correlation at all between the use of a relative or indefinite pronoun and its use as a lower copy. As for structures similar to (5), not only did all five speakers accept (5), none of them accepted the reverse order in (6).

(6)   * Wen glaubst du, welchen Mann sie liebt?   [same meaning as (3)]

Note that this pattern is predicted to be grammatical by the approach of [2]. Moreover, no speaker accepted sentences where only the [+wh] feature was missing on the lower copy, although predicted to be grammatical by any approach along the lines of [8], cf. (7).

(7)   * Welchen Mann glaubst du, diesen Mann sie liebt?   [same meaning as (3)]

Lastly, no speaker accepted versions of (3) where the lower copy was reduced to a D°-, i.e. head-like, element ([+wh] or [-wh]), casting further doubts on approaches similar to [7], cf. (8).

(8)   * Welchen Mann glaubst du, welchen sie liebt?   [same meaning as (3)]
             * Welchen Mann glaubst du, diesen   sie liebt?   [same meaning as (3)]

On the positive side, two generalizations emerged. First, the morphological form of the lower copies is not random. For all five speakers, its shape was identical to a free relative pronoun (FRP), i.e. a pronoun that occupies SpecCP in free relative clauses. More specifically:

(9)   If a speaker licenses *wh*-copying, then the lower copy is form-identical to an FRP

This immediately accounts for the data in (6)-(8) because all of them contain lower copies that are impossible as FRPs, cf. (10).

(10) * Ich liebe, welchen/diesen (Mann) sie liebt.

   (intended meaning:) I love who she loves.

Second, structures such as (3) are not restricted to D-linked *wh*-phrases as higher copies. All five speakers accepted every type of complex *wh*-phrase we tested, viz. both D-linked and non-D-linked ones (was für einen Mann, *what a man*), as well as complex ones containing a possessor (wessen Mann, *whose man*). This strengthens the first generalization as the availability of d- vs. *wh*-pronouns was independent of semantic notions as D-Linking, and therefore reflects a syntactic constraint proper.

Analysis   As we showed, treating the lower copy either as a full or a partial copy of the higher copy is impossible. The full copy approach cannot explain why d-pronouns are licensed as lower copies, and the partial copy view cannot explain why only pronominals are licensed as lower copies. Given this failure to analyze *wh*-copying as full or partial copy spell out, the challenge for an analysis not employing copies is how to establish a syntactic connection between the interrogative *wh*-phrase and the pronominal element in intermediate position. Metagraph Grammar (MG, cf. [4], [9]) equips one with the relevant mechanisms, viz. *Replace* and the *Seconder Condition* ([9], p. 35), cf. (11)-(12).

(11)   Replace: C replaces B if and only if C and B are W-equivalent colimbs, B sponsors C, and there exists an arc A distinct from C that erases B. In this case, A is said to second C.

(12)   The Seconder Condition: If C replaces B and A seconds C, then A overlaps B.

The crucial idea behind Replace is that pronouns are introduced syntactically for another element if this element fulfills a dual function in a sentence. The inserted pronoun corresponds to "C" in the definition (11), the replaced element corresponds to "B" in the definition (11), and the duality of functions is guaranteed by the consequent clause "A overlaps B" in (12). That only pronouns are introduced is guaranteed by several definitions restricting the occurrence of pronouns to exactly the contexts involving Replace (cf. [9], pp. 35-38). The duality of functions includes two types of functions that are usually separated. First, it includes cases where one element fulfills two argument functions, i.e., what is usually called coreference (cf. [9], ch. 1, and [4], ch. 11). Second, it includes cases where one element fulfills one argument and one operator function, i.e., what is usually called A'-movement. Applying this idea to *wh*-copying looks as follows. The interrogative *wh*-phrase in *wh*-copying has two functions: the "object-of" function in the lower clause, and the "*wh*-question-of" function in the whole sentence ("*wh*-question-of" belongs to the set overlay functions, cf. [4], pp. 259-271). Given this dual function, the insertion of a pronoun into the position of the object is licensed via (11) and (12). That the object and the pronoun do not appear together in one position is made sure by the condition in (11) that A erases B (i.e., A deletes B). The pronoun gets subsequently fronted to the intermediate SpecCP. This fronting might be related to clause typing which in turn could also account for the fact that the pronoun appears as an FRP, FRPs being [-wh]. Note that this account faces none of the problems of the other analyses. First, that non-interrogative elements are licensed is no longer a mystery because no operation of copying is involved that would necessarily generate such elements. Second, that only pronouns are licensed, but never elements with lexical content follows from the fact that Replace is defined in such a way as to only allow the insertion of pronouns (cf. [9], ch. 1).

Although this analysis might look like an odd version of an analysis that connects higher and lower copy via binding, it isn't, for reasons having to do with PPs. The results of our data collection show that if a PP is licensed as a higher copy, then the lower copy has to be a PP as well. This does not follow in a binding analysis, as binding applies to NPs only. Our analysis predicts this matching. PPs are analyzed in MG as NPs with the preposition being a flag indicating the function of the NP (cf. [4], ch. 13). Crucially, as flagging takes place <u>*before*</u> the *wh*-question function is established, but <u>*after*</u> Replace applied, the preposition appears on both the interrogative *wh*-phrase and the inserted pronoun.

References   [1] Anyadi & Tamrazian (1993), "*Wh*-movement in Armenian and Ruhr German", *UCLWPL 5*. [2] Barbiers & Koeneman & Lekakou (2010), "Syntactic doubling and the structure of *wh*-chains", *JoL* 46.1. [3] Felser (2004), "*Wh*-copying, phases, and successive cyclicity", *Lingua* 114.5. [4] Johnson & Postal (1980), *Arc Pair Grammar*, Princeton. [5] McDaniel (1986), *Conditions on* Wh-*chains*, PhD CUNY. [6] McDaniel & Chiu & Maxfield (1995), "Parameters for *wh*-Movement Types: Evidence from Child English", *NLLT* 13.4. [7] Nunes (2004), *Linearization of Chains and Sidewards Movement*, MIT. [8] Pankau (2008), *Copies at the Interfaces*, (ling.auf.net/lingBuzz/000756). [9] Postal (2010), *Edge-Based Clausal Syntax*, MIT.