

# Partial wh-movement and wh-copying in Dutch: Evidence for an indirect dependency approach.

Ankelien Schippers - Centre for Language and Cognition Groningen, Rijksuniversiteit Groningen

## Abstract

This article discusses grammaticality judgment data concerning long-distance wh-movement, partial wh-movement and wh-copying in Dutch, which were gathered by means of a magnitude estimation experiment. The data show that long-distance wh-movement is rated significantly higher than wh-copying and partial wh-movement, and that wh-copying is rated higher than partial wh-movement. These results are in line with crosslinguistic patterns that show partial wh-movement generally does not co-occur with long-distance wh-movement and wh-copying. It is argued that the results argue against a direct dependency approach and in favor of an indirect dependency approach. In particular, Stepanov & Stateva's (2006) NP-shell analysis is adopted, which predicts a complementary distribution of partial wh-movement versus long-distance wh-movement and wh-copying. Furthermore, specific attention is paid to the secondary status of partial wh-movement and wh-copying. The fact that partial wh-movement may sometimes have a secondary status is explained as the result of the degree of grammaticalization of this construction in a language, while the secondary status of wh-copying is attributed to spell-out conflicts at PF.

## Keywords

Long-distance movement, partial wh-movement, wh-copying, magnitude estimation, Dutch

## 1. Introduction

In a number of languages, including German, Hindi, Romani, Frisian, Albanian, Hungarian, Passamaquoddy, Warlpiri, Finnish, Iraqi Arabic, Russian and Polish, wh-phrases show up in intermediate CPs lower than their matrix scope position.<sup>1</sup> This phenomenon is known as partial wh-movement, which is illustrated below in (1) for German:

- (1) [CP1 *Was meinst du* [CP2 *wen Maria liebt?*]]  
      ‘what think you      who Maria loves?’  
      ‘Who do you think Maria loves?’

Here, the wh-phrase *wen* that takes matrix scope remains in the subordinate CP, while the highest CP is occupied by the scope marker *was*, the latter which does not seem to contribute to the sentence meaning. In partial wh-movement constructions, the wh-phrase in the matrix clause is always the same, usually the most unmarked wh-phrase in a language with a meaning equivalent to English ‘what’.<sup>2</sup> The presence of a wh-phrase in the subordinate CP in these constructions seems unlicensed, since the matrix verb *meinen* ‘to think’ is a [–wh] predicate that usually does not combine with a [+wh] complement (cf. McDaniel, 1989).

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

<sup>2</sup> Some languages, notably Russian, Polish and Warlpiri use a wh-phrase with the meaning of ‘how’ in partial wh-movement constructions. However, since most languages with partial wh-movement use the equivalent of English ‘what’, I refer to the wh-phrase used in partial wh-movement constructions as theory neutral WHAT in the remainder of this article, in line with McDaniel (1989).

Next to partial wh-movement, some languages also employ another type of partial movement of wh-phrases, which is known as wh-copying. In these constructions, the wh-phrase also remains in the subordinate CP, but here the matrix CP is occupied by a wh-phrase identical to the one that has been partially moved. A German example of this construction is in (2) below:

- (2) [CP<sub>1</sub> *Wen meinst du* [CP<sub>2</sub> *wen Maria liebt?*]]  
       ‘Who think you      who Maria loves?’  
       ‘Who do you think Maria loves?’

Wh-copying shows up in German and Romani (McDaniel, 1989), Frisian (Hiemstra, 1986), Afrikaans (Du Plessis, 1977) and Passamaquoddy (Bruening, 2004, 2006). Furthermore, the construction also shows up in a number of Dutch dialects (cf. Barbiers et al., 2004; Schippers, 2006). Both partial wh-movement and wh-copy constructions contrast with ‘standard’ long-distance wh-movement as in (3), where only one wh-phrase is spelled out, namely the one in the highest interrogative SpecCP:

- (3) [CP<sub>1</sub> *Wen meinst du* [CP<sub>2</sub> *dass Maria liebt?*]]  
       ‘Who think you      that Maria loves?’  
       ‘Who do you think Maria loves?’

Medial wh-movement constructions like partial wh-movement and wh-copying have received considerable attention over the past few decades. Because of their resemblance to long-distance wh-movement, these constructions have often been analyzed as surface variants to long-distance wh-movement.<sup>3</sup> One outstanding question in this respect is why these variants are employed instead of, or in addition to long-distance wh-movement. More specifically, the question is which parametric property gives rise to partial wh-movement and wh-copying. The Dutch language is an interesting subject of inquiry in this respect, 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 long-distance wh-movement constructions, contrary to Dutch children, who produced a considerable amount of partial wh-movement and wh-copy constructions.

On the other hand, there is also some evidence that partial wh-movement and wh-copying is actually possible in Dutch. Grammaticality judgment data from Strik (2009) shows that a considerable number of Dutch speakers actually judge partial wh-movement and wh-copying to be acceptable. Furthermore, since partial wh-movement and wh-copying shows up in languages closely related to Dutch, including German (McDaniel, 1989), Frisian (Hiemstra, 1986) and Afrikaans (Du Plessis, 1977), and have been frequently attested in a large number of Dutch dialects (cf. Barbiers et al., 2004; Schippers, 2006) and in Dutch child language (Jakubowicz & Strik, 2008; Van Kampen, 1977), one might expect that these constructions may also be possible in standard Dutch, since there does not seem to be a principled reason why Dutch would not allow them. One of the aims of this study is therefore 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 unacceptable 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 questions this study therefore addresses is which parametric property is responsible for the presence of partial wh-movement and wh-

<sup>3</sup> Partial wh-movement and wh-copying show all the hallmarks of long-distance wh-movement: the constructions are only possible with bridge verbs and show island sensitivity.

copying in a language, and which syntactic analysis of partial wh-movement and wh-copying should be adopted accordingly.

In section 2, the analyses that have been proposed for partial wh-movement and wh-copying are discussed. It is argued that so-called direct dependency approaches that posit a direct link between long-distance wh-movement, partial wh-movement and wh-copying fail to explain why partial wh-movement and wh-copying would not surface in languages like Dutch that employ long-distance wh-movement. The alternative indirect dependency approach, on the other hand, makes different predictions regarding the crosslinguistic availability of partial wh-movement and wh-copying, because this approach does not view partial wh-movement as a structural variant of long-distance wh-movement. Hence, this approach does not suggest that long-distance wh-movement, partial wh-movement and wh-copying may co-occur.

To determine the grammatical status of partial wh-movement and wh-copying in Dutch, a grammaticality judgment task was carried out. The methodology of this task and the results are discussed in section 3. The results show that both partial wh-movement and wh-copying are judged less acceptable than long-distance wh-movement, but that wh-copying is judged more acceptable than partial wh-movement. In section 4, where the results are discussed, it is argued that this pattern of acceptability best fits an indirect dependency approach to partial wh-movement. Specifically, a type of indirect dependency approach, called the NP-shell analysis, as recently proposed by Stepanov & Stateva (2006) is adopted. Unlike other indirect dependency approaches, Stepanov & Stateva's analysis posits a strong syntactic parallel between long-distance wh-movement and partial wh-movement because it assumes that these constructions share the same derivational history. The presence versus absence of partial wh-movement is linked to the overtiness of the scope marker in this approach. The analysis predicts that long-distance wh-movement and partial wh-movement are generally in complementary distribution, while long-distance wh-movement and wh-copying may co-occur, since the latter involves long-distance movement. As such, the NP-shell analysis offers an explanation for the fact that partial wh-movement is judged worse than long-distance wh-movement and wh-copying in Dutch. Furthermore, it is argued that wh-copying is a secondary strategy to long-distance wh-movement, which explains why it was rated lower than long-distance wh-movement.

## **2. The syntactic analyses of partial wh-movement and wh-copying**

In this section, the main analyses of partial wh-movement and wh-copying are discussed. These analyses concern the so-called direct dependency approach (cf. McDaniel, 1989; Tappe, 1980; Van Riemsdijk, 1983) and the indirect dependency approach (cf. Dayal, 1994, 2000). Specific attention is being paid to one of the variants of the indirect dependency approach, which is Stepanov & Stateva's (2006) NP-shell analysis. Furthermore, the different predictions these approaches make regarding the availability of long-distance wh-movement, partial wh-movement and wh-copying in Dutch is discussed.

### **2.1 The direct dependency approach**

Within the direct dependency approach, partial wh-movement is essentially analyzed as a surface alternative to long-distance wh-movement. This idea originates from the fact that partial wh-movement and long-distance wh-movement yield identical interpretations, suggesting the two constructions are also structurally similar. Furthermore, partial wh-movement, just like long-distance wh-movement, is subject to locality constraints. For these reasons, the direct dependency approach assumes there is a direct link between WHAT and the wh-phrase in the subordinate clause.

How the link between WHAT and the true wh-phrase is established exactly differs somewhat in the several direct dependency approaches that have been proposed. Broadly

speaking, two main analyses can be distinguished: either a chain is created between the inserted expletive 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, WHAT is seen as a partial spell-out of the true wh-phrase or as the spell-out of a feature of the wh-phrase (cf. Barbiers et al., 2008; Cheng, 2000; Hiemstra, 1986; Sabel, 1998). What these direct dependency approaches have in common is that in all cases, partial wh-movement is analyzed as being structurally similar to long-distance wh-movement. This way, the approach is able to account for many the many similarities that exist between long-distance wh-movement and partial wh-movement.

## 2.2. The indirect dependency approach

The indirect dependency approach differs from the direct dependency approach in that no structural similarity between long-distance wh-movement and partial wh-movement is assumed. This is due to the fact that WHAT is analyzed as an argument or expletive that originates in a low position within the matrix clause and has no direct syntactic link with the true wh-phrase. It is further assumed that from its low position in the matrix clause, WHAT may move independently to the matrix SpecCP, while the wh-phrases in the embedded clause also moves independently to its own (local) SpecCP. This is exemplified in (4) below:

- (4) [[<sub>CP1</sub> *Was<sub>i</sub> glaubt Marie t<sub>was</sub>*] [<sub>CP2i</sub> *wen Hans t<sub>wen</sub> gekusst hat?*]]  
 What believes Marie who Hans kissed has?  
 ‘Who does Marie believe Hans kissed?’

