

DUTCH SCRAMBLING AND THE STRONG-WEAK DISTINCTION

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Abstract

It was first argued by Kerstens (1975) that the meaning of indefinite NP objects in Dutch is affected by scrambling.¹ Kerstens claimed that whether an indefinite NP is [+quantificational] or not (in the sense of Milsark 1974) depends on its absolute position in the structure: it is [+quantificational] iff it is outside VP at S-Structure. This hypothesis has more recently been revived and extended to other languages by De Hoop (1992) and Diesing (1992). In this paper, I will attempt to show that there is insufficient empirical support for this generalization. Although the meaning of a structure containing an indefinite object NP undoubtedly varies with the position of the NP relative to other constituents, it is doubtful whether it can be shown that the semantics of the NP itself depends on its absolute position.

keywords: Mapping Hypothesis, scope, scrambling, weak NPs.

1. Object Scrambling

An object NP in Dutch is considered to be 'in a scrambled position' if it is not adjacent to the base position of the verb that assigns it a theta-role. Unlike scrambling in German, Dutch scrambling can only change the order of arguments relative to adjuncts; in general, the relative order of arguments is fixed. In most cases, scrambling is optional. Thus, we have both (1a) and (1b):

- (1) a. .. dat Jan gisteren dat boek las.
 .. *that J. yesterday that book read*
- b. .. dat Jan dat boek gisteren las
 .. *that J. that book yesterday read*

that John read that book yesterday.

In (1b), the adverb *gisteren* intervenes between the verb and its object. There is disagreement in the literature as to whether the object-NP in (1b) has undergone leftward Abar-movement (Bennis & Hoekstra 1984) or leftward A-movement (Vanden Wyngaerd 1989) or has been directly generated in its scrambled position (Neeleman 1994). This issue is not directly relevant for our purposes.

Kerstens (1975) observed, that the overt position of a weak NP object affects the meaning of the structure.² Consider first (2):

- (2) .. dat Jan een meisje zoekt.
.. *that J. a girl seeks*
that John is looking for a girl.

(2) is ambiguous between a *de re* (specific) and *de dicto* (non-specific) reading for *een meisje*. Kerstens followed Milsark (1974) in assuming that indefinite NPs are ambiguous between a quantificational (strong) and a non-quantificational (existential, weak) reading. He assumed further, that when such an NP is outside VP (scrambled), it assumes its quantificational persona, whereas inside VP it is interpreted as a non-quantificational part of the predicate. (2) is ambiguous, because *een meisje* may either have remained in VP, or may have undergone (string-vacuous) scrambling to a VP-external position. The correct prediction is that (3) is not ambiguous:

- (3) .. dat Jan een meisje vaak zoekt.
.. *that J. a girl often seeks*

that there is a girl that John often seeks.

Since *een meisje* must have undergone scrambling here, only the *de re* or 'specific' [+quantificational] reading is available. It follows, furthermore, that (4) is ambiguous:

- (4) ..dat Jan vaak een meisje zoekt.
..that J. often a girl seeks
that John often seeks a girl.

Although *een meisje* in (4) remains string-adjacent to the verb, it may either have remained in situ or undergone scrambling to a position outside VP, albeit still to the right of the adjunct. Hence, the specific and non-specific readings are both available.

The crucial example, of course, is (3), which shows that a scrambled NP must have a strong [+quantificational] (in this case: 'specific') reading. Kerstens further observes that another strong reading of indefinite NPs, the generic reading, also emerges under scrambling.³ We shall consider several other relevant examples as we proceed.

The remainder of this paper is organized as follows. Kerstens' generalization outlined above has recently reappeared in De Hoop (1992) and Diesing (1992). The following two subsections briefly summarize these works. It is not the purpose of this paper to review these theories in full or even to take a stand on their correctness; I will merely explain how they incorporate Kerstens' generalization.

