The indefinite reading of WH

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1. Introduction

According to the standard analysis of operator interpretation, WH words and other operator type elements move to COMP at SS or at LF (Chomsky 1981, May 1985, among many others).¹ In this model, a multiple interrogation is represented at LF as in (1a). However, as was argued by Pesetsky (1987), some WH constituents do not move to COMP to get interpretation but remain *in situ* at LF. As Pesetsky argues, these WH constituents are *variables* rather than the operators themselves. These variables are unselectively bound by a discourse-linked operator that heads the sentence, to be represented as in (1b).

(1)	а	who helps who	
		$Q [WH_2WH_1 [t_1t_2]]$	(Quantificational interpretation)
	b	Which man helps which woman?	_
		D _{xy} [y]	(D-linked interpretation)

In this context, Pesetsky draws a comparison with the operator binding of indefinites, as studied by Heim 1982. As Heim argues, an indefinite constituent is not an operator; it is a variable which *receives* interpretation in dependence of the configuration. According to Pesetsky, the semantic interpretation of WH words as D-linked or as operator linked corresponds to a *different configuration at LF*. D-linked WH words would then share a configuration with indefinites: they are interpreted *in situ*.

In this context, it is interesting that the similarity of WH words and indefinites is not only syntactic but also morphological. Consider Dutch.

- (2) a Wat heb je gedaan? What have you done?
 - b Jan heeft wat gedaan.John has what done'John has done something'

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In (2a), we have a WH word which has moved to specCP. It acquires an interrogative interpretation. In (2b), on the other hand, the WH word remains *in situ* without stress: it acquires the *indefinite* interpretation. In other words, the Dutch WH-word *wat* can mean both 'what' and 'something'. When moved to Comp at SS or LF, the interrogative reading is the only one available.² As a consequence, WH-words as indefinites cannot move to COMP, despite the fact that inherent indefinites like *iets* 'something' can (3b).

- (3) a *Wat moet hij toch gedaan hebben what must he PRT done have
 - b Iets moet hij toch gedaan hebben something must he PRT done have 'He must have done something'

The data in (3) suggest that the interrogative/indefinite semantics is acquired configurationally. Consider now a German instance of an indefinite reading of WH (4a).

- (4) a Es hat wer geklingelt
 It has who ringed-the-bell 'Somebody has ringed the bell'
 - b *Er heeft wie gebeld'Somebody has ringed the bell'

Remarkably, the corresponding Dutch sentence (4b) does *not* allow for the indefinite reading. Only the *neuter* WH pronoun allows for the indefinite reading in Dutch. In other words, the ambiguous interpretation of WH words seems to be dependent on the φ -features of the interrogative pronoun in Dutch. In table 5, we made a cross-linguistic survey of the use of WH words as indefinites. Upon first inspection, we may say that if the WH word has an inflection which resembles the inflection of ordinary pronouns, WH can have an indefinite reading provided that it stays *in situ*.

(5)	Language	WH	infl	Wh has transparent	WH can be indefinite if
				inflection	<u>in situ</u>
	Greek	tis	N^0	yes	yes
		tina	N^{03}	yes	yes

² The indefinite use of WH is restricted to unstressed WH words. As focused nouns are supposed to move to Comp at LF, the interpretation is dependent on the configuration at LF.

³ The Greek indefinite/interrogative pronoun is inflected as a noun of the 3rd conjugation class (consonant stems).