In Dayal’s original indirect dependency approach, WHAT is analyzed as a true argument of the matrix verb that quantifies over propositions. She assumes that the matrix as well as the embedded clause denotes a set of propositions, and that the set of propositions denoted by the embedded clause form the restriction to the set of propositions denoted by the matrix clause. This is possible under the assumption that WHAT and the embedded CP are coindexed. Importantly, the indirect dependency approach assumes that WHAT does not form a direct link with the embedded wh-phrase. In fact, partial wh-movement constructions are viewed as consisting of two syntactically independent wh-chains: one in the matrix and one in the subordinate clause. In this sense, partial wh-movement constructions are similar to English sequential questions of the form: “What do you think? Who hit John?”.

A number of subsequent variants of Dayal’s indirect dependency approach have basically argued for the same type of analysis, although the technicalities differ somewhat. Some assume WHAT 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). Felser (2001), on the other hand, argues that WHAT is not an expletive subject to replacement, but that WHAT originates in object position and is theta-licensed by the matrix verb. She further argues that the matrix verb and the embedded CP form a syntactically complex predicate, of which WHAT is the semantic subject.

Although the several versions of the indirect dependency approaches discussed here differ in certain respects from each other, they are all similar in that they assume that WHAT originates from a low A-position within the matrix clause, and that WHAT is linked to the entire embedded clause, and not just to the wh-phrase that is contained in it. These are two important respects in which these indirect dependency approaches differ from direct dependency approaches, where it is assumed that WHAT is base-generated in SpecCP and forms a link with the embedded wh-phrase itself. As is pointed out in section 2.5, the two approaches therefore make different predictions regarding the crosslinguistic distribution of partial wh-movement and long-distance wh-movement.

### 2.3 NP-Shell analysis

In the previous sections, it was already pointed out that the main difference between direct dependency approaches and indirect dependency approaches is that the first, but not the latter, consider partial wh-movement constructions to be syntactically similar to long-distance wh-movement constructions. However, in a recent type of indirect dependency approach proposed by Stepanov & Stateva (2006), called the NP-shell analysis, partial wh-movement and long-distance movement are actually analyzed in terms of syntactic equivalence as well. Stepanov & Stateva assume that WHAT is a type of clausal correlative, similar to a correlative like *to* 'it', which can be found in Slavic languages. In line with Herburger (1994) and Mahajan (2000), they assume WHAT forms a constituent together with the embedded clause. A partial movement construction in their approach looks as in (5):

- (5) [CP Was C<sub>[+Q]</sub> glaubt Hans [NP t<sub>was</sub> [ CP wen C<sub>[+Q]</sub> Maria t<sub>wen</sub> gekusst hat?]  
 What believes Hans who Maria kissed has?  
 'Who believes Hans that Maria kissed?'

In accordance with the indirect dependency approach, it is assumed that both matrix and subordinate CPs are interrogative (i.e. [+Q]) and may hence attract a wh-phrase. The derivation of a partial wh-movement construction in this approach proceeds as following. Assuming a bottom-up derivation, the embedded clause is build first and the wh-phrase moves to the subordinate SpecCP. Next, the correlative is merged. In some languages, including Hindi, WHAT then undergoes head movement to the matrix verb. Consequently, WHAT and the matrix verb behave as one structural unit, that is; WHAT affixes onto the verb.<sup>4</sup> This complex may undergo further movement operations, which appears to be the case in Iraqi Arabic and Albanian. In other languages, like German and Russian, WHAT may be separated from the verb and move independently to the matrix SpecCP, as is illustrated in example (5).

Interestingly, long-distance wh-movement constructions are derived in a similar way. Stepanov & Stateva assume that these constructions contain WHAT as well, only in this case the silent version of it. The idea is that this silent version of WHAT affixes onto the matrix verb (by analogy to Hindi where this happens overtly), resulting in incorporation of WHAT into the matrix verb. This, they argue, frees up the path for the true wh-phrase to move to the matrix SpecCP. To illustrate, example (6) shows the derivation of a long-distance wh-movement construction within the NP-shell analysis (the example is taken over from Stepanov & Stateva 2006: 2133)

- (6) [C' Who C<sub>[+Q]</sub> do you [vP [vP WHAT+believe [XP t<sub>WHAT</sub> [CP t<sub>who</sub> C<sub>[+Q]</sub> John likes t<sub>who</sub>]]

As can be seen from this example, again both matrix and subordinate CPs are analyzed as being interrogative ([+Q]), just as in the partial wh-movement construction in (5). Stepanov & Stateva assume that the true wh-phrase (carrying an interpretable wh-feature) enters into multiple checking operations with both matrix and subordinate CPs. As they point out, their NP-shell analysis entails that finite complements in long-distance movement constructions are headed by NPs, which results in an island configuration (the Complex NP constraint, cf. Ross, 1967). The question is then why it is possible at all to extract from finite complements. Stepanov & Stateva suggests this has to do with a special property of bridge verbs which allows them to have affixes, contrary to non-bridge verbs that presumably do not have this

<sup>4</sup> Evidence for this comes from the fact that nothing can intervene between the matrix verb and the scope marker in these cases (cf. Mahajan 2000).

property.<sup>5</sup> Since bridge verbs allow for affixation, WHAT can incorporate into the matrix verb. Stepanov & Stateva hypothesize that this leads to a sentence reanalysis process which removes the Complex NP island configuration.<sup>6</sup> The difference between languages with and without partial wh-movement thus boils down to a lexical matter, namely to whether WHAT is overt or silent. As such, this approach makes very strong predictions regarding the crosslinguistic distribution of partial wh-movement and long-distance wh-movement.

## 2.4 Analysis of wh-copying

Wh-copying is invariably analyzed as a surface alternative to long-distance wh-movement., where intermediate copies of the wh-phrase are spelled out (cf. Fanselow & Mahajan, 2000; Pafel, 2000). Wh-copying as such is sometimes also analyzed as a variant of partial wh-movement within the direct dependency approach, whereby the wh-copy is viewed as a scope marker or expletive (cf. Bayer, 1996; Brandner, 2000; Höhle, 2000). This view is based on the fact that partial wh-movement and wh-copy constructions behave alike in many respects. Importantly, within this type of analysis, the wh-copy construction is seen as an argument against the indirect dependency approach to partial wh-movement. This is due to the fact that the indirect dependency approach views the scope marker as a wh-quantifier that quantifies over propositions. Clearly, full copies of wh-phrases like ‘who’, ‘where’ or ‘how’ are not able to do so.

However, there are several arguments against this analysis of wh-copying. First of all, wh-copying does not generally show up in tandem with partial wh-movement, which indicates that these constructions are not as similar as is sometimes suggested. Second, it appears that copies of the wh-phrase cannot extend the scope of a partially moved wh-phrase in the same way as WHAT can. That is, in German, *was* ‘what’ can extend the scope of two or more conjoined wh-phrases, while wh-copies cannot, as can be seen in example (7a) and (7b) below (cf. Dayal, 2000; Felser, 2004; Höhle, 2000; the examples are from Felser 2004: 551-552).

(7a) *Es ist egal, was er meint, wann sie kommt und wen sie mitbringt*  
 ‘It is no-difference what he thinks when she comes and who she with-brings’

(7b) *\*Es ist egal, wann/wen er meint, wann sie kommt und wen sie mitbringt*  
 ‘It is no-difference when/who he thinks when she comes and who she with-brings’

‘It does not matter what he thinks as to when she will come and who she will bring along.’

This is to be expected if only wh-elements like WHAT but not copies of the wh-phrase can extend the scope of a partially moved wh-phrase. Furthermore, as pointed out by Felser (2004), partial wh-movement and wh-copy constructions in German differ in the acceptability of the verb ‘scheinen’ (seem) and of direct object DPs in the matrix clause (cf. Höhle, 2000; Reis, 2000). This would follow if partial wh-movement is licensed only by matrix predicates

<sup>5</sup> I leave open for the moment which property of non-bridge verbs it is exactly that blocks further movement. Stepanov & Stateva argue that non-bridge verbs (i.e. ‘manner of speaking’ verbs) are derived from nominals and following Myers (1984) and Pesetsky (1995), they suggest that such derived verbs do not allow for affixation. However, while most non-bridge verbs have a nominal counterpart, it is far from clear that they are in fact derived from nominals. In fact, their etymology often suggests otherwise, namely that the nominal forms are derived from the verbs (cf. Klein, 1966).

<sup>6</sup> It is assumed that the complex NP barrier can only be lifted if WHAT is silent. Hence, in languages where WHAT affixes onto the verb but remains overt, long-distance wh-movement is still blocked. Stepanov & Stateva therefore suggest that the morphological visibility of WHAT affects its capacity to be an intervenor.

that also admit DP complements (as the indirect dependency approach entails), while wh-copy constructions pattern with long-distance wh-movement constructions in only allowing CP complements. Further arguments against analyzing wh-copying as a variant of partial wh-movement rather long-distance wh-movement than are presented in Rett (2006). She points out that wh-copying and long-distance 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.<sup>7</sup> All in all, these observations suggest that wh-copying should be analyzed as a structural variant to long-distance wh-movement, with intermediate copies spelled out, instead of as an alternative to partial wh-movement. Therefore, I adopt an analysis of wh-copying in which the intermediate wh-phrase simply represents a spelled-out copy of the long-distance moved wh-phrase.

## 2.5 Predictions

There has been an ongoing debate as to which approach (direct or indirect dependency approach) to partial wh-movement is correct. In this respect, it is important to note that the two analyses are based on different languages: the direct dependency approach is based on German, whereas the indirect dependency approach is based on Hindi. Data from Hindi support the indirect dependency approach because WHAT in this language is in argument position, suggesting it is not just a wh-expletive base-generated in SpecCP. Furthermore, in Hindi partial wh-movement is compatible with yes/no questions. This follows naturally under the assumption that WHAT only has an indirect, semantic link with the subordinate clause and as such can combine with any clause expressing a question. In German, on the other hand, the partial wh-movement construction cannot combine with yes/no questions. Moreover, WHAT in German does not behave like a true argument, supporting the idea that it is a mere expletive,<sup>8</sup> and it is in German, not Hindi, that wh-copying coexists with partial wh-movement. It has therefore been argued that the indirect dependency approach is correct for Hindi, while the direct dependency approach accounts best for the German facts (cf. Beck & Berman, 2000; Fanselow, 2006). Relevant to the current study is the fact that the contrasting analyses make different predictions about the availability of partial wh-movement and wh-copying in a language.

First of all, it is important to note that wh-copying is analyzed as a structural alternative to long-distance wh-movement in all approaches. Indirect dependency approaches crucially assume WHAT is a true argument or a sentential expletive, and copies of the wh-phrase do not serve this function. Hence, it follows that under the indirect dependency approach, wh-copying must be accounted for along the lines of long-distance wh-movement. It goes without saying that wh-copying, when discussed in terms of the direct dependency approach, is also always analyzed as a structural variant to long-distance wh-movement.