In subsequent sections, I will argue that there is insufficient empirical evidence to uphold Kerstens' generalization, so that Dutch scrambling does not provide evidence for these theories. In section 2, I will provide examples of weak scrambled NPs that remain weak. In section 3, I will show that the semantic effects that are observed when weak NPs scramble

may be attributable to other, independently attested factors. For one thing, scrambling rearranges scope orders; in addition, scrambling may also rearrange the focus/presupposition structure of the sentence. Independent evidence will come from the semantic effects that obtain when strong NPs are scrambled.

1.1 *De Hoop (1992)*

While the Mapping Hypothesis proposed by Diesing (1992) and the Case-related theory in De Hoop (1992) differ in several essential respects, these authors agree that scrambling affects the interpretation of indefinite NPs in the manner observed by Kerstens.

De Hoop argues for the following view. Object NPs may, under certain circumstances, be assigned either 'Weak Case' or 'Strong Case'. Strongly Case-marked NPs differ from Weakly Case-marked NPs in two respects: they are allowed to undergo scrambling, and are necessarily assigned a quantificational (strong) reading. The facts in (2) through (4) then follow: (2) and (4) are ambiguous because the indefinite object may bear either Weak or Strong Case (note that Strong Case does not force an NP to scramble). (3) has only the specific reading, because it must have Strong Case in order to have undergone scrambling. De Hoop considers several possible reasons why the Strong Case condition on scrambling might hold, but does not decide on any particular theory, so we shall not discuss this issue. She does, however, go into some detail as to the semantic effects involved.

De Hoop follows Partee (1987) in assuming that NPs may be of several denotational types, which are mutually derivable through 'type shifting operations,' and which enable them to appear in different semantic contexts. For instance, an NP such as *John* may be either type *e*, in which case it denotes an individual (say *j*), or it may undergo the type shifting operation

known as 'lift' which maps j into $\lambda PP(j)$, a Generalized Quantifier (type $\langle\langle e,t\rangle,t\rangle$). The semantics associated with the 'lift' operation may therefore be characterized as $\lambda x\lambda PP(x)$.

In a similar vein, De Hoop proposes that (weak) NPs may be of several different types. If a verb is intransitive (or rather: atelic), its object may be interpreted as a predicate modifier (type $\langle\langle e,t\rangle,\langle e,t\rangle\rangle$). If it is transitive, its object may be type e . In both cases, the NP is interpreted as a 'part of the predicate'. This is illustrated in (5):

- (5) a. Ik heb gisteren enkele kilometers gereisd.
I have yesterday several kilometres travelled
 I travelled several kilometres yesterday.
- b. Ik heb gisteren enkele kilometers afgelegd.
I have yesterday several kilometres covered
 I covered several kilometres yesterday.

The verb *gereisd* in (5a) is considered to be intransitive, hence type $\langle e,t\rangle$. The object *enkele kilometers* is assigned type $\langle\langle e,t\rangle,\langle e,t\rangle\rangle$ accordingly, hence modifies the predicate. *Afgelegd* in (5b) is transitive (presumably type $\langle e,\langle e,t\rangle\rangle$), so *enkele kilometers* takes on its e -type reading.

The crucial assumption for our purposes is that Strong Case, which is required for scrambling, acts as a type-shifting operator which shifts an e -type NP into an $\langle\langle e,t\rangle,t\rangle$ generalized quantifier: such $\langle\langle e,t\rangle,t\rangle$ type NPs have a strong reading.

It should be noted, however, that these assumptions do not yet enable one to fully derive the semantic effects of scrambling. As De Hoop observes, several different types of strong readings appear in scrambling contexts:

- (6) a. .. dat Jan een meisje vaak zoekt
 .. *that J. a girl often seeks*
 that there is a girl that John often seeks.
- b. .. dat Jan meisjes vaak negeert
 .. *that J. girls often ignores*
 that John often ignores girls.
- c. .. dat Jan drie meisjes meestal vergeet
 .. *that J. three girls usually forgets*
 that John usually forgets three girls.