¥ .*		•		
Latin	quis	15	yes	yes
	quid	id	yes	yes
German	wer	er	yes	yes
	was	es	yes	yes
Gothic	hwas	is	yes	yes
	hwa	ita	?	?
Dutch	wat	het	yes?	yes
	wie	-е	no	no
English	who	he	no?	no
	what	it	no?	no
Hungarian	ki	ö	no	no
	mi	ö	no	no
French	qui	il/-ø	no	no
	quoi	ça	no	no
Portuguese	quem	ele	no	no
-	o que	ø/lo	no	no

This table shows that languages can be split in two classes with respect of the 'semantics' of their WH words, as represented by the last column of (5). In the Latin-type class the WH feature can remain *in situ* and gets an indefinite reading, whereas the English-type languages do not allow for such indefinite reading, i.e. the WH word must move to Comp (at SS or LF). The demarcation line runs through Dutch! We may conclude that: 1. the multiple interpretation of Dutch *wat* is not a lexical phenomenon, but an option UG allows for; 2. that a parameter is involved which instantiates this option; and 3. that a morphological dependency seem to exist. Several questions arise.

- (6) a How can a WH word be ambiguous between an indefinite/interrogative reading?
 - b In what configuration can WH acquire these readings?
 - c Why is the availability of the indefinite reading language dependent and lexically dependent?

Question (6a) and (6b) will be answered configurationally, that is to say, the reading of the WH word will turn out to be determined by the configuration. Question (6c) is the most difficult. In the ideal case we might reduce (6c) to a configurational restriction as well, that is to say, to a reason why Dutch *wie* may not enter the configuration assumed in (6b). We then have to explain why there are language-dependencies of the readings of WH words, which otherwise - as it seems - occur in the same syntactic environments, e.g. Dutch *wie* / German *wer*. The answers we would like to defend are as in (7):

- (7) a WH is an open variable in the sense of Heim and gets its interpretation in function of the configuration
 - b The indefinite reading arises if this variable remains within VP, and as a consequence - is interpreted by Existential Closure at LF
 - c Some WH words, like Dutch *wie*, must by reasons of their morphological structure move before or at LF out of VP and as a consequence loose the ability to be interpreted by Existential Closure.

We will in the line proposed by Lewis/Heim/Diesing/Pesetsky develop a interpretative theory of WH words. In this theory, WH words are considered as variables in sense of Heim rather than as the operators. These variables allow for binding by various operators. Dependent on the context in which these WH-variables occur, they can be existentially bound if they remain within VP at LF: this gives rise to the *indefinite* reading. If, on the other hand, a variable will move outside all interpretative domains, it is unbound at LF, and its binding is left to the hearer, in the form of an answer, as in (8). It seems to me that this provides us with the most simple theory what in fact a question is. So we will assume that a question should be represented as in (8).

(8) Q: Wat zag Jan
$$[x_i \text{ [Jan zag } e_i]]$$

A: een eenhoorn α
Jan zag een eenhoorn $(I_{\alpha}) [x_i \text{ [Jan zag } e_i]]= Jan zag \alpha$

In (8) we see that a WH word, which is an open variable in the logical sense is moved to the sentence peripheral position, and remains unbound.

The answers (7a) and (b) are in close connection with the theory of indefinites that have found acceptance in the literature.⁴ This means that we only need to provide data that indicate that indefinite WH words are VP internal. The answer (7c) is more complicated and needs a reconsideration of the theory of variables. Unfortunately, this would exceed the space restrictions of this paper.

2. The configurational dependency of the indefinite reading of WH

Let us now make the configurational dependency more precise. As we already alluded, the VP-domain seems to be essential for the indefinite interpretation of WH. If *wat* is outside VP at any level of representation, the indefinite reading is unavailable. Look at the paradigm in (9).

⁴ Cf. Kamp 1984, Wilson 1984, Diesing 1992. For an other analysis, see Neale 1990.

