

Partial Wh-Movement and Wh-Copying in Dutch: Evidence for an Indirect Dependency Approach

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1 Introduction

This article reports on a magnitude estimation experiment investigating the grammatical status of partial wh-movement and wh-copying versus standard long-distance movement in Dutch. The results show that long-distance wh-movement is rated most acceptable, followed by wh-copying and finally partial wh-movement. Of interest is the significant difference in acceptability in partial wh-movement and wh-copying. It is argued that these results speak in favor of a so-called Indirect Dependency Approach to partial wh-movement in which partial wh-movement is analyzed as a structurally altogether different construction from long-distance wh-movement. Wh-copying, on the other hand, is argued to be a surface alternative to long-distance movement, where an intermediate movement copy has been spelled out.

2 Background

2.1 Syntactic analyses of partial wh-movement and wh-copying

It is well known that certain languages have alternative forms next to (or instead of) standard long-distance (LD) movement constructions. Two of these alternatives concern the so-called partial wh-movement and wh-copy construction. These constructions show up in a wide variety of languages, including Hindi, Romani, Hungarian, Russian, Polish and various Germanic languages such as German, Frisian and Afrikaans.¹ Below in (1) and (2) are examples of partial wh-movement and wh-copying in German. In these constructions, a wh-phrase is moved only partially to the embedded SpecCP, and not all the way up to the matrix scope position. Instead, the highest SpecCP is

¹ For an extensive overview of languages that have partial wh-movement, see Fanselow (2006).

either occupied by what is traditionally called a scope marker (*was* in example 1), or by a copy of the *wh*-phrase, as in (2). In both constructions, the medial *wh*-phrase takes matrix scope, and the constructions therefore have the same interpretation as the LD *wh*-movement construction in (3).

- (1) [CP₁ Was meinst du [CP₂ wen Maria liebt?]]
 what think you who Maria loves
- (2) [CP₁ Wen meinst du [CP₂ wen Maria liebt?]]
 Who think you who Maria loves
- (3) [CP₁ Wen meinst du [CP₂ dass Maria liebt?]]
 Who think you that Maria loves?’

(1) - (3) : ‘Who do you think Maria loves?’

Regarding partial *wh*-movement, two different analyses have been proposed: the Direct Dependency Approach (DDA) (cf. van Riemsdijk, 1983; McDaniel, 1989 and many others) and the Indirect Dependency Approach (IDA) (cf. Dayal 1994, 2000 and many others).² These analyses are sketched below in (4) and (5) (‘SM’ stands for scope marker):

Direct Dependency Approach

- (4) [CP₁ SM [VP V [CP₂ wh ... t_{wh} ...]]]
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Indirect Dependency Approach

- (5) [CP [CP₁ SM [VP t_{SM} V]] CP₂ wh ... t_{wh} ...]
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Within the DDA, partial *wh*-movement is essentially analyzed as a surface alternative to LD *wh*-movement. This idea originates from the fact that partial *wh*-movement and LD *wh*-movement yield identical interpretations, suggesting the two constructions are also structurally similar. Furthermore, partial *wh*-movement, just like LD *wh*-movement, is subject to locality constraints. For these reasons, the DDA assumes that there is a direct link between the scope marker and the *wh*-phrase in the subordinate clause. How this link between the scope marker and the true *wh*-phrase is established exactly differs somewhat in the several types of DDAs that have been proposed. Broadly speaking, two main

² There are numerous variants of both types of analyses, and it is beyond the scope of this paper to discuss all of them in detail. The interested reader is referred to the volume by Lutz et al. (2000).

analyses can be distinguished: it is either assumed that a chain has been created between the scope marker and the true wh-phrase at some level of syntactic representation (e.g. by coindexation, cf. McDaniel, 1989; Van Riemsdijk, 1983 and many others), or alternatively, the scope marker is seen as a spell-out of part of the true wh-phrase or a feature of the wh-phrase (cf. Barbiers et al., 2008; Cheng, 2000; Hiemstra, 1986; Sabel, 1998). What these DDAs have in common is that in all cases, partial wh-movement is analyzed as being structurally similar to LD wh-movement.