The indefinite *een meisje* in (6a) is considered to be 'specific', a condition diagnosed by De Hoop (following Fodor & Sag 1982) as involving referentiality. The most prominent reading of the bare plural *meisjes* in (6b) is that of a generic. *Drie meisjes* in (6c) is arguably 'partitive' - meaning that the three girls in question (are presupposed to) belong to a larger set of girls, only three of which verify the predicate.

These three readings can all be semantically characterized as 'strong' (e.g., none exhibit the Symmetry-property⁴). But De Hoop's theory does not make predictions about which strong readings occur when. She does not provide a semantics to be associated with the Case-driven type-shifting operation that lifts e-type to $\langle\langle e,t \rangle, t \rangle$ type expressions. All that is given, is that the resulting expression must denote a generalized quantifier. Hence, it remains to be explained why exactly these strong readings, and not others, can be derived, and how the choice of strong reading is determined in each particular case. In fact, a separate stipulation is required to ensure that type-shifting does not result in a *weak* generalized quantifier. However, we shall see below that this disadvantage may well turn into an advantage, as we argue that scrambled indefinites sometimes do have weak readings.

1.2 *Diesing (1992)*

Diesing (1992) may be seen as an attempt to combine the systematic Quantificational/Existential ambiguity of indefinites postulated by Milsark (1974), with the DRT/File Change Semantics view of indefinites as free variables (see e.g. Heim 1982, Kamp 1982, Kamp & Reyle 1993). Diesing claims that weak determiners may be interpreted either as Cardinality Predicates or as Quantifiers. In the former case, the weak NP introduces a free variable, as in DRT, and does not undergo QR. In the latter case, the quantificational determiner binds the free variable, and the NP does undergo QR.

Furthermore, Diesing assumes that, at the level of semantic interpretation, sentences are mapped onto Heim-style tripartite structures consisting of an operator, a restrictive clause, and a nuclear scope. Any NP in a restrictive clause is interpreted as 'presuppositional' (the set denoted by the head noun must be non-empty for it to be interpretable). The nuclear scope (and only the nuclear scope) undergoes existential closure. Finally, she proposes the following 'Mapping Hypothesis': material dominated by VP is mapped into the nuclear scope; material not dominated by VP is mapped into a restrictive clause.⁵ Consequently, NPs that are outside VP at the level of semantic interpretation due to Case-movement, QR, base generation, or scrambling, are interpreted as presuppositional (hence, strong — see Lappin & Reinhart 1988). NPs that remain in VP must have a non-quantificational determiner (or QR would have moved them out of VP) - these undergo existential closure, and are interpreted as weak.

The Mapping Hypothesis has diverse implications, e.g. for the conditions on unselective binding (Kratzer 1989) and for the interpretation of indefinite subjects; the reader is referred to e.g. De Hoop & De Swart 1990; De Hoop 1992; Reinhart 1995 for discussion. The

implications of the Mapping Hypothesis for the interpretation of scrambled indefinite objects can be illustrated with Diesing's German example (7):

- (7) a. ..daß Otto Bücher über Wombats immer liest.
..that Otto books about wombats always reads
 that whenever there are books about wombats, Otto reads them.
- b. ..daß Otto immer Bücher über Wombats liest.
..that Otto always books about wombats reads
 that Otto is always reading sm books about Wombats.
 that Otto, whenever he reads, reads books about Wombats.