The big difference in the conflicting analyses thus seems to be how partial wh-movement is analyzed. With respect to direct dependency approaches, it can be said that they all posit a strong link between partial wh-movement and long-distance wh-movement in the sense that it is assumed that the same type of movement chain is involved in both constructions. As pointed out in section 2.1, the several direct dependency approaches differ

<sup>7</sup> 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.

<sup>8</sup> For example, WHAT in German can never occur in argument position, e.g. in a multiple wh-question like (i) below (cf. Beck & Berman, 2000; Dayal, 1994):

i. \**Wer hat was gedacht, wen wir anrufen sollten*  
     ‘Who has what thought whom we call should’  
     ‘Who thought we should call whom?’

somewhat in how exactly this chain is established. It is either assumed that a chain is created between the inserted expletive and the true wh-phrase at some level of syntactic representation (cf. McDaniel; 1989; Van Riemsdijk, 1983, and many others), or alternatively, that WHAT is a partial spell-out of the true wh-phrase or a feature of the wh-phrase (cf. Barbiers et al., 2008; Cheng, 2000; Hiemstra, 1986; Sabel, 1998). Both types of analyses generally fail to account for the fact that partial wh-movement does not show up in languages that freely permit long-distance wh-movement. With respect to the first approach, where it is assumed that WHAT is an expletive, it has been suggested that partial wh-movement is not possible in languages that do not have an expletive-like wh-phrase like WHAT (cf. Cole & Hermon, 2000). This, however, would not explain the alleged unavailability of partial wh-movement in Dutch, since Dutch does have expletive *wat* ‘what’ (cf. Müller, 1997). The second type of approach, which assumes WHAT is a partial spell-out of the wh-phrase, also generally fails to predict why this option would not be available in a language like Dutch, or in any long-distance wh-movement language for that matter. Cheng (2000) proposes that partial spell-out of the wh-phrase is dependent on the morphological make-up of wh-phrases. She argues that partial wh-movement in German is possible because German wh-words can serve as the basis for indefinites. Based on this, she argues that a wh-phrase in German may split up in a wh and an indefinite part, resulting in partial wh-movement. But as she notes herself, this fails to account for the fact that Frisian and some varieties of Dutch may employ partial wh-movement, since in these languages wh-phrases cannot be used for indefinites.<sup>9</sup> For this reason, Felser (2004) argues that the ability of a wh-phrase to split up is more likely contingent upon whether a language allows scattered spell-out of wh-phrases in general. She argues that since German (and also Dutch) allow scattered spell-out of *was-für/wat voor* ‘what for’ wh-phrases, other wh-phrases should be able to split up as well in these languages. This line of reasoning is also followed in Barbiers et al. (2008). Such an approach would predict that partial wh-movement is an option in a language like Dutch, because it has the option of splitting up wh-phrases.

Finally, it has also been argued that partial wh-movement is dependent on specific feature checking requirements a language may have. This has been done in Sabel (2000), who argues that languages without partial wh-movement do not have a strong +[focus] feature in the intermediate CP. Sabel assumes that languages like German that do employ partial wh-movement have a strong focus feature in the intermediate CP, forcing overt spell-out of the wh-phrase in this position. However, this strong/weak distinction is rather stipulative and it does not explain why Dutch may not have a strong focus feature in the intermediate CP, especially since Dutch does allow overt focus movement. Moreover, in current minimalism, overt movement is no longer contingent upon a strong/weak distinction, but on whether an attracting head has an EPP-feature. Under this analysis of overt movement, it becomes even more mysterious why a language like German should be able to spell-out wh-phrases in intermediate CPs, whereas long-distance movement languages like Dutch cannot. In sum, direct dependency approaches therefore predict that partial wh-movement is available in Dutch.

Indirect dependency approaches, on the other hand, make different predictions regarding the crosslinguistic availability of partial wh-movement. In the indirect dependency approach as originally proposed by Dayal, WHAT is analyzed as an argument or sentential expletive. Her analysis predicts partial wh-movement to be possible in all languages that have such an argumental wh-phrase or sentential expletive. What may parametrically differ between languages is the level of (syntactic) integration between the main and the subordinate clause in partial wh-movement constructions. Dayal (2000) argues that a language like

---

<sup>9</sup> One exception is Dutch *wat*, which can be used as an indefinite. This is however not the case for other wh-phrase like *wie*. Hence, these wh-phrases are predicted not to facilitate partial wh-movement in her approach.



English has no integration at all, and that partial wh-movement questions are formed by simply juxtaposing two syntactically independent wh-sentences. On the other end of the spectrum are languages like German, where partial wh-movement questions involve full-blown subordination. With respect to the Dutch language, Dayal's indirect dependency approach hence predicts partial wh-movement should be possible, but that the syntactic realization of this construction may not be the same as in German. This is essentially the same as what has been argued by Horvath (2000) and Reis (2000). They furthermore suggest that the crosslinguistic variation in partial wh-movement is possibly due to diachronic change, and that different languages represent different stages in this process.

Other indirect dependency approaches do not directly address the issue of crosslinguistic variation, but presumably, Dayal's predictions carry over to them as well. In any case, since partial wh-movement and long-distance wh-movement are not analyzed as surface alternatives to each other in indirect dependency approaches, it becomes quite easy to account for the absence of partial wh-movement in long-distance movement languages.

One of the indirect dependency approaches that makes the clearest predictions regarding the availability of partial wh-movement in a language is Stepanov & Stateva's NP-shell analysis. They predict that partial wh-movement and long-distance wh-movement should generally be in complementary distribution. Recall that in their approach, whether or not a language has partial wh-movement depends on whether WHAT is overt or silent. Only in the latter case, long-distance wh-movement is possible. If WHAT is overt, resulting in partial wh-movement, Stepanov & Stateva assume that long-distance movement is in fact blocked, since it creates a complex NP configuration. As Stepanov & Stateva point out, the crosslinguistic distribution of partial wh-movement and long-distance wh-movement corroborates this analysis, since the constructions are generally in complementary distribution. That is, Hindi, Russian, Polish and a number of German and Hungarian dialects do not allow long-distance wh-movement and instead employ partial wh-movement. On the other hand, languages like English and the Scandinavian languages, which frequently use long-distance wh-movement, do not employ partial wh-movement. Since Dutch is a long-distance movement language, it should have silent WHAT under Stepanov & Stateva's analysis. Partial wh-movement is hence not expected to surface in Dutch if their analysis is correct.

Summing, the approaches discussed here make the following predictions: Under both types of analyses (direct and indirect), wh-copying is predicted to be possible in Dutch, since it is always analyzed as a structural variant of long-distance wh-movement, which is also possible in Dutch. With respect to partial wh-movement, the approaches make different predictions. Within direct dependency approaches, there is no clear reason why partial wh-movement would not be possible in Dutch. Hence, on this analysis partial wh-movement is predicted to be available in Dutch. Indirect dependency approaches, on the other hand, do not predict partial wh-movement to be available in Dutch, since these approaches do not assume that partial wh-movement is contingent upon long-distance movement. Finally, Stepanov & Stateva's version of the indirect dependency approach specifically predicts partial wh-movement not to surface in Dutch, since Dutch (presumably) has silent WHAT and hence uses long-distance wh-movement to form a long-distance wh-dependency.

### **3. Determining grammaticality**

As was pointed out in the introduction, the picture that emerges from the literature is that Dutch does not have partial wh-movement and wh-copying. What is generally meant by that is that it does not show up in the standard language. Dutch dialects and child language, as was pointed out, do employ partial wh-movement and wh-copying. The constructions can also be attested in informal speech (cf. Barbiers, 2006). Furthermore, the survey carried out by Strik

(2009) suggests partial wh-movement and wh-copying are available to some speakers of Dutch, but that overall, these constructions are judged less acceptable than long-distance wh-movement. The goal of the current study was to determine the grammatical status of long-distance wh-movement, partial wh-movement and wh-copying relatively to each other in standard Dutch.<sup>10</sup> To this end, a linguistic magnitude estimation experiment was carried out. This method is discussed in more detail in the following subsections.

### 3.1. Magnitude estimation

An excellent method to determine grammaticality is by means of a relatively new method of gathering linguistic judgment data, called magnitude estimation. 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 (Stevens, 1956). 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. Thus, when a line appears twice as big as the modulus, and the modulus is rated 100, the subject should rate the stimulus line 200. The magnitude estimations can be as large or small as the subject likes, provided no negative numbers are used. By rating all the stimuli, a scale reflecting the relative length of the stimulus lines is invoked.

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.

There are a number of advantages related to using this method. First of all, magnitude estimation gives a very fine-grained picture of the degrees of grammatical acceptability, since participants are allowed to use an open-end scale and make as many distinctions as they like. Second, magnitude estimation is a very suitable method to compare (more or less) identical constructions to each other, because participants are asked to rate the experimental items relatively to each other. Furthermore, when applied to a sufficiently large enough group of participants, the data can be statistically analyzed, which makes the data more reliable than most of the canonical judgment data, which often only reflect the judgments of a handful of speakers.

For these reasons, the magnitude estimation technique was used in the current study to determine the grammatical status of long-distance wh-movement, partial wh-movement and wh-copying in Dutch. One factor that was included in determining the grammaticality of these constructions was whether the type of argument extracted had an influence on the acceptability. Specifically, subject extractions were compared to object extractions. This was

---

<sup>10</sup> It is a rather delicate task to determine what “standard” Dutch is in this respect, since there are no formal criteria to define it (cf. Willemyns, 2003). What can be said is that the Dutch language spoken in the Netherlands is a considerably standardized language and that dialects are rapidly decreasing. What is meant by standard Dutch in this article is the variety of Dutch as it is spoken in the Netherlands part of the language area, which is mutually intelligible across speakers, with variation limited to (minor) phonological and lexical differences.

done to test whether there is a possible that-trace effect in Dutch (cf. Chomsky, 1981, 1986).<sup>11</sup> In Dutch, a complementizer is obligatory for both subject and object extraction. Hence, long-distance subject movement results in a that-trace configuration. If Dutch is sensitive to the that-trace effect, partial wh-movement and wh-copying could be used as alternatives to long-distance wh-movement in case of subject extractions, since in these cases the complementizer may be omitted.<sup>12</sup>

As a null hypothesis, it is assumed that long-distance wh-movement, partial wh-movement and wh-copying should be judged equally acceptable, which would be in favor of the direct dependency approach. Furthermore, no differences in acceptability between subject and object extractions are expected, nor any interactions between movement type and type of argument, because that-trace configurations in Dutch are not ungrammatical.