THE INDEFINITE READING OF WH

(9)	a	Wat bewijst zijn gelijk	(transitives)			
		What proves his right				
	h	"What proves that he is right?/*Something proves that h omdat er altiid wel wat zijn gelijk bewijst	e is right'			
	U	since there always PRT what his right proves				
		"since there is always something that proves that he is right'				
	с	Wat gebeurde?	(unaccusatives)			
		'What/*Something happened?'				
	d	Er gebeurde wat				
		ER happened wat				
		'Something happened'				
	e	Wat beangstigde mij	(psych)			
		what frightened me				
		'What frightened me/*Something frightened me'				
	f	Er beangstigde mij wat	VP			
		ER frightened me what				
		'Something frightened me'				
	g	omdat dat/*wat hem was opgevallen	SpecIP			
		since that/*something/*what to-him has struck				
	h	omdat hem dat/wat was opgevallen	VP			
		since that/what to-him was appealed				
		'since that/something has struck him'				

In (9a,c,e) the WH element is in SpecCP: the indefinite reading is excluded. By replacing *wat* by *iets*, these constructions become fine or acceptable. In (9b), the WH word is in a specifier of a transitive VP: the indefinite reading is available in principle. In (9d,f), on the other hand, the WH word is VP-internal at all levels: the indefinite reading arises. In (9g), the DS-object *wat* sits in SpecIP at SS: the structure excludes the indefinite reading. This construction minimally differs from (9h) where *wat* remains VP-internal: the indefinite reading arises. This suggest that the configuration defines what reading is evoked.

(10) The interpretation of WH is determined configurationally

Evidence that the indefinite reading should be described by an interpretative theory, as was proposed by Heim, comes from the fact that indefinite *wat* always has narrow scope.

(11) a	Alle leerlingen waren (wel) wat vergeten	(narrow scope only)
b	Alle leerlingen waren iets vergeten	(ambiguous)
	'All pupils had forgotten something'	

Sentence (11a) semantically implies that all pupils forgot something different (although this might accidentally be the same). The (11b)-sentence is ambiguous between the (11a) reading and the reading that there was something that all pupils had forgotten. The narrow scope reading of *wat* is obligatory, independent of the mutual order of the quantifiers at S- structure (12).

(12) a	Jan heeft wat in alle boeken geschreven	(narrow scope only)
b	Jan heeft iets in alle boeken geschreven	(ambiguous)
	'John has written something in all books'	

The obligatoriness of narrow scope reading is a typical feature of *in situ* interpretation of quantificational elements, as exemplified by the well-known 'donkey'-sentence (13).

(13) Always if a farmer owns a donkey_i, he beats it_i

Also in (13), the intention is that the farmers involved might have different donkeys, i.e. the constituent *a donkey* cannot have a fixed reference.

Let us now turn to German. This language has a quite regular pattern in the indefinite use of WH words. For that reason, it is advantageous to study the rules that govern this process in first approximation using this language. German permits the indefinite reading with all interrogatives like *wer* 'who', *was* 'what', *wo* 'where', apart from *wie* 'how'. This is significant since 'how' as an argument is external to VP. That the determining factor is the WH's position with respect to VP can also be shown from the other WH words: only VP internal WH can be used as indefinites. Consider the paradigm of (14a-d).⁵

(14) a	Er hat wo gewohnt	
	he has where lived	'he has lived somewhere'
b	Er ist wo hingegangen	
	he is where to-gone	'he has gone somewhere'
с	*Er hat das Buch wo gekauft	
	he has the book where bought	'he has bought the book somewhere'

d ?Ich habe das Buch wo hingelegt I have the book where to-lain 'I have put the book somewhere'

If wo is generated VP-internally, the indefinite reading is available (14abd), but not if wo functions as an adjunct (14c), i.e. it is generated externally to VP. Now, Diesing argues that if an open variable is present within VP at LF, this variable is

⁵ I owe the German data to Matthias Hüning. The indefinite use of WH is seen as somewhat substandard, but is quite general.

interpreted under binding by an existential operator which is assumed to be adjoined to VP. This process is called Existential Closure (cf. Heim 1982, Diesing 1992). In order for an open variable to be interpreted in another way, it has to move outside the scope of this VP-adjoint existential operator. This is precisely what we also observe with German WH-words. The same is observed with Dutch wat. If it is moved outside VP by scrambling, wat looses its indefinite interpretation. If we disregard echo interrogative readings, we get the following judgements.

- (15) a Jan heeft snel wat opgeschreven
 - b *Jan heeft wat snel opgeschreven
- (16) a Jan heeft snel iets opgeschreven
 - b Jan heeft iets snel opgeschreven'John has quickly writen down something'

Quite clear judgements are obtained if we consider the position of *wat* with respect to the negation.

- (17) a Heb je echt niet wat gedaan?
 - b *Heb je wat echt niet gedaan?
 - c Heb je echt niet iets gedaan?
 - d Heb je iets echt niet gedaan?

'Have you really not done something?'

Apart from scrambling, Dutch has the possibility to move (prepositional) arguments outside VP by extraposition. Importantly, this process produces the same block on the indefinite reading (18).

(18) (You can never disturb Teun)		
a	Hij zit steeds over wat na te denken	VP internal
b *Hij zit over wat steeds na te denken		(scrambling)
с	*Hij zit steeds na te denken over wat	(extraposition)
	'He is always reflecting on something'	

The inherent indefinite *iets* is insensitive to this blocking process (19).

(19) a	Hij zit steeds over iets na te denken	VP internal
b	Hij zit over iets steeds na te denken	(scrambling)
с	Hij zit steeds na te denken over iets	(extraposition)

Notice, however, that the interpretation of *iets* changes upon scrambling out of VP and upon extraposition as well: (19-a) can have both the specific reading and the

non-specific reading, whereas *iets* (19b/c) is obligatorily interpreted as being specific. This indicates that the true existential reading of *iets* is produced VP internally as well, whereas the D-linked reading becomes available upon movement out of the scope of existential closure (at SS or LF).

3. Are (D-linked) interrogatives ever left in situ?

As we noticed in he beginning of the paper, Pesetsky (1987) argues - in analogy to Heim's analysis of indefinites - that D-linked WH (like *which man*) and non-D-linked WH (like English *who*) behave different with respect to the site where they receive interpretation: only the non-D-linked WH like *who* move to specCP (20).

(20) a Non-D-linked (WHO) : obligatory movement to specCP at LF
 b D-linked (WHICH) : no movement to specCP at LF

We refer to Pesetsky (1987) for the precise argumentation. In first approximation, Pesetsky concludes from (20b) that the second type of interrogative WH constituents can remain *in situ*. However, if our findings of the previous sections are correct, some aggressively non-D-linked WH-words, like Dutch *wat*, remain *in situ* to receive interpretation as well. This interpretation will then be *indefinite*. If the slots where D-linked interpretation is assigned and the slot where the indefinite interpretation is assigned are the same, it would constitute a potential problem for a theory in which the interpretation of WH as interrogative or indefinite is solely stated in configurational terms.

Fortunately, the strict in-situ analysis of Pesetsky is not an inescapable logical consequence of (20b), since there are various syntactic slots between VP and the possible adjunction site IP/specCP. So, there is reason to reconsider Pesetsky's claim. A brief inspection of the data shows that the so-called *in situ* WH objects do in fact scramble out of the VP in multiple interrogations. This is true both for D-linked and for non-D-linked interrogatives.

- (21) a *Welke man heeft goed/niet welke vrouw geholpen?b Welke man heeft welke vrouw goed/niet geholpen?'Which man has not/well helped which woman?'
- (22) a *Wie heeft goed/niet wie geholpen?
 - b Wie heeft wie goed/niet geholpen?Who has who good/not helped'Who has helped who?'

These data suggest that D-linked WH do *not* stay within VP, but are scrambled away from the existential operator that closes the VP. This saves our finding that if a WH remains *in situ* the only reading available is the indefinite reading. That

D-linked *WH* must be scrambled, in fact covers the finding of Diesing (1992) that specific (i.e. D-linked) *indefinites* must scramble away from the existential closure operator, as well. Consider the two readings of (23a) in English, the existential reading paraphrased in (23b) and the quantificational reading, paraphrased in (23c).

- (23) a I always write up a witty story about Millard Fillmore
 - b 'First thing in the morning, I write a witty story about Fillmore' (existential)
 - c 'Whenever I hear a witty story about Fillmore, I always write it up' (quantificational)

These considerations suggest that there are at least three interpretative domains, where open variables can receive their interpretation: COMP, the restrictive clause (IP), and the nuclear scope (VP). With these things in mind, let us now consider Dutch *wat*.

(24) a Ik schrijf altijd wat op over Fillmore *quantificational, existentialb 'Als eerste ding in de morgen, schrijf ik wat op over Fillmore'

(existential)

c 'Altijd als ik wat over Fillmore hoor schrijf ik het op' (quantificational)

A corresponding Dutch sentence with *wat* (24a) only allows for the existential reading, as paraphrased in (24b). (24a) does not allow for the quantificational reading, as paraphrased in (24c). A remark for the non-Dutch reader: notice that the sentences (24b-c) are well-formed in themselves, but only (24b) is a paraphrases of (24a). We cast this in the following table.

(25)	Configurational in	nterpretation of WH and indefinites at LF	wie	iets	wat	*X
	1. COMP	\rightarrow interrogatives, non D-linked	+	-	+	+
	2. scrambled	\rightarrow interrogatives, D-linked	+	-	-	-
	3. scrambled	\rightarrow indefinites, D-linked (or 'specific')	-	+	-	+
	VP-internal	\rightarrow indefinites, non-D-linked (or 'aspecific')	-	+	+	-

This table offers a configurational scheme which reflects how open variables are interpreted. If correct, it confirms Pesetsky's hypothesis that WH words, which are traditionally taken as operators, are in fact open *variables*, in close concordance with what Heim developed for indefinites based on an idea of Lewis (1975). They receive their interpretation under binding by external operators that do not have a visible realization in the syntactic string.

The cross-linguistic existence of words like Dutch *wat*, that connects the interrogative and the indefinite 'space', imposes an interesting new question. As the four domains of (25) with their corresponding 'semantics' apparently form one

space (we cannot decompose it anymore into disconnected sub-spaces because of the existence of indefinite *wat*), the question arises why only three of the logically conceivable 16 interpretative projections of semantics onto syntax find a lexical reflex (wie, iets, wat). So, why isn't there a language that has a fictive lexeme X, which is ambiguous between a non-D-linked interrogation and a specific indefinite? If we do not consider this an accidental fact, a theory is required which rules the interaction between syntax and lexical items, that is to say, a theory of how words are controlled by the syntactic environment. Moreover, if word control exists, i.e. if the syntactic environment induces meaning in words, words cannot be semantic atoms, and hence, under the supposition of compositionality - they cannot be syntactic primitives either. Hence, we must assign an internal syntactic structure to such lexical items. We cannot resort to the lexicon, since the pattern is not an idiosyncratic property of one language. There are in principle two possible paths to go: we assign binary features to lexemes and design a theory on feature geometry, or we assign to lexemes a syntactic structure under the word-level and explain the distribution by a unified morphosyntactic interaction. Various linguists have opted for the first possibility (Marantz 1992, Kerstens 1993). We would like to explore the second path and design a theory of morpho-syntax, since it is the most restrictive, as it potentially generalizes over syntactic effects and lexical effects.

4. Quantificational elements as variables

That the interpretation of quantificational elements is not strictly lexically bound, but is evoked configurationally finds wide support by all kinds of quantificational elements, cross-linguistically. This means that the <u>ambiguity</u> might be a result of a configurational property. Curiously, quantificational ambiguity is not a distinctive feature of WH words like *wat*. There are good reasons to believe that similar effects occur with the other quantificational elements. Cross-linguistically they are a group of elements that seem to have intimate links to each other, be they indefinites, negative elements, interrogatives, reciprocals, etc. I chose some instances from various languages in (26-27).

(26) a	Alguma coisa aconteceu	(Portuguese)
	any thing happened	
	'something happened'	
b	Coisa alguma aconteceu	
	thing any happened	
	'nothing happened'	

(27) a Een boeken dat ik kocht! (Dutch) *a books that I bought* 'I bought many books!'

b Ik kocht wat boeken*I bought what books*'I bought some books'

The Portuguese data in (26) show that a negation is not a linguistic primitive but can be evoked by syntactic means.⁶ In the Dutch sentence (27), we see that the semantics of *many* and *some* can be evoked by exclusively syntactic means. These data can be multiplied by data from other languages. These data confirm our hypothesis that the quantificational elements do not have an inherent semantics but are interpreted. These elements seems to be interpreted under binding by different semantic operators in dependence of the syntactic environment.

Such quantificational elements must of course allow for binding by certain operators. So, there seem also lexical restrictions on their interpretation. So, these restrictions seem to be partially imposed by the quantificational element itself, partially by the syntactic configuration. Assume that we had a theory that described the restrictions imposed by the syntactic configuration. Such restrictions will then, obviously, be formulated in *configurational* terms. If so, we might - in the optimal case - also assign an *internal* structure to the quantificational element, in such a way that the interpretative restrictions imposed by the quantificational element are configurationally analogous to the restrictions imposed by the morpho-syntactic structure in which the element occurs. If so, the final interpretation of a quantificational element must be a resultant of the interaction between the 'internal' morphological structure and the 'external' syntactic structure. In this optimal case, one and the same theory would apply for the syntactic and the morphological restrictions and we could speak of a true theory of morpho-syntax. It seems to me that this strategy is most appropriate to function as a leading methodology to design the first contours of a truly morpho-syntactic theory.

5. Conclusions and Prospects

A brief and incomplete inspection of the behaviour of some WH words with respect to the indefinite and interrogative reading of WH revealed that these readings might be triggered configurationally, rather than lexically. In other

⁶ Portuguese *coisa alguma* behaves like an ordinary negative phrase like *nada* 'nothing': it triggers the scope marker *não* when sitting in post-verbal position and it lacks it when it is in preverbal position. Hence, the post-verbal counterpart of (26b) is (i).

⁽i) Não aconteceu coisa alguma

In Spanish, *cosa alguna* is not really negative, but only is a negative polarity item. Hence (26b) is ungrammatical in Spanish (cf. Vallduví 1993:13). In Portuguese, *coisa aluma* is inherently negative, i.e. an n-word.

words, that the lexicon does not contain *two* items 'interrogative wat' and 'indefinite wat', but only one item 'wat' with such properties that it can act as a logic variable. Furthermore, the table of (5) gives a first indication that this property of WH might be definable in terms of its morphological shape. Secondly, as to indefinite/interrogative WH, the ideal theory we are looking for, and that would exhaustively describes the *syntactic* WH movement phenomenon together with the accompanying V2 process, should simultaneously predict what the *morphological* conditions of WH words are in order to stay in-situ at LF, and to be interpreted by existential closure. Such a theory should then account for the split in languages in (5).

Finally, if this treatment of the interpretative alternation of WH be extendible to the interpretation of quantificational elements in general, it would indicate that quantificational interpretation is not lexically driven, but configurationally. As far as this program turns out to be executable, the following principle might hold:

(28) What appears to be the quantificational force of any 'operator' is always contributed by an interpretative principle that is not directly tied to the lexical meaning of any particular expression at all but entirely due to the overall morphosyntactic configuration supported by the expressions.

If some form of (28) might turn out correct, we may envisage that - under the assumption that the same principles rule interpretation on the syntactic level and on the word level - a careful study of the syntactic effects of these principles can provide evidence for the morphosyntactic structure at the word level.

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