In (7a), the indefinite object *Bücher über Wombats* has undergone scrambling, and is not dominated by VP (this is deduced from its position relative to the adverb *immer*, which supposedly marks the VP-boundary). Accordingly, it is mapped into the restrictive clause of the generic operator and interpreted as strong. In (7b), the indefinite has not scrambled, and undergoes existential closure (weak interpretation).⁶ Diesing does not discuss partitive and specific readings of scrambled indefinite objects (as in (6a) and (6c)), but the intent seems clear. Since these NPs are outside VP they cannot undergo existential closure, and are therefore confined to their quantificational, strong readings.⁷ The Dutch facts discussed earlier can be argued to follow in a similar manner; in each case, scrambling moves the object out of VP hence yields a strong, quantificational reading of some sort. Again, as with De Hoop, we may wonder why exactly these, and not other 'quantificational' readings appear. But Diesing does ensure that scrambled NPs must be presuppositional (hence strong); and since she takes their quantificational force to depend on a lexical ambiguity in the determiner, there is ample room for further (and quite possibly unavoidable) stipulation.

Diesing's treatment of (7) deserves some further discussion. The Mapping Hypothesis not only correctly predicts a strong reading for the scrambled indefinite. Apparently, the Mapping Hypothesis also provides us with an elegant syntactic solution to the problem of deciding what goes into the restrictive clause, and what goes into the nuclear scope of the generic operator in generic sentences. But the Mapping Hypothesis does not work for all cases; I want to point out some problems, and line up an alternative solution that we will be referring back to later on. Consider first the examples in (8):

- (8) a. Seymour usually **destroys** beautiful books.
 b. Linguists always write **papers**.

(Boldface indicates sentence stress). (8a) has a generic reading, with *beautiful books* in the restrictive clause of the generic operator: 'usually, if there's a beautiful book, Seymour destroys it.' Diesing's analysis is that *beautiful books* undergoes QR, which places it in the restrictive clause, where its variable is unselectively bound by the generic operator.⁸ However, one prominent reading of (8b) is: 'whenever a linguist writes something, she writes a paper.' It is true that the VP-external NP *linguists* goes into the restrictive clause, and the VP-internal NP *papers* goes into the nuclear scope. But the remaining VP-internal 'material', the verb *write*, goes (also) into the restrictive clause — and this is a very general phenomenon.⁹

Consider next the examples in (9) (cf. De Swart 1991):

- (9) a. .. dat Jan altijd noorse **truien** breit.
 .. *that J. always Norwegian sweaters knits*

that whenever John knits, he always knits Norwegian sweaters.

that whenever John knits something Norwegian, he always knits Norwegian sweaters.

b. ..dat Jan altijd **noorse** truien breit.

that whenever John knits sweaters, he always knits Norwegian sweaters.

On the basis of such examples, De Swart assumes that the contents of the restrictive clause of quantificational adverbs are determined by Focus. De Swart argues that many temporal adverbs, such as *altijd* 'always', are relational, in that they take two arguments in much the same way as NP-determiners do. Various mechanisms are involved in determining the contents of the first and second arguments of the relational adverb. The contents of the first argument (the restrictive clause) can be recovered pragmatically, or stated in a *when*-clause; otherwise, it is presumably determined through 'Association with Focus' (see Rooth 1985; the notion goes back to Jackendoff 1972). This seems a more promising approach: the material mapped into the restrictive clause in (8) and (9) consists of exactly those elements which cannot be interpreted as Focus. The Mapping Hypothesis cannot easily deal with these examples. As in (8), restrictions on movement make it very unlikely that the noun *truien* in (9b) moves out of VP at LF (so as to be mapped into the restrictive clause by the Mapping Hypothesis) while leaving behind the adjective *noorse*. Similarly, De Swart can derive the second reading for (9a) through narrow focus on *truien*, but movement of the adjective out of the NP for purposes of the Mapping Hypothesis would be most irregular.

Returning to (7), we can now explain the effect of scrambling in generic sentences by drawing a connection between scrambling and Focus. Reinhart (1995) argues that the semantic effects of scrambling in Dutch are related to the fact that scrambled object NPs cannot be in Focus. This has also been claimed for German (see Haider 1993, Lenerz 1977).