The IDA, conversely, does not assume that this kind of structural similarity between partial wh-movement and LD wh-movement exists. Here it is assumed that the scope marker is base generated in an argument position of the matrix clause, from which it may move to SpecCP, and that the scope marker is linked to the whole embedded clause, not just to the wh-phrase contained in it. Dayal (1994, 2000), who was the first to propose an analysis along these lines, assumes the scope marker in the matrix clause questions over propositions, and that the complement clause functions as its restriction. This is accomplished by coindexation of the scope marker and the embedded clause. Other proponents of the IDA assume the scope marker is an expletive generated in object position, which is replaced by the embedded CP at LF (cf. Fanselow & Mahajan, 2000; Herburger, 1994; Horvath, 2000; Mahajan, 2000; Sternefeld, 2002; Stepanov & Stateva, 2006). A third type of IDA is proposed in Felser (2001), who argues that the scope marker is not an expletive subject to replacement, but that it is a true argument that is theta-licensed by the matrix verb. She assumes that the matrix verb and the embedded CP form a syntactically complex predicate, of which the scope marker is the semantic subject.

The main difference between the two types of analyses that is relevant to the current discussion is that the IDA assumes the scope marker originates in a low position in the matrix clause, and is linked only indirectly to the wh-phrase in the embedded clause. Within the DDA, however, the scope marker and the lower wh-phrase are presumed to be linked directly, under the assumption that the scope marker and the lower wh-phrase are part of the same movement chain.

The wh-copy construction, conversely, is almost invariably analyzed as a direct dependency, in which the medial wh-phrase is analyzed as a spelled-out movement copy. Some proponents of the DDA have argued that the wh-copy construction speaks against an IDA of partial wh-movement (cf. Bayer, 1996; Brandner, 2000; Höhle, 2000). This view is mainly based on German, which has both partial wh-movement and wh-copying. Since these constructions behave alike in many respects (notably, in both cases a wh-phrase is moved partially to a non-interrogative SpecCP), it is argued that partial wh-movement and wh-copying are essentially the same, the only difference being that in case of partial wh-movement, the matrix SpecCP is occupied by a scope marker, and in case of the wh-copy construction by a copy of the partially moved wh-phrase. Since copies of

the wh-phrase cannot be considered to be clausal expletives, the argumentation is that medial wh-movement constructions like partial wh-movement and wh-copying cannot involve an indirect dependency in which the highest wh-phrase is a clausal expletive that is linked semantically to the entire embedded clause.

Recently, it has also been proposed that wh-copying may involve a type of indirect dependency as well, in particular by Den Dikken (2009) and Koster (2009). Den Dikken and Koster both assume that partial wh-movement and wh-copy constructions involve a type of secondary predication along the lines of Felser (2001). Koster assumes wh-copy constructions are essentially a kind of pseudo-clefts, whereas Den Dikken assumes they are genuine scope marking constructions. In this latter analysis, the fact that wh-copy constructions involve apparent “copying” of the true wh-phrase follows from the idea that concord obtains between the scope marker and the true wh-phrase. This way, the scope marker may obtain certain features from the true wh-phrase, which causes it to look surface-identical to it.

Of relevance to the current discussion is the fact that the different analyses make different predictions about the availability of the constructions in (1) – (3) in particular languages. Under the DDA, where partial wh-movement and wh-copying are essentially analyzed as spell-out alternatives to LD wh-movement, there is no principled reason why a language allowing LD wh-movement would not allow partial wh-movement and wh-copying. Under the IDA, conversely, partial wh-movement is not generally expected to surface in LD wh-movement languages, since it is an altogether different structure from LD wh-movement.