### **3.2 Factors influencing grammaticality judgments**

Keller (2000) points out that when linguistic acceptability is investigated, we are in essence investigating linguistic performance, and not linguistic competence. This means that acceptability judgments are subject to performance factors such as errors, fatigue, boredom, and irrelevant linguistic factors like pragmatic or lexical differences between items. In the current experiment, several precautions were taken to ensure that relative grammaticality instead of anything else was measured. First of all, participants were told that during the experiment, they would see a number of sentences that were all different: some sounded good and some sounded bad. Participants were asked to rate these sentences based on how good or bad a sentence appeared to them. In doing this, they were instructed not to focus on the meaning of a sentence, but on its construction. It was also pointed out to the participants that they should not focus on any stylistic issues, but on whether a given sentence sounded natural. To illustrate which concept of acceptability was intended, participants were shown examples of pairs of sentences that clearly differed in grammaticality, and were therefore rated distinctly.

The materials in the experiment were also carefully selected to avoid possible biases. The experimental items only differed with respect to the type of movement (full, partial or copying), so there were no lexical differences between the items. Filler items were added to the data to create a linguistic background against which the experimental items could be judged. The filler items also served as a control: they contained both clearly grammatical and ungrammatical sentences, so the ratings participants gave to these items could be used to check whether they had fully understood the experimental task. Furthermore, the experimental items and filler items consisted of unacceptable and acceptable sentences in roughly equal proportions, and the filler items also differed in degrees of grammaticality; some were merely marked, some contained one grammatical violation, and others contained two violations. This was done for two reasons. First, it prevented participants from making binary judgments (good or bad) and second, the diversity of the items prevented participants from discovering what the experiment was about. Finally, since there is always a certain amount of variance in the data that cannot be controlled for due to chance or error, the data were analyzed statistically by running analyses of variance and post-hoc comparisons.

---

<sup>11</sup> While so-called that-trace violations in Dutch are quite common and do not necessarily lead to ungrammaticality, they may result in degraded acceptability (cf. Bennis, 1986; Den Dikken, 2007; Den Dikken et al, 2007).

<sup>12</sup> Felser (2001) and McDaniel (1989) suggest partial wh-movement is employed in cases in which long-distance wh-movement of the subject would lead to ungrammaticality (presumably due to the that-trace effect). Furthermore, Felser (2004) mentions that the wh-copy construction is used as an alternative to long-distance subject wh-extractions by German speakers who are sensitive to the that-trace effect.

### 3.3. Method

#### 3.3.1 Materials

The current study involved two factors: type of wh-extraction (TYPE), with three levels: (1) long-distance wh-movement, (2) partial wh-movement and (3) wh-copying, and type of argument extracted (ARG) with two levels: (1) subject extraction and (2) object extraction. This resulted in six different conditions. For each condition, five experimental items were constructed, resulting in a total of thirty sentences. These sentences all had the same word length. Because in Dutch, wh-extractions are often ambiguous between subject and object extractions, possible ambiguity due to wh-movement was avoided. This ambiguity is caused by the fact that neither case marking nor word order indicates which argument has been extracted. This is illustrated in sentence (8) below, which has two possible readings:

- (8) Wie denk je dat  $t_{wie}$  (?) Jan  $t_{wie}$  (?) heeft gezien?  
*Who think you that John has seen?*  
Reading 1: ‘Who do you think John saw?’  
Reading 2: ‘Who do you think saw John?’

To avoid such ambiguity, subject wh-extractions consisted of an animate subject and an inanimate object. Because the object was inanimate, it could not be interpreted as a subject. Hence, the only remaining referent for the wh-phrase is the subject. Object sentences had a personal pronoun as the subject. In Dutch, personal pronouns are case marked, so the wh-dependency was disambiguated, because the only possible remaining referent for the wh-phrase was the object. Examples of the experimental items can be found in (9) – (14):

Condition 1: Long-distance wh-movement subject

- (9) *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?’

Condition 2: Long-distance wh-movement object

- (10) *Wie denk je dat ik in de stad heb ontmoet?*  
‘Who think you that I in the city have met?’  
‘Who do you think that I have met in the city?’

Condition 3: Partial wh-movement subject

- (11) *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?’

Condition 4: Partial wh-movement object

- (12) *Wat denk je wie ik in de stad heb ontmoet?*  
‘What think you who I in the city have met?’  
‘Who do you think that I have met in the city?’

Condition 5: Wh-copying subject

- (13) *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?’

#### Condition 6: Wh-copying object

(14) *Wie denk je wie ik in de stad heb ontmoet?*

‘Who think you who I in the city have met’

‘Who do you think that I have met in the city?’

Furthermore, 30 filler items were added to the experimental items. The filler items consisted of six different types of sentences. For each sentence type, 5 items were constructed, resulting in a total of 30 filler items. These 6 different categories of filler items were:

1. Simple declaratives (grammatical).
2. Simple wh-extraction (grammatical).
3. Simple wh-extraction (ungrammatical; the wh-element does not agree with the s-selectional features of the main verb).
4. Subject relatives (double violation; marked and ungrammatical): the relative clause is introduced by a wh-element instead of a relative pronoun (marked) and the verb in the subordinate clause is preposed (ungrammatical)).
5. Object relatives (marked: the relative clause is introduced by a wh-element instead of a relative pronoun).
6. Object relatives (unmarked: the relative clause is introduced by a relative pronoun).

#### 3.3.2 Participants

A total of 40 participants performed the test online. All participants were native speakers of Dutch, without also speaking a dialect.<sup>13</sup> Participants were aged between 19 and 39 (mean age 26 years, standard deviation 5.4). 21 subjects were male, 19 female. All but three participants were right-handed. The occupations of the participants were: student (20 participants), nurse (3 participants), financial advisor (4 participants), teacher (3 participants), call-center supervisor, corporate real estate agent, technical advisor, entrepreneur, social services client manager, project engineer, lawyer, system manager, secretariat manager and psychologist. All participants reported to have no background in linguistics, no history of neurological diseases or traumas and all participants reported that they did not suffer from any kind of language impairment.

#### 3.3.3 Procedure

The experiment was performed remotely using the package WebExp (Keller et al., 1998). After subjects logged in, they were asked for their personal details (name, age, occupation, sex, handedness, language and e-mail address) as well as their informed consent. Subsequently, subjects read the instructions. Before the actual experiment started, subjects first went through a practice session. First, they had to judge the length of 5 lines using numerical magnitude estimations. After that, they had to judge 5 sentences regarding their grammatical acceptability using the same method. After the practice session, subjects were again shortly instructed on how to perform the actual experiment. Participants first saw the modulus sentence that was used to serve as a benchmark and were asked to give this sentence an arbitrary rating. The modulus consisted of a grammatical sentence and was visible throughout the experiment together with the rating the participant had given to it. Each participant was presented with 30 experimental items and 30 filler items, which were the same for all participants. The materials were randomly presented to the participants, such that the order of items was unique for each participant. All experimental items were presented to the

---

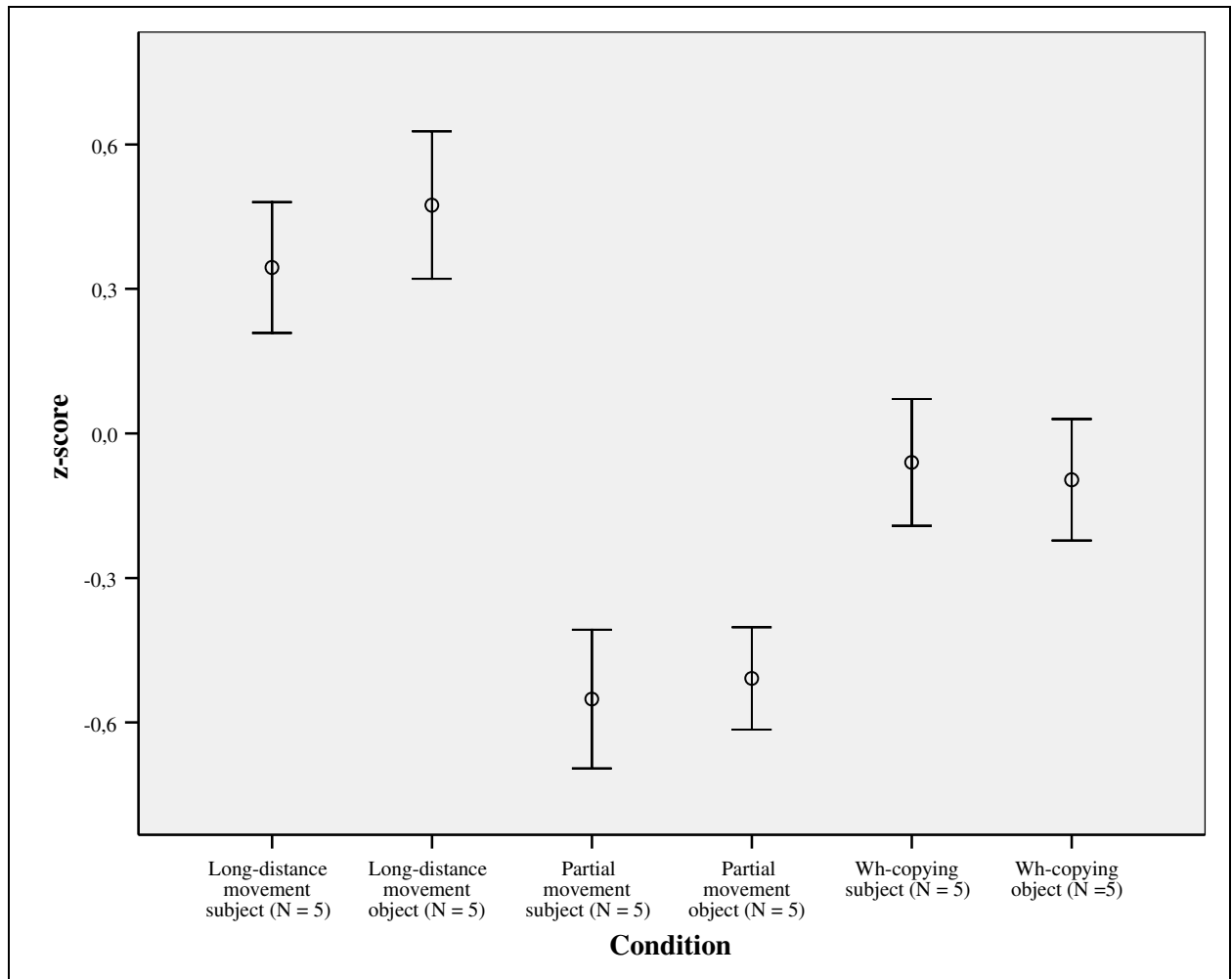
<sup>13</sup> When participants were recruited they were explicitly asked whether they spoke a dialect next to standard Dutch. All subjects claimed not to speak a dialect and since dialect mastery is rapidly decreasing (especially in younger generations), there is no reason to believe this is not true. However, it could be that participants nonetheless have receptive knowledge of dialects which may have influenced their judgments.

participants visually, one at the time. Participants were not able to go back to previous items and were required to fill in a response after each item was presented to them in order to continue. After the participants had rated all the sentences, they were thanked for their cooperation.

### 3.4 Results

The data were normalized by dividing each numeric judgment by the modulus value a subject had given to the reference sentence. The data per subject were subsequently transformed to z-scores. This effectively normalized the data, which was tested by running a Kolmogorov-Smirnov test on all conditions. Since none of the conditions scored significantly on this test, the assumption of normality was met. To determine whether there were significant differences between conditions, a GLM repeated measures procedure of SPSS was carried out. The data were analyzed both by subjects and by items. Mauchly's test of sphericity was used to determine whether the data met the assumption of sphericity. This was not the case, so the Greenhouse-Geisser correction was applied. Figure 1 shows the mean normalized grammaticality judgment score and 95% confidence interval for each condition.

*Figure 1: Mean normalized grammaticality scores and 95% confidence intervals per condition*



As can be seen from this graph, long-distance wh-movement was rated higher than partial wh-movement and wh-copying, while wh-copying was rated higher than partial wh-movement. The graph also shows that there are some slight differences between subject and object extractions. For long-distance wh-movement and partial wh-movement, subject extractions were rated lower than object extractions, while for wh-copying, subject extractions were rated higher than object extractions. However, the differences between subject and object extractions were not significant, since the main 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 [ $F(2, 78) = 34.846, p < 0.000$ ] as well as in the by-item analysis [ $F(2, 8) = 322.811, p < 0.000$ ].

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. These comparisons were first run by subjects and then by items. The means and standard errors per condition can be found in Table 1.

*Table 1: Means and standard errors per condition:*

<b>Condition</b>	<b>Mean</b>	<b>SE (subject analysis)</b>	<b>SE (item analysis)</b>
Long-distance wh-movement	.409	.079	.044
Partial wh-movement	-.530	.049	.016
Wh-copying	-.078	.079	.028

In the by-subject analysis, long-distance wh-movement was rated significantly higher than partial wh-movement [ $p \leq .000$ ] and also significantly higher than wh-copying [ $p \leq .000$ ]. Moreover, there was also a significant difference between partial wh-movement and wh-copying [ $p \leq .000$ ]. In the by-item analysis, all these differences also turned out to be significant [ $p \leq .000$ ].

Summarizing, the results show that long-distance wh-movement is judged more acceptable than partial wh-movement and wh-copying and that wh-copying is judged more acceptable than partial wh-movement.<sup>14</sup>

<sup>14</sup> While the individual data of the participants mirrored the overall pattern of ratings for almost half (19) of the participants, there were also a considerable amount of participants that showed ratings different from the overall pattern: 11 participants showed the order wh-copying – long-distance wh-movement – partial wh-movement, 7 participants showed the order long-distance wh-movement – partial wh-movement – wh-copying, 2 participants showed the order wh-copying – partial wh-movement – long-distance wh-movement and one participant the order partial wh-movement – wh-copying – long-distance 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.

## 4. Discussion

In this section, the results from the magnitude estimation experiment and their implications for the analysis of partial wh-movement and wh-copying are discussed. Section 4.1 first discusses what it is that magnitude estimations reflect exactly and what we can infer from the pattern of grammaticality judgment data found in this study. Subsequently, in section 4.2, I discuss to which extent the results are in accordance with the various direct and indirect dependency approaches. I argue that the results best fit the NP-shell analysis proposed by Stepanov & Stateva. This analysis, and specifically the predictions it makes regarding the crosslinguistic distribution of partial wh-movement is discussed in more detail in section 4.3. In that section, I further propose that the degree of acceptability of partial wh-movement in a language is related to the degree in which this construction is grammaticalized. Finally, section 4.4 addresses the wh-copy construction in more detail.

### 4.1 Magnitude estimation and constraint violations

The results showed significant differences between the ratings of the three types of long-distance wh-dependencies. If linguistic magnitude estimations reflect grammaticality, it can be inferred that these constructions differ in their degree of grammaticality.

However, as pointed out by Bard et al. (1996), linguistic magnitude estimations have no obvious physical continuum to compare judgments to, contrary to magnitude estimations of physical objects. Hence, grammatical theory has to provide the scale to which we compare linguistic magnitude estimations. Having said that, it must be noted that linguistic theory is not something that can easily be quantified. We might be able to predict that one error should be worse than another, and maybe even just how much worse (for example ‘twice as bad’). But what does it tell us that one construction is twice as bad as another? We might say that partial wh-movement is twice as ungrammatical as long-distance wh-movement, but such a statement is not very informative, since we do not have any concrete scale that can serve as a benchmark.

One way of going about it is by quantifying grammaticality in terms of constraint violations, where constraint violations correspond with magnitude estimations (cf. Keller, 2000). For this to go through, the constructions under consideration need to consist of (syntactically) minimal pairs. The wh-constructions under consideration did indeed consist of such pairs: they only differed with respect to the type of movement. However, this does not mean that differences in magnitude estimations solely reflect syntactic differences. First of all, the differences in ratings could have been caused by frequency factors. That is; they could simply reflect the fact that partial wh-movement and wh-copying are less frequent than long-distance wh-movement. But this would imply that these constructions are not generated as often as long-distance wh-movement. The subsequent question is why this is the case, and the most straightforward answer is that this is due to some syntactic factor disfavoring these types of wh-constructions, since it is hard to think of any other factor, for example semantic or pragmatic that would cause these constructions to be less frequent. So while frequency factors may have had an effect, they point to a more fundamental issue, namely that partial wh-movement and wh-copying are less grammatical. Second, the acceptability judgments may reflect parsing effects causing partial wh-movement and wh-copying to be judged less grammatical.<sup>15</sup> However, both under direct dependency and indirect dependency approaches, there is no reason to assume that partial wh-movement and wh-copy constructions are more difficult to parse than long-distance wh-movement constructions. If there are indeed parsing effects, this would in fact suggest these constructions are not possible in Dutch. In this case it could be possible that WHAT or the wh-copy is misanalyzed as an extra argument, leading to

---

<sup>15</sup> This was pointed out to me by an anonymous reviewer.



reanalysis or a general failure to process this wh-phrase. Therefore, if parsing effects indeed had an influence on the ratings subjects gave, they again point to a more general issue, namely that wh-copying and partial wh-movement are not possible in Dutch.

Summarizing, notwithstanding the fact that factors like frequency and parsing effects may have influenced the acceptability ratings, there is good reason to assume that the differences in ratings found in this study reflect syntactic differences, which may be quantified in terms of constraint violations.

#### **4.2 Direct versus indirect dependency approach.**

The fact that partial wh-movement and wh-copy constructions are judged less acceptable than long-distance wh-movement constructions refutes the null-hypothesis, which states that these constructions should be just as acceptable as long-distance wh-movement. The results therefore seem to argue against direct dependency type approaches that essentially view both partial wh-movement and wh-copying as structural alternatives to long-distance wh-movement.

However, it must be noted that the data gathered in the magnitude estimation experiment reflects relative, and not absolute acceptability. As such, it cannot be concluded from the results that partial wh-movement is entirely impossible in Dutch; only that it is less acceptable than long-distance wh-movement and wh-copying. Furthermore, as can be learned from Strik (2009), partial wh-movement is in fact considered grammatical by a considerable number of speakers of Dutch. Therefore, we do not have conclusive evidence that partial wh-movement is ungrammatical in Dutch, and the data do not form negative evidence against the direct dependency approach.

However, if a direct dependency approach is maintained, a number of issues are left unexplained. In the first place, it remains rather mysterious why partial wh-movement receives such low acceptability ratings relatively to wh-copying and long-distance wh-movement. Note first of all that it does not seem to be the case that spelling out a wh-phrase in the intermediate CP causes the low unacceptability of partial wh-movement. If this were true, wh-copying should be judged equally unacceptable. It is also implausible that WHAT itself is the offending element. This would imply that for some reason, WHAT in Dutch is either not suitable as a scope marker/expletive or that partial copying of wh-phrases is preferred with the partial copy being identical to the subordinate copy. But as argued in the introduction, there is no reason to believe that WHAT cannot be used as a wh-expletive or scope marker in Dutch. Such an explanation would merely describe the situation, not explain it. The data also argues against an analysis in which both WHAT and wh-copies are partial spell-outs of the lower wh-phrase, since such an analysis predicts both alternatives may be used and should be equally favorable. In sum, the direct dependency approach gives no clear arguments from which the relatively low acceptability of partial wh-movement in a long-distance movement language like Dutch would follow.

It thus appears that the pattern of acceptability found in the current study argues in favor of an indirect dependency approach. Since the indirect dependency approach does not view partial wh-movement as a surface alternative to long-distance wh-movement, it would follow more naturally that partial wh-movement does not generally surface in a long-distance wh-movement language like Dutch. Assuming, in line with Dayal, that languages may parametrically differ with regard to the subordination possibilities in partial wh-movement constructions, it could simply be the case that Dutch does not allow partial wh-movement constructions to be formed through true subordination. Instead, it could be that Dutch only allows partial wh-movement in the form of sequential questions, as in English.

However, Dayal's analysis does not capture the fact that long-distance wh-movement and partial wh-movement are usually in complementary distribution. It also leaves

unexplained why German, and not Dutch, allows partial wh-movement in full subordinated form. In the next section, I therefore propose that the NP-shell analysis best explains the pattern of acceptability for Dutch, since it predicts that partial wh-movement and long-distance wh-movement are in complementary distribution.

#### 4.3. NP-shell analysis and the origin of WHAT

In section 2.5, I pointed out that Stepanov & Stateva's (2006) analysis predicts a strong complementary distribution of partial wh-movement and long-distance wh-movement. In their approach, whether or not a language has partial wh-movement boils down to a lexical matter: it depends on whether a language has an overt or a silent version of WHAT in the lexicon.

Under this analysis, Dutch presumably has silent WHAT in the lexicon, since it usually employs long-distance wh-movement. This could explain why partial wh-movement received such low ratings in the current experiment, assuming partial wh-movement (i.e. overt WHAT) is simply not available in Dutch. However, there are two main problems with such a hypothesis. First of all, it appears that partial wh-movement and long-distance wh-movement constructions are not always in complementary distribution. For example, in German and Hungarian, both types of constructions are attested. This also appears to be the case in Dutch, since partial wh-movement is in fact accepted by some speakers (cf. Strik, 2009).

In order to account for such 'mixed' languages, Stepanov & Stateva assume that these have both silent and overt WHAT in the lexicon. This sounds rather stipulative. In fact, explaining the availability of partial wh-movement versus long-distance wh-movement in a language as dependent upon whether WHAT is overt or silent seems just about as arbitrary as assuming that it is contingent upon whether a language has a wh-expletive or not.

A second problem, related to this, is the fact partial wh-movement is attested in speakers acquiring a language that does not employ partial wh-movement. This has been reported in relation to child language acquisition (cf. Oiry, 2002; Oiry & Demirdache, 2006; Strik & Jacobowicz, 2008; Strik 2009 for French; Gutierrez, 2004 for Basque and Gutierrez, 2006 for Spanish) but also in several second language acquisition studies (cf. Okawara, 2000; Schulz, 2006; Wakabayashi & Okawara, 2003; Yamane, 2003 for Japanese speakers of English; Gutierrez, 2005 for Spanish and Basque bilinguals learning English and Slavkov, 2007 for French speakers of English). In all these cases, partial wh-movement was unavailable in both the first and the second language. Nonetheless, the constructions did surface in the L2 of the speakers under consideration. Now if, as Stepanov & Stateva hypothesize, the availability of partial wh-movement is due to the lexicon containing the overt version of WHAT, it is rather surprising that partial wh-movement should surface in these populations, since their languages do not have overt WHAT in the lexicon.

This brings us to the question of what the nature and the origin of WHAT is. I would like to propose that WHAT which is used in partial wh-movement constructions is simply derived from the most unmarked wh-phrase in a language (usually 'what').<sup>16</sup> Furthermore, I would like to argue that WHAT may enter the lexicon through a grammaticalization process. A proposal along similar lines has been put forward in Reis (2000). She notices that German partial wh-movement constructions share many properties with so-called *was*-parentheticals, and proposes that the partial wh-movement construction may have derived from these parenthetical questions. She points out that one of the steps in such a grammaticalization process may have been the reanalysis of *was* 'what' as a scope marker (see also Beck & Berman 2000: 43). The idea that WHAT is derived from a normal wh-phrase like 'what' would actually shed some light on the problems noted earlier. However, it must be noted that from a diachronic viewpoint, the evidence for a grammaticalization process in German is only

---

<sup>16</sup> It is also possible that another wh-phrase serves as the base for WHAT, e.g. Russian and Polish use the equivalent of 'how' in partial wh-movement constructions.

very meager. While the diachronic development of long-distance movement has been discussed to some extent, little has been said about the development of partial wh-movement. It has been noted by various authors that long-distance movement in German has declined from the 19<sup>th</sup> century onward (cf. Andersson & Kvam, 1984; Behaghel, 1928; Ebert, 1978; Lühr, 1988). In contemporary German, long-distance wh-movement is therefore out for many speakers. The construction appears to be confined to southern dialects and is unusual in the standard language (cf. Fanselow et al., 2005). Partial wh-movement, on the other hand, can be frequently attested. In northern varieties, but also in the standard language, it is the preferred way of forming a long-distance wh-dependency (cf. Müller, 1997 and references therein). However, there is no historical evidence as to whether the decline in long-distance wh-movement correlates with a rise in the use of partial wh-movement, although the preference of partial wh-movement over long-distance wh-movement in contemporary German is suggestive. Hence, it cannot be ascertained that the partial wh-movement construction in German has actually undergone a grammaticalization process. In the absence of any such diachronic evidence, the hypothesis that partial wh-movement may come about through a grammaticalization process should therefore be evaluated based on how good it explains the synchronic properties of this construction, as Reis points out.

As it turns out, assuming that WHAT may derive from a normal wh-phrase indeed may explain the sometimes non-complementary distribution of partial wh-movement and long-distance wh-movement. Recall that under the NP-shell analysis, it is assumed that embedded CPs in long-distance wh-dependencies are universally headed by an NP, and that this position can either be filled by overt or silent WHAT. Now assume that next to overt and silent WHAT, it is also possible to merge a normal wh-phrase like ‘what’ into this position. The insertion of such a lexical item would already be structurally licensed in long-distance wh-movement constructions under the NP-shell analysis. However, in order for the resulting output to be grammatical, this wh-phrase would have to be grammaticalized as WHAT, assuming WHAT indeed derives from a wh-phrase independently available in the lexicon.<sup>17</sup>

The advantages of this explanation are the following. First of all, it gives us a handle on cases in which partial wh-movement co-occurs with long-distance wh-movement. That is to say, if partial wh-movement may come about through a grammaticalization process, languages may differ as to which stage of the grammaticalization process they are in. At one end of the continuum are languages like Hindi and Russian, where partial wh-movement is fully grammaticalized and long-distance movement is out. At the other end are languages like English and Scandinavian languages, where partial wh-movement is out, and long-distance wh-movement fully acceptable. In between are languages like Dutch, Hungarian, Frisian and German, where partial wh-movement is acceptable to different extents. With respect to the Dutch data discussed here, the analysis is able to give a natural explanation for the relatively low acceptability of partial wh-movement, while at the same time accounting for the fact that this construction is not completely impossible. Dutch has all the ingredients necessary to form a partial wh-movement construction, since it has an unmarked wh-phrase *wat* ‘what’, which may merge in the NP-position. The relatively low acceptability of partial wh-movement would then follow under the assumption that *wat* has not (fully) grammaticalized into WHAT.

The grammaticalization analysis also makes it possible to account for the fact that partial wh-movement can be frequently attested in language acquisition data. Under the NP-shell analysis, what language learners are faced with is to decide which element is merged into the NP-position (i.e. silent or overt WHAT or ‘what’) of a long-distance wh-dependency. If languages have a choice as to which element they merge in the NP-position, language

---

<sup>17</sup> This does in fact seem to be the most natural explanation regarding the origin of WHAT, since WHAT is always homophonous with wh-phrases independently available in the language.

learners may choose to (incorrectly) form a long-distance wh-dependency by means of ‘what’, an item which is readily available in their lexicon. However, in the absence of positive evidence from the target language that the resulting output is part of the grammar of that language (i.e. that the language has overt WHAT), they may then proceed to form long-distance wh-dependencies by means of silent WHAT, for which they do have positive evidence.

In sum, by adjusting Stepanov & Stateva’s analysis slightly by assuming that overt WHAT is actually derived from a normal wh-phrase like ‘what’, it becomes possible to explain the crosslinguistic variation in the distribution of partial wh-movement. Whereas in general, partial wh-movement and long-distance wh-movement constructions are in complementary distribution, there are certain languages that show a mixed behavior. This latter fact can be explained by assuming that WHAT is derived from a normal wh-phrase like ‘what’, and must undergo a grammaticalization process in order to be fully grammatical in the context of a long-distance wh-dependency.

#### **4.4 Wh-copying and the spell-out of intermediate wh-phrases.**

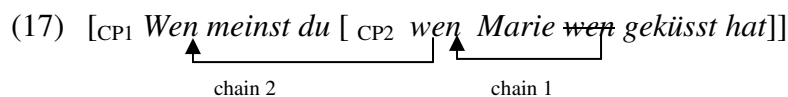
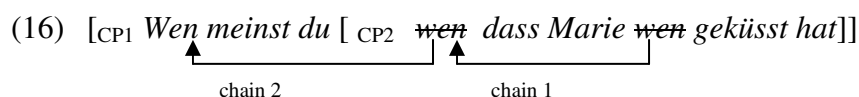
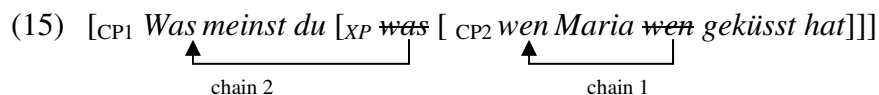
The fact that wh-copying was judged less acceptable than long-distance wh-movement, but more acceptable than partial wh-movement also follows quite naturally from Stepanov & Stateva’s (2006) analysis. As I pointed out in section 2.4, wh-copying should be analyzed as a structural variant of long-distance wh-movement, since it is contingent upon this type of movement. Hence, wh-copying is predicted to be possible in languages that allow long-distance wh-movement. Since Dutch is a long-distance wh-movement language, it follows that wh-copying (contrary to partial wh-movement) should be possible in this language. Furthermore, note that under the NP-shell analysis, wh-copying should not surface in languages that solely have partial wh-movement, since partial wh-movement blocks long-distance wh-movement and should hence also block wh-copying. The crosslinguistic distribution of the wh-dependencies under consideration in fact speaks in favor of this: wh-copying is only attested in languages that also employ long-distance wh-movement. Furthermore, languages that only employ partial wh-movement (e.g. Russian, Hindi), do not have wh-copying, and there appears to be no language that solely has wh-copying, and no long-distance wh-movement. This suggests wh-copying is a secondary strategy to form a long-distance wh-movement construction. The data discussed here in fact speak in favor of this, since wh-copying was rated lower than long-distance wh-movement in the grammaticality judgment task.

Note that under the NP-shell analysis, the fact that wh-phrases may show up in intermediate CPs can easily be accounted for, since it is assumed that these CPs attract wh-phrase because they are involved in Q-feature checking. It has always been rather puzzling that the matrix verbs in partial wh-movement and wh-copy constructions combine with an interrogative complement, since these verbs normally do not allow that. But as Stepanov & Stateva point out, in their analysis it is not simply the matrix verb that combines with the wh-phrase, but the matrix verb plus WHAT. Only in these contexts may bridge verbs combine with interrogative complements.

One interesting question that remains to be answered is why intermediate wh-phrases are not deleted in the phonological component. It is true that the NP-shell analysis is able to account for the fact that wh-phrases may move to intermediate SpecCPs, but this is also something standard accounts of long-distance movement are able to account for (e.g. by assuming intermediate C’s carry an EPP-feature). However, it is also usually assumed that only one copy is retained at PF, usually the highest copy. This should in principle also still hold under the NP-shell analysis.

A number of proposals have been put forward in the literature to account for multiple copy spell-out (cf. Fanselow & Mahajan, 2000; Felser, 2004; Nunes 1995, 1999, 2004; Schippers, in press). In general, it is assumed that the spell-out of intermediate copies is something which is regulated at PF. For example, Nunes (1999, 2004) and Fanselow & Mahajan (2000) assume that intermediate copies may cliticize onto C, resulting in spelling out a wh-phrase at the complementizer position. However, one of the main problems with this assumption is that it prohibits copying of more complex (i.e. phrasal) wh-phrases, since these are not able to cliticize (cf. van Craenenbroeck, 2009). It is true that copying of wh-phrases of the type Wh + NP (e.g. ‘which man’) is something that does not seem to be allowed in any language. However, it is not true that complex wh-phrases in general cannot be copied. For one, copying of prepositional wh-phrases (e.g. ‘of who’) does seem to be allowed (cf. Du Plessis, 1977 for Afrikaans and McDaniel, 1986 for German). In Schippers (in press), I therefore propose that what licenses the spell-out of intermediate copies is the fact that intermediate SpecCPs in long-distance wh-movement constructions may be analyzed as the head of a chain under the NP-shell analysis. In specific, I argue that positions which are unambiguously the head of a chain must always be spelled out, while positions that are both the head of one chain and the tail of the next (i.e. intermediate SpecCPs in long-distance wh-movement constructions) may be optionally spelled out.

As mentioned earlier, under the NP-shell analysis, movement to the intermediate as well as to the matrix SpecCP is triggered by an uninterpretable Q-feature on C, which has the EPP property. In that sense, intermediate CPs are indistinguishable from the final landing site of the wh-phrase (i.e. the highest interrogative CP). If intermediate CPs are indistinguishable from the final CP, it is then only a small step to assume that intermediate SpecCPs are also the head of a chain. Since heads of chains are usually spelled out, it follows that wh-phrases in intermediate SpecCPs may get spelled out, resulting in the wh-copy construction. To illustrate, example (15), (16) and (17) show the derivation of partial wh-movement, long-distance wh-movement and wh-copying, respectively.



In the partial wh-movement construction in (15), the movement chains are clearly separate from each other. Hence, both the wh-phrase in the intermediate as well as in the highest SpecCP are unambiguously the head of a chain and as such, are both spelled out. In case of long-distance wh-movement as in (16), however, the movement chains are connected: the wh-phrase in the intermediate SpecCP is both the head of chain 1 and the tail of chain 2. In Schippers (in press), I argue that this causes a spell-out conflict, because while tails must be

deleted, heads must be retained. Therefore, intermediate copies in long-distance wh-movement constructions may be spelled out, resulting in the wh-copy construction in (17).<sup>18</sup>

As argued in Schippers (in press), this analysis correctly predicts which copies get spelled out in the long-distance wh-dependencies under consideration. First of all, it follows from the analysis that in partial wh-movement constructions, the wh-phrase in the intermediate SpecCP must be obligatorily spelled out. This is due to the fact that under the NP-shell analysis (and under the indirect dependency approach in general), intermediate SpecCPs are the final landing site of the moved wh-phrase, and hence unambiguously the head of a chain. Second, the analysis also entails that copies in the highest interrogative SpecCP must always be spelled out as well, since this position is also always unambiguously the head of a chain. Furthermore, copies in other intermediate positions (e.g. Spec of vP) or in base position may never be spelled out, because these positions are never the head of a chain. Finally, optional copy spell-out in long-distance wh-movement constructions is only possible for wh-phrases in intermediate SpecCPs. These positions are both the head of one chain, and the tail of the next, and therefore, a wh-phrase may optionally be spelled out in this position.

The idea that there is a certain optionality with respect to spelling out copies in intermediate SpecCPs may explain the secondary nature of wh-copying. As noted before, wh-copying only appears to show up in languages that also have long-distance wh-movement, and not vice versa, and is also often attested in language acquisition data. It is not surprising that the dual nature of intermediate SpecCPs in long-distance wh-dependencies would cause a problem for language learners in specific. When faced with the option between retaining the head of a chain or deleting a tail, it could be that they opt for the safest way out, which is not to delete anything at all. However, while it is possible to spell-out intermediate copies, it is not obligatory, since the intermediate copy does not contribute to the interpretation. This may explain why wh-copying is usually a secondary option and also why it was rated significantly lower as long-distance wh-movement in the current study. It is further possible that the preference for retaining the intermediate copy is partly determined by general economy considerations. However, this is an issue which I would like to keep open for further study.

Summing up, the NP-shell analysis in combination with the hypothesis that intermediate SpecCPs are heads of chains makes it possible to account for the fact that in case of partial wh-movement wh-phrases must, and in case of wh-copying may be spelled out in intermediate SpecCPs. Furthermore, the secondary nature of wh-copying follows if copies in intermediate SpecCPs impose conflicting requirements at PF, as argued in Schippers (in press).

## Conclusion

In this article, grammaticality judgment data regarding long-distance wh-movement, partial wh-movement and wh-copying in Dutch were presented. Long-distance wh-movement was judged more grammatical than partial wh-movement and wh-copying, while wh-copying was judged more grammatical than partial wh-movement. It was argued that this pattern of grammaticality best fits the NP-shell analysis as proposed in Stepanov & Stateva (2006). This analysis predicts a complementary distribution of partial wh-movement versus long-distance wh-movement and wh-copying. Since Dutch is a long-distance wh-movement language, it follows that partial wh-movement is rated lower than both long-distance wh-movement and wh-copying. Following a suggestion by Reis (2000), it was further argued that partial wh-movement may come about through a grammaticalization process, which would explain why partial wh-movement and long-distance wh-movement are not always in complementary

---

<sup>18</sup> Interestingly, a similar proposal is presented in Rett (2006). She also claims that wh-copying is optional, and that whenever an intermediate copy is spelled out, it is semantically equivalent to the head of a chain, while deleted copies are semantically equivalent to the tail of a chain.

distribution. Finally, it was argued that long-distance *wh*-movement constructions impose conflicting requirements regarding the spell-out of intermediate copies at PF. These conflicting requirements create a certain degree of optionality with respect to the spell-out of copies in intermediate SpecCPs, which may explain the secondary nature of *wh*-copying.

### Acknowledgements

This article is based on my MPhil thesis which I worked on in 2007 at the Rijksuniversiteit Groningen. I would like to thank Jan-Wouter Zwart and John Nerbonne for supervising me at the time and for reviewing my work. I would also like to thank Peter Jensen en Eward Schippers for helping me make the experiment available on the internet and Jack Hoeksema and two anonymous reviewers for helpful comments.

### References

- Andersson, S. & Kvam, S., 1984. Satzverschränkung im heutigen Deutsch. Narr, Tübingen.
- Barbiers, S., 2006. Er zijn grenzen aan wat je kunt zeggen. Inaugural talk, Universiteit van Utrecht, Utrecht.  
[http://www.meertens.knaw.nl/meertensnet/file/edwinb/20060608/oratie\\_barbiers.pdf](http://www.meertens.knaw.nl/meertensnet/file/edwinb/20060608/oratie_barbiers.pdf)
- Barbiers, S., Bennis, H., De Vogelaer, G., Devos, M. & Van der Ham, M., 2004. Syntactic Atlas of the Dutch Dialects Volume I. Amsterdam University Press, Amsterdam.
- Barbiers, S., Koenenman, O. & Lekakou M., 2008. Syntactic Doubling and the Structure of Chains. In: Chang, C. & Haynie, H. (Eds.), Proceedings of the 26th West Coast Conference on Formal Linguistics. Cascadilla Proceedings Project, Somerville, MA, pp. 77 - 86.
- Bard, E., Robertson, D. & Sorace, A., 1996. Magnitude Estimation of Linguistic Acceptability. *Language* 72 (1), 32-68.
- Bayer, J., 1996. Directionality and Logical Form. Kluwer, Dordrecht.
- Beck, S. & Berman, S., 2000. Wh-Scope-Marking: Direct vs. Indirect Dependency. In: Lutz, U., Müller, G. & Von Stechow, A. (Eds.), Wh-Scope Marking. John Benjamins, Amsterdam, pp. 17-44.
- Behaghel, O., 1928. Deutsche Syntax. Eine geschichtliche Darstellung. Vol III: Die Satzgebilde. Winter, Heidelberg.
- Bennis, H., 1986. Gaps and dummies. Amsterdam University Press, Amsterdam.
- Brandner, E., 2000. Scope Marking and Clausal Typing. In: Lutz, U., Müller, G. & Von Stechow, A. (Eds.), Wh-Scope Marking. John Benjamins, Amsterdam, pp. 45 – 76.
- Bruening, B., 2004. Two types of *wh*-scope marking in Passamaquoddy. *Natural Language and Linguistic Theory* 22, 229-305.
- Bruening, B., 2006. Differences Between the Wh-Scope-Marking and Wh-Copy Constructions in Passamaquoddy. *Linguistic Inquiry* 37 (1), 25 – 49.
- Cheng, L., 2000. Moving Just the Feature. In: Lutz, U., Müller, G. & Von Stechow, A. (Eds.), Wh-Scope Marking. John Benjamins, Amsterdam, pp. 77 – 100.
- Chomsky, N., 1981. Lectures on Government and Binding. Foris, Dordrecht.
- Chomsky, N., 1986. Knowledge of language: its nature, origin and use. Praeger, New York.
- Cole, P. & Hermon, G., 2000. Partial Wh-Movement: Evidence from Malay. In: Lutz, U., Müller, G. & Von Stechow, A. (Eds.), Wh-Scope Marking. John Benjamins, Amsterdam, pp. 101 – 130.
- Cowart W., 1997. Experimental Syntax: Applying Objective Methods to Sentence Judgments. Thousand Oaks, California, Sage.
- Dayal, V., 1994. Scope Marking as Indirect Wh-Dependency. *Natural Language Semantics* 2, 137-170.



- Dayal, V., 2000. Scope Marking: Cross-Linguistic Variation in Indirect Dependency. In: Lutz, U., Müller, G. & Von Stechow, A. (Eds.), *Wh-Scope Marking*. John Benjamins, Amsterdam, pp. 157 – 194.
- Den Dikken, M., et al., 2007. Data and Grammar: Means and Individuals. *Theoretical Linguistics* 33, 335 – 353.
- Den Dikken, M., 2007. Questionnaire study on Dutch that-trace effects: stimuli and results. Ms. City University of New York.  
[http://web.gc.cuny.edu/dept/lingu/dendikken/docs/dutch\\_that\\_trace\\_results.pdf](http://web.gc.cuny.edu/dept/lingu/dendikken/docs/dutch_that_trace_results.pdf).
- De Villiers, J., Roeper, T. & Vainikka, A., 1990. The acquisition of long-distance rules. In: Frazier, L. & De Villiers, J. (Eds.), *Language Processing and Language Acquisition*. Kluwer, Dordrecht, pp. 257 – 297.
- Du Plessis, H., 1977. Wh-movement in Afrikaans. *Linguistic Inquiry* 8, 723-726.
- Ebert, R., 1978. *Historische Syntax des Deutschen*. Metzler, Stuttgart.
- Fanselow, G., 2006. Partial Movement. In: Everaert, M. & Van Riemsdijk, H. (Eds.), *The Blackwell Companion To Syntax, Volume III*. Blackwell Publishing, Malden, CA, pp. 437 - 492.
- Fanselow, G. & A. Mahajan, 2000. Towards a Minimalist Theory of Wh-Expletives, Wh-Copying, and Successive Cyclicity. In: Lutz, U., Müller, G. & Von Stechow, A. (Eds.), *Wh-Scope Marking*. John Benjamins, Amsterdam, pp. 195 – 230.
- Fanselow, G., Kliegl, R., Schlesewsky, M. (2005). Syntactic variation in German wh-questions. Empirical investigations of weak crossover violations and long wh-movement. *Linguistic Variation Yearbook* 5, 37-63.
- Felser, C., 2001. Wh-expletives and secondary predication: German partial wh-movement reconsidered. *Journal of Germanic Linguistics* 13, pp. 5-38.
- Felser, C., 2004. Wh-copying, phases, and successive cyclicity. *Lingua* 114, 543-574.
- Gutierrez, M., 2004. The acquisition of L1 Basque Long Distance Wh-questions: a longitudinal investigation. Paper presented at BIDE04, Bilbao.
- Gutierrez, J., 2005. The acquisition of English Long Distance wh-questions by Basque/Spanish bilingual participants in a school context. Diss., University of the Basque country, Bilbao.
- Gutierrez, J., 2006. Acquiring Long Distance Questions in L1 Spanish: A Longitudinal Investigation. In Torrens, V. & Escobar, L. (Eds.), *The acquisition of syntax in romance languages*, John Benjamins, Amsterdam, pp. 251-287.
- Hiemstra, I., 1986. Some aspects of Wh-Questions in Frisian. *Nowele* 8, 97-110.
- Herburger, H., 1994. A Semantic Difference between Full and Partial Wh-movement in German. Paper presented at the LSA Annual Meeting, Los Angeles.
- Höhle, T., 2000. The W-... W- Construction: Appositive or Scope Indicating. In: Lutz, U., Müller, G. & Von Stechow, A. (Eds.), *Wh-Scope Marking*. John Benjamins, Amsterdam, pp. 249 – 270.
- Horvath, J., 2000. On the Syntax of “Wh-Scope Marker” Constructions. . In: Lutz, U., Müller, G. & Von Stechow, A. (Eds.), *Wh-Scope Marking*. John Benjamins, Amsterdam, pp. 271 – 316.
- Jacobowicz, C. & Strik, N., 2008. Scope-marking strategies in the acquisition of long distance wh-questions in French and Dutch. *Language and Speech* 51, 101 – 133.
- Klein, E., 1966. *A Comprehensive Etymological Dictionary of the English Language*. Elsevier, Amsterdam/London/New York.
- Keller, F., 2000. *Gradience in Grammar: Experimental and Computational Aspects of Degrees of Grammaticality*. PhD thesis, University of Edinburgh, Edinburgh.



- Keller, F., et al., 1998. WebExp: A Java Toolbox for Web-Based Psychological Experiments. Technical Report HCRC/TR-99. Human Communication Research Centre, University of Edinburgh, Edinburgh.
- Kiparsky, P & Kiparsky, C., 1970. Fact. In: Bierwisch, M. & Reidolph, K. (Eds.), *Progress in Linguistics*. Mouton, The Hague, pp. 143 – 173.
- Lühr, R., 1988. Zur Satzverschränkung im heutigen Deutsch. *GAGL* 28, 74-87.
- Mahajan, A., 2000. Towards a Unified Treatment of Wh-Expletives in Hindi and German. In: Lutz, U., Müller, G. & Von Stechow, A. (Eds.), *Wh-Scope Marking*. John Benjamins, Amsterdam, pp. 317 - 332.
- McDaniel, D., 1986. Conditions on wh-chains. PhD dissertation. New York, City University of New York.
- McDaniel, D., 1989. Partial and Multiple Wh-Movement. *Natural Language and Linguistic Theory* 7, 565-604.
- McDaniel, D., Chiu, B. & Maxfield, T., 1995. Parameters for wh-movement types: evidence from child English. *Natural Language and Linguistic Theory* 13, 709–753.
- Müller, G., 1997. Partial wh-movement and Optimality Theory. *Linguistic Review* 14 (33), 249-306.
- Myers, S., 1984. Zero-derivation and inflection. In: Speas, M. & Sproat, R. (Eds.), *MIT Working Papers in Linguistics vol. 7: Papers from the January 1984 MIT Workshop in Morphology*. MIT Press, Cambridge, MA, pp. 53 - 69.
- Nunes, J., 1995. The copy theory of movement and linearization of chains in the Minimalist Program. Diss., University of Maryland, College Park.
- Nunes, J., 1999. Linearization of chains and phonetic realization of chain links. In: Epstein, S.D. & Hornstein, N. (Eds.), *Working Minimalism*, MIT Press, Cambridge, MA, pp. 217-249.
- Nunes, J., 2004. *Linearization of Chains and Sideward Movement*. MIT Press, Cambridge, MA.
- Oiry, M., 2002. Acquisition des questions à longue distance. Ms., Université de Nantes, Nantes.
- Oiry, M. & Demirdache, H., 2006. Evidence from L1 acquisition for the syntax of wh-scope marking in French. In: Torrens, V. & Escobar, L. (Eds.), *The Acquisition of Syntax in Romance Languages*. John Benjamins, Amsterdam.
- Okawara, I., 2000. On the acquisition of long-distance wh-questions by Japanese learners of English. BA thesis, Gunma Prefectural Women's University, Tamamura.
- Pafel, J., 2000. Absolute and relative: On scope in German wh-sentences including w...w-constructions. In: Lutz, U., Müller, G. & Von Stechow, A. (Eds.), *Wh-Scope Marking*. John Benjamins, Amsterdam, pp. 333 - 358.
- Pesetsky, D., 1995. *Zero Syntax*. MIT Press, Cambridge, MA.
- Reis, M., 2000. On the Parenthetical Features of German Was...W-Constructions and How to Account for Them. In: Lutz, U., Müller, G. & Von Stechow, A. (Eds.), *Wh-Scope Marking*. John Benjamins, Amsterdam, pp. 359 – 408.
- Rett, J., 2006. Pronominal vs. determiner *wh*-words: evidence from the copy construction. In: Bonami, O. & Cabredo Hofherr, P. (Eds.), *Empirical Issues in Syntax and Semantics* 6, pp. 355 – 374.
- Ross, John R., 1967. Constraints on variables in syntax. Diss., Massachusetts Institute of Technology, Cambridge, MA.
- Sabel, J., 1998. Principles and Parameters of Wh-Movement. Diss., Universität Frankfurt/Main, Frankfurt.

- Sabel, J., 2000. Partial Wh-Movement and the Typology of Wh-Questions. In: Lutz, U., Müller, G. & Von Stechow, A. (Eds.), Wh-Scope Marking. John Benjamins, Amsterdam, pp. 409 – 446.
- Salzmann, M., 2006. Resumptive Prolepsis. A Study in Indirect A'-dependencies. Diss., University of Utrecht, Utrecht.
- Schippers, A., 2006. Variation in the CP domain: Long-distance dependencies in the Dutch dialects. Unpublished manuscript, Rijksuniversiteit Groningen, Groningen.
- Schippers, A. Some people are repeaters. Medial copy spell-out in long-distance wh-dependencies. To appear in Proceedings of CONSOLE XVII.
- Schulz, B., 2006. Wh-scope marking in English interlanguage grammars: Transfer and processing effects on the second language acquisition of complex wh- questions. Diss., University of Hawaii, Manoa.
- Slavkov, N. (2008). Medial Wh- Words and Inversion Phenomena in Complex Questions: The Case of Canadian French Speakers Acquiring L2 English. Slabakova, R., et al. (eds.), Proceedings of the 9th Generative Approaches to Second Language Acquisition Conference (GASLA 2007). Somerville, MA, Cascadia Proceedings Project, pp. 218-232.
- Stepanov, A. & Stateva, P., 2006. Successive cyclicity as residual wh-scope marking. *Lingua* 116, 2107-2153.
- Sternefeld, W., 2002. Wh-expletives and partial *wh* -movement: Two non-existing concepts? In: Abraham, W. & Zwart, J.W. (Eds.), Issues in Formal German(ic) Typology. John Benjamins, Amsterdam, pp. 285 – 305.
- Stevens, S. S., 1956. The direct estimation of sensory magnitudes – loudness. *American Journal of Psychology* 19, 1-25.
- Strik, N., 2009. Syntaxe et Acquisition des Phrases Interrogatives en Français et en Néerlandais : une Etude Contrastive. Diss., Université Paris 8 – Saint Denis, Paris.
- Tappe, H. Th., 1980. Oral remarks on was .... w-P. RDGG Meeting, Göttingen, Januari 1980.
- Thornton, R., 1990. Adventures in long-distance moving: the acquisition of complex wh-questions. Diss., University of Connecticut, Storrs.
- Van Kampen, J., 1997. First Steps in Wh-Movement. Diss., Ponsen and Looijen, Wageningen.
- Van Riemsdijk, H., 1983. Correspondence Effects and the Empty Category Principle. In: Otsu, Y., et al. (Eds.), Studies in Generative Grammar and Language Acquisition: A Report on Recent Trends in Linguistics. International Christian University, Tokyo, pp. 5 -16.
- Von Stechow, A. & Sternefeld, A., 1988. Bausteine syntaktischen Wissens. Westdeutscher Verlag, Opladen.
- Wakabayashi, S. & Okawara, I., 2003. Japanese learner's errors on long distance wh-questions. In Wakabayashi, S. (ed.), Generative Approaches to the Acquisition of English by Native Speakers of Japanese. Mouton de Gruyter, New York, pp. 215-245.
- Willemyns, R., 2003. Dutch. In: Deumert, A. & Vandenbussche, W. (Eds.), Germanic Standardizations: Past to Present. John Benjamins, Amsterdam, pp. 93 -126.
- Yamane, M., 2003. On the interaction of first-language transfer and universal grammar in adult second language acquisition: WH-movement in L1-Japanese and L2-English interlanguage. Diss., University of Connecticut, Storrs.