Applied to German, this assumption will give the correct result for (7a): the scrambled NP cannot belong to the Focus, hence ends up in the restrictive clause. It also accounts for generic scrambled NPs in Dutch (see (6b)).

It seems that the case of generic objects does not unequivocally support the Mapping Hypothesis, but this is not our main concern: we will return to the defocussing effect of object scrambling in section 3.

We turn now to our main topic: a discussion of the evidence that scrambled object NPs in Dutch must be strong.

2. Weak Readings on Scrambled Indefinites

The accounts of Germanic scrambling and its effects on the semantics of indefinite objects which we reviewed above, share the claim that the semantic interpretation of an indefinite object depends on the absolute position it occupies in syntactic structure: when an indefinite object is scrambled, it becomes strong. The aim of this paper is to argue against this claim in two ways.¹⁰

The present section will provide direct counterexamples, in which scrambled indefinite objects remain weak. The next section will focus on corroborating examples, where scrambled indefinite objects apparently become strong, and argue for an alternative approach to the semantic effects found in these examples. The alternative will run roughly as follows. Clearly, the semantics of a construction containing an indefinite NP depends, unavoidably, on the structural position of the indefinite relative to other constituents. In particular, the relative scope relations that hold between a scrambled object and other constituents (adverbs in particular) affect interpretation. In addition, scrambling affects the Focus-structure of the

sentence, as illustrated in the previous section. When these semantic effects of scrambling are taken into account, little evidence remains that the absolute position of the object inside or outside VP plays any additional role, in affecting the interpretation of the indefinite itself. This issue will be taken up in section 3.

In the present section we attempt to construct examples of weak scrambled indefinites, in order to falsify the claim that scrambled indefinite objects must become strong. Unfortunately, this claim is not as easily falsifiable as it seems. The class of strong readings purportedly associated with scrambled indefinites is heterogeneous; it includes generic, specific and partitive readings, the choice of which in each case presumably depends on lexical and other factors. For example, the generic reading is found in particular with bare plurals and singular indefinites; the specific reading is found most often (but not exclusively) with singular indefinites; and the partitive reading is preferred for numerals and other plural weak determiners. None of the accounts discussed above intend to make any particular predictions about which readings appear in which cases; the only (intended) prediction is that the reading that results after scrambling is a strong one. I do not intend to suggest that this could have been otherwise; even though these accounts could have appealed to the lexical semantics of the determiner to constrain possible strong readings, a host of un-unifiable factors probably are involved. This does imply, however, that the only way of falsifying the intended prediction is to present examples where the indefinite is neither generic, nor specific, nor partitive, nor has any other imaginable strong reading.

The problem is confounded by the fact that there is little agreement on what it means for an indefinite to be 'specific' or 'partitive' (Diesing wisely concentrates on the generic reading, which provides a more solid empirical basis).

As for 'partitive' readings, Reinhart (1995) argues that the notion 'partitive' as used by Diesing ('presuppositional', i.e. membership of a set previously mentioned in the discourse)

cannot reliably be tested by 'arm-chair' intuitions. There is, however, a rather clear truth-conditionally identifiable notion of partitivity: *three girls* is partitive, in this sense, if it means: 'three girls, but some other girls not'.¹¹ Below, we will attempt to show that such partitive readings do not necessarily appear in scrambling contexts. We cannot hope to show unequivocally that the discourse-related type of 'partitivity' can be absent (just as one could not prove that it cannot be). In fact, we readily admit that topic-comment structures and Focus are influenced by scrambling, as shown by Reinhart - but such phenomena cannot be sufficient reason to postulate an effect on the inherent semantics of the indefinite in question.