2.2 Partial wh-movement and wh-copying in Dutch

In this paper, I discuss the availability of partial wh-movement and wh-copying in Dutch. The Dutch language is an interesting subject of inquiry, because it has been claimed that Dutch does not have partial wh-movement and wh-copying (cf. Fanselow, 2006; Müller, 1997; Van Kampen, 1997). This observation seems to be corroborated by a recent elicitation study by Jakubowicz & Strik (2008), where Dutch adult subjects predominantly produced standard LD wh-movement constructions, contrary to Dutch children, who produced a considerable amount of partial wh-movement and wh-copy constructions. The absence of partial wh-movement and wh-copying in Dutch is however surprising, since these constructions do show up in closely related languages including German, (McDaniel, 1989), Frisian (Hiemstra, 1986) and Afrikaans (Du Plessis, 1977), and also in a large number of Dutch dialects (cf. Barbiers et al., 2004; Schippers, 2006). Furthermore, partial wh-movement and wh-copying also surface in Dutch child language. Finally, grammaticality judgment data from Strik (2009) has shown that a considerable number of Dutch speakers actually judge partial wh-

movement and wh-copying to be acceptable. This suggests that partial wh-movement and wh-copying are actually possible in Dutch.

One of the aims of this study is to determine what the grammatical status of partial wh-movement and wh-copying in Dutch is. If partial wh-movement and wh-copying are indeed not possible in this language, the question that must be answered is why this is the case. This latter issue bears directly on the syntactic analyses of partial wh-movement and wh-copying. The broader question this study therefore addresses is which syntactic analysis of partial wh-movement and wh-copying should be adopted accordingly.

3 Magnitude estimation

To determine the relative acceptability of partial wh-movement and wh-copying versus LD wh-movement in Dutch, a magnitude estimation experiment was carried out. Magnitude estimation is a method borrowed from psychophysics, where it was developed to provide scales for measuring impressions of physical continua, such as the brightness of light or the length of a line. In a magnitude estimation experiment, subjects are asked to judge the relative magnitude of a particular feature of a series of stimuli. For example, when subjects have to estimate the length of a series of lines, subjects are first shown a reference line of a particular length. This reference item is called the modulus. The subject is asked to give this modulus an arbitrary rating, say 100. Subsequently, the actual stimuli are presented, and the subject is asked to give each stimulus a rating relative to the modulus. The magnitude estimations can be as large or small as the subject likes, provided no negative numbers are used.

This magnitude estimation method has been fruitfully applied to linguistic stimuli as well (cf. Bard et al. 1996; Cowart, 1997). Instead of judging the differences between physical stimuli, subjects are asked to judge the differences between sentences. Specifically, they are asked to what degree sentences differ in acceptability. What is thus invoked is a scale reflecting the relative acceptability of the stimulus sentences. This scale of relative acceptability should reflect the relative grammaticality of the stimuli under consideration.

In the current study, the package WebExp (Keller et al., 1998) was used to determine the relative acceptability of the constructions under consideration. Subjects rated sentences as in (7)–(9) relative to a reference sentence. They could use any number greater than zero they liked and were instructed to focus on syntactic wellformedness (and not on semantic, pragmatic and stylistic issues).

(7) LD wh-movement

Wie denk je dat het verhaal aan Jan heeft verteld?

Who think you that the story to Jan has told

‘Who do you think has told the story to Jan?’

- (8) Partial wh-movement
 Wat denk je wie het verhaal aan Jan heeft verteld?
 What think you who the story to Jan has told
 ‘Who do you think has told the story to Jan?’
- (9) Wh-copying
 Wie denk je wie het verhaal aan Jan heeft verteld?
 Who think you who the story to Jan has told
 ‘Who do you think has told the story to Jan?’

Before the actual experiment started, subjects first went through a practice phase, which consisted of judging the relative acceptability of 5 arbitrary sentences. They then proceeded on to the actual experiment.

The subjects were 40 native speakers of Dutch (21 male, 19 female). Most of them had received higher education, and their mean age was 26 (SD 5.4). The materials consisted of 10 LD wh-movement constructions, 10 partial wh-movement constructions and 10 wh-copy constructions. Half of these items concerned subject extractions, the other half object extractions. Furthermore, 30 filler items were added to the dataset, which varied in degrees of grammaticality.

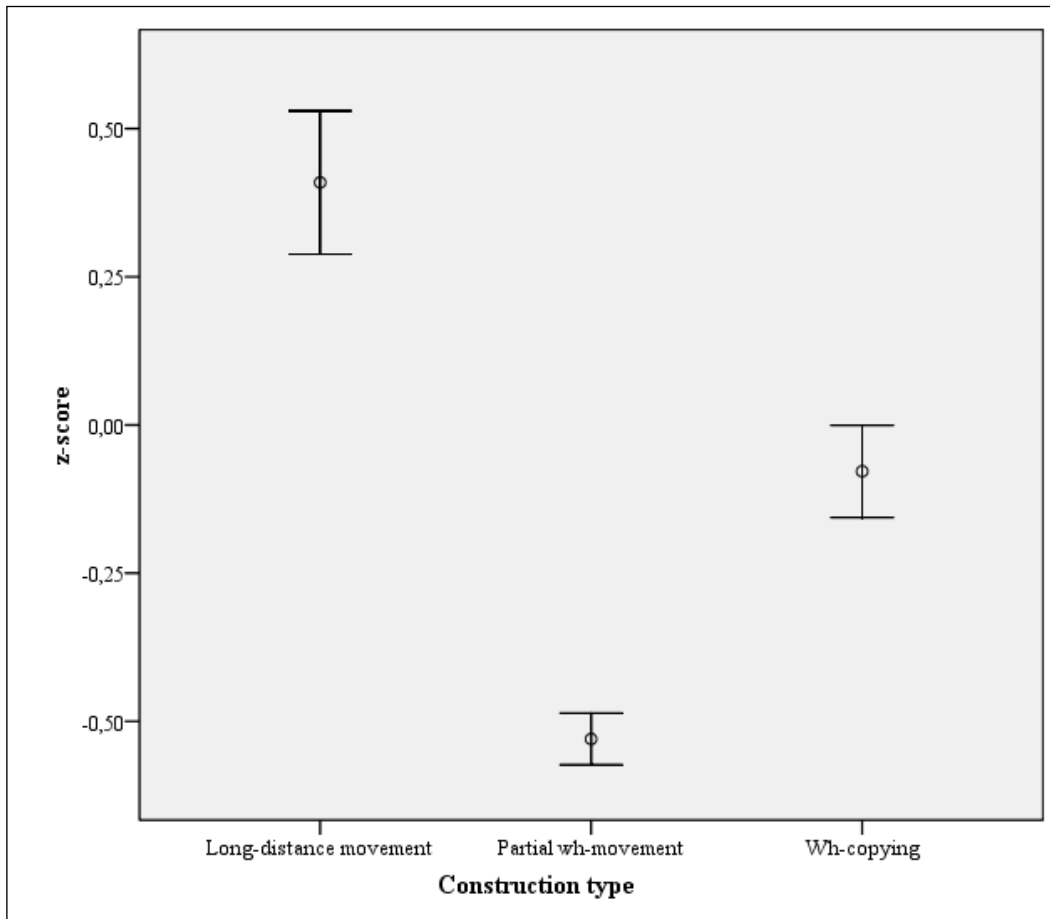
The data were normalized by dividing each numeric judgment by the value a subject had given to the reference sentence. The data per subject were subsequently transformed to z-scores. The table in (10) and the graph in (11) show the results. Since there were no significant differences between subject and object extractions, and also no interaction between the type of argument extracted and the type of movement construction, I abstract away from subject vs. object extractions.

(10) Means and standard errors per condition

Condition	Mean	SE (subject analysis)	SE (item analysis)
LD wh-movement	.409	.079	.044
Partial wh-movement	-.530	.049	.016
Wh-copying	-.078	.079	.028

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(11) Mean normalized scores and 95% confidence intervals per condition



As can be seen from this graph, LD wh-movement was rated higher than partial wh-movement and wh-copying, while wh-copying was rated higher than partial wh-movement. To determine whether these differences were statistically significant, a repeated measures ANOVA was carried out. The ANOVA showed a significant effect for TYPE, but nor for ARG and also not for the interaction TYPE x ARG. The effect for TYPE was significant in the by-subject analysis [$F(2, 78) = 34.846, p < 0.001$] and in the by-item analysis [$F(2, 8) = 322.811, p < 0.001$]. To determine which of the levels within the factor TYPE differed significantly from each other, post-hoc pairwise comparisons using a Bonferroni-corrected alpha-level of $(.05/3) = .017$ were carried out. The means and standard errors per condition can be found in (10). In the by-subject analysis, the difference between LD wh-movement and partial wh-movement was significant [$p < .001$], as well as the difference between LD wh-movement and wh-copying [$p < .001$]. Moreover, there was also a significant difference between partial wh-movement and wh-copying [$p < .001$]. In the by-item analysis, all these differences also turned out to be significant [$p < .001$].

Summarizing, the results show that LD wh-movement is judged significantly more acceptable than partial wh-movement and wh-copying and that wh-copying is judged more acceptable than partial wh-movement.³

4 Discussion

The fact that LD wh-movement was rated highest is in accordance with earlier claims in the literature that partial wh-movement and wh-copying are not allowed in Dutch. It must be noted though that the magnitude estimation technique only measures relative, and not absolute acceptability. Hence, the current study does not provide evidence for the view that partial wh-movement and wh-copying are impossible in Dutch. Interestingly, the results found in this study appear to be in line with judgments reported in Strik (2009), which did involve absolute acceptability. Strik interviewed 649 Dutch speakers using an online questionnaire. The participants were confronted with LD wh-movement, partial wh-movement and wh-copy constructions and asked whether these were sentences they could use in spoken Dutch. If they answered yes, they were asked to give the sentence in question a rating from 1-5, 1 indicating they felt the sentence was very uncommon in Dutch, 5 that it was very common. The results showed that virtually all informants considered LD wh-movement to be possible in Dutch, and about half of the informants also accepted wh-copy constructions. Partial wh-movement, though, was only accepted by approximately a third of the informants. This pattern was also mirrored by the ratings the informants gave to the constructions under consideration. The average rating for LD wh-movement was 4.7, for wh-copying 3.5 and for partial wh-movement 3.1. The results of Strik are hence in accordance with the pattern of acceptability found in the current study. It thus appears that partial wh-movement and wh-copying are not impossible in Dutch, although they are certainly less acceptable and common than LD wh-movement.

Of particular interest in both the current and Strik's study is the significant difference in acceptability between partial wh-movement and wh-copying. This suggests that there are some important underlying differences between these

³ While the individual data of the participants mirrored the overall pattern of relative acceptability for almost half (19) of the participants, there were also a considerable amount of participants that showed ratings different from the general pattern: 11 participants showed the order wh-copying > LD wh-movement > partial wh-movement, 7 participants showed the order LD wh-movement > partial wh-movement > wh-copying, 2 participants the order wh-copying > partial wh-movement > LD wh-movement and one participant the order partial wh-movement > wh-copying > LD wh-movement. Note that none but one of the participants rated partial wh-movement highest. There was however a considerable amount of participants (13) who preferred wh-copying over the other types of wh-movement, but this result was most likely leveled out in the overall means.

constructions. As such, the results speak against analyses that equate the two constructions. This concerns the DDA in general, but also IDAs that assume that both partial wh-movement and wh-copying concern indirect dependencies.

As mentioned earlier, DDAs generally fail to explain why partial wh-movement (and wh-copying) would not be available in LD wh-movement languages, and hence also do not explain why these constructions would be less acceptable than LD wh-movement. Moreover, the DDA does not explain why there would be a difference in acceptability between partial wh-movement and wh-copying. Under the DDA, the difference between partial wh-movement and wh-copying is that in the first case, the wh-chain is spelled out by means of a scope marker, and in the second case by means of a copy. Note first of all that it does not seem to be the case that spelling out a wh-phrase in the intermediate SpecCP causes the low unacceptability of partial wh-movement. If this were true, wh-copying should be judged equally unacceptable. The data also argue against DDAs in which both the scope marker and wh-copies are partial spell-outs of the lower wh-phrase. An analysis along these lines has been proposed by Barbiers et al. (2008), who claim that wh-words have an internal phrasal layering, which makes it possible to spell out parts of the wh-phrase separately. In their analysis, the scope marker *wat* 'what' is part of the wh-phrase's QP-layer, while wh-copies like *wie* 'who' are in a PhiP-layer. Assuming these layers may be spelled out separately, one derives the partial wh-movement and wh-copy construction. However, this analysis does not explain why partial wh-movement and wh-copying are less acceptable than LD wh-movement and also does not explain why there is a significant difference in acceptability between partial wh-movement and wh-copying.

In conclusion, under the DDA, the difference in acceptability between partial wh-movement and wh-copying is difficult to explain. This is mainly due to the fact that it is assumed that both types of constructions are mere spell-out alternatives to LD wh-movement, hence predicting these constructions should generally be possible in LD wh-movement languages.

The same is true for analyses where it is assumed that both partial wh-movement and wh-copying are indirect dependencies, which is the position held by Den Dikken (2009) and Koster (2009). If both constructions are a type of scope marking construction, then there is again no principled reason why there would be a significant difference in acceptability between partial wh-movement and wh-copying. Furthermore, there are independent reasons to believe that wh-copying does not involve the same kind of indirect dependency as partial wh-movement. One of the main arguments in favor of an IDA to partial wh-movement concerns the fact that these constructions are out with complex object-verb predicates and predicates selecting for a sentential expletive (e.g. 'it', cf. Reis, 2000). This would follow quite naturally under the IDA, since this analysis assumes the scope marker originates in object position of the matrix verb. If this

position is already occupied by another object (such as a sentential expletive), it follows that insertion of the scope marker is blocked. If wh-copying involves the same kind of indirect dependency, one would also expect it to be out with such predicates. This, however, is far from clear. According to Reis (2000) and Felser (2004), wh-copying is much better with these predicates than partial wh-movement. There are also other differences between partial wh-movement and wh-copying suggesting the two are not both scope marking constructions. For one, it appears that copies of the wh-phrase cannot extend the scope of partially moved wh-phrases in the same way as the scope marker can. That is, in German, *was* ‘what’ can extend the scope of two or more conjoined wh-questions, while wh-copies cannot (cf. Dayal, 2000; Felser, 2004; Höhle, 2000). This is to be expected if only the scope marker but not a copy of the wh-phrase can extend the scope of a partially moved wh-phrase. Further arguments against analyzing wh-copying as a variant of partial wh-movement are presented in Rett (2006). She mentions that wh-copying and LD wh-movement pattern alike in that both allow for cross-clausal quantifier binding, and that both show the same types of semantic ambiguities, contrasting with partial wh-movement in that sense.⁴

In sum, there are strong reasons to believe that partial wh-movement and wh-copying are different constructions. In particular, it appears that partial wh-movement involves an indirect dependency, and wh-copying a direct dependency. This hypothesis is also corroborated by the crosslinguistic distribution of LD wh-movement, partial wh-movement and wh-copying. The DDA is mainly based on German, which shows all three types of wh-dependencies. This has strongly fueled the idea that the three constructions are mere spell-out variants of each other. However, partial wh-movement and LD wh-movement are usually in complementary distribution, whereas LD wh-movement and wh-copying are not. In German, LD wh-movement is out for the majority of speakers and in the standard language and northern German, partial wh-movement is preferred (cf. Fanselow et al., 2005). In other so-called ‘mixed’ languages, like Russian, Polish and Hungarian, LD wh-movement is again severely restricted and partial wh-movement is used alternatively (cf. Stepanov, 2005; Den Dikken, 2009). Finally, Hindi, another partial wh-movement language, allows no LD wh-movement at all. Wh-copying, conversely, always shows up in languages that also allow LD wh-movement (i.e. German, Frisian, Romani, Passamaquoddy and Afrikaans), but not necessarily in languages that allow partial wh-movement (Russian, Polish, Hungarian, Hindi).

⁴ That is, copying and long-distance wh-movement constructions are both ambiguous between individual and pair-list readings in questions with a quantifier in the matrix clause (cf. Pafel, 2000); both allow *de re* and *de dicto* readings (cf. Dayal, 2000) and both allow inconsistent and consistent readings (cf. Reis, 2000), whereas partial wh-movement constructions do not show these kinds of ambiguities.

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In conclusion, both the crosslinguistic distribution as well as the result of the magnitude estimation experiment suggest that wh-copying, but not partial wh-movement is a surface alternative to LD wh-movement. I therefore adopt an IDA to partial wh-movement, whereas for wh-copying, I assume it involves a direct dependency (i.e. LD wh-movement). The particular version of the IDA that I adopt here is along the lines of Felser (2001). She assumes the scope marker is an object expletive, which originates in matrix SpecVP. In her analysis, the matrix verb and the embedded clause together form a complex predicate, of which the scope marker is the semantic subject. The proposed structure is sketched in (12):

(12) [_{CP} SM [_{VP} t_{SM} V [_{CP} Wh...t_{wh}...]]]

Importantly, under the IDA, partial wh-movement is altogether different from LD wh-movement, which explains why these constructions are usually not used interchangeably. This would also explain why Dutch favors LD wh-movement and wh-copying over partial wh-movement. Since Dutch is a LD wh-movement language, it follows that wh-copying should in principle be possible too.

The question is then why it is rated less acceptable than standard LD wh-movement. Looking again at the crosslinguistic distribution of LD wh-movement and wh-copying, it seems that wh-copying is secondary to LD wh-movement in general. That is, all the languages that show wh-copying also have LD wh-movement, but not vice versa (English, Scandinavian). This strongly suggests that wh-copying is contingent upon LD wh-movement, and that it is secondary to it.

An interesting question is what makes spell-out of intermediate copies possible. As is well-known, the spell-out of more than one movement copy is something that is normally prohibited. This is usually subscribed to some kind of economy constraint that prevents spell-out of more than one copy. Wh-copy constructions, however, are not strongly ungrammatical, even though they may be marked for some speakers.

There are two main types of analyses that have attempted to explain why spell-out of intermediate copies in wh-copy constructions is allowed. In one kind of analysis (cf. Fanselow & Mahajan, 2000 and Nunes, 2004), it is assumed that the intermediate copy undergoes fusion with the embedded complementizer, which renders the two wh-phrases distinct. But in such an analysis it has to be assumed that only head-like wh-phrases can be copied (since these are the only ones that may undergo fusion with C). However, it is well-known that more complex wh-phrase (e.g. PP wh-phrases) can also be copied, which forms an important counterargument to this analysis.

The other type of analysis is the one proposed by Den Dikken and Koster. In their account, the higher and lower wh-phrase are not true copies of each other, but distinct lexical items, explaining why (apparent) wh-copying would be

allowed. But as mentioned earlier, their analysis is problematic because it is not clear at all whether wh-copying involves a true indirect dependency.

The idea that the embedded SpecCP is a terminal landing site would nonetheless solve many problematic issues regarding wh-copying, as argued in Schippers (2009). But whether wh-copying truly involves an indirect dependency is something that merits further research. Of particular interest is the type of matrix predicate restrictions in this construction, specifically, whether wh-copying patterns with partial wh-movement in terms of complex object-verb predicates and predicates taking sentential expletives. I leave this open for further research.

5 Conclusion

The results of the magnitude estimation experiment showed that LD wh-movement was rated most acceptable, followed by wh-copying and finally partial wh-movement. I argued that these results follow from an analysis that treats wh-copying, but not partial wh-movement as a surface alternative to LD wh-movement. This is also corroborated by the crosslinguistic distribution of the constructions under consideration.

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