Similar caveats apply to the 'specific' reading of indefinites. An indefinite is specific, in the classic sense, if it is not interpreted in the scope of operators higher in the structure, even in spite of restrictions on QR (see e.g. Karttunen 1971, Fodor 1970, Fodor & Sag 1982, Ruys 1992, to appear, and references cited there). One of the strong readings attributed to scrambled indefinites by De Hoop is this specific reading. De Hoop adopts Fodor & Sag's analysis of such specifics as referential expressions, whose interpretation is insensitive to scope. Whether a scrambled indefinite is specific in this sense, can only be determined when it is embedded below some other operator higher in the structure: then, if it is specific, it will take wide scope relative to this higher operator; if it is non-specific, it will take narrow scope. When an indefinite is not c-commanded by any other operator, it will, on either reading, receive "wide scope" vacuously. So a non-embedded non-specific indefinite will be virtually indistinguishable from a specific indefinite. Consequently, in order to show that certain scrambled indefinites must be specific, one must show that, when embedded, they must scope out. Conversely, we can safely conclude that an indefinite is not specific in this sense, if it is interpreted in the scope of all higher operators; we will attempt to show that this is possible after scrambling.

On the other hand, when Diesing states that scrambled NPs can be specific, she apparently does so with a different notion in mind, hence she is making a different empirical claim. By 'specific NP' Diesing means 'presuppositional quantifier'.¹² Diesing does not specify *what* presuppositional quantifier a specific indefinite denotes; presumably, existential quantification is intended. This still implies that scrambling yields a strong quantifier (due to the presuppositionality). However, in order to test whether a scrambled indefinite has indeed become specific in this sense or not, one needs to determine whether it denotes a presuppositional or non-presuppositional existential quantifier. This is not easy: one would have to show that, when the noun-set of the indefinite is empty, the sentence is infelicitous rather than just false — not the clearest of intuitions. We will attempt to provide examples where the indefinite is as 'presentational' as we can manage, but interactions with the Focus-structure of scrambling constructions will make it difficult to test this claim.

Despite all this, I believe (10) is a counterexample, with a scrambled indefinite that is not strong:¹³

- (10) ..dat elke arts wel een of andere ziekte meestal met penicilline
 ..*that every MD PRT*some or another disease usually with penicillin
 behandelde
treated
 that every MD treated sm disease or other usually with penicillin.

In (10), the scrambled *een of andere ziekte* 'sm disease or other' has a weak interpretation. The example is rather complex of necessity, because we must control many factors at the same time. For instance, the predicate 'treat with penicillin' must be made contentful enough to

allow it to be the Focus -- 'have' would not do.¹⁴ Various methods have been employed to suppress possible strong readings in (10). The scrambled indefinite *een of andere ziekte* is not generic (the determiner *een of andere* does not allow this) nor partitive (the sentence allows doctors to treat *all* diseases with penicillin; presumably also a property of the determiner). This leaves only the specificity option. But *een of andere ziekte* is interpreted in the scope of the subject *elke arts* — therefore the object is not specific in the classic sense. As for discourse-relatedness, the diseases need not be members of any previously mentioned set of diseases; in fact, I feel that (10) can be uttered with perfect felicity in a context where diseases have not been previously mentioned (say, we are discussing the availability of expensive substances, such as penicillin, in a survey of various countries¹⁵). Finally, as for presuppositionality, it is my intuition that the sentence is simply false in a world with MDs but without diseases.¹⁶ I conclude, that there are no grounds for calling *een of andere ziekte* a strong NP; nor is the sentence ill-formed because it contains a scrambled object that is prevented from being strong; this is a perfectly acceptable sentence with a weak scrambled NP.¹⁷

Having come this far, we can freely construct further examples with different determiners, and different ways of forcing the scrambled object in the scope of the subject:

- (11) a. ..dat iedere arts die langer dan 10 jaar in het vak zit patiënten
..that every MD who longer than 10 years in the trade sits patients
 tegen hun zin heeft behandeld.
against their will treated has
 that any MD who has been in practice for more than 10 years has treated
 patients against their will.
- b. ..dat elke padvinder drie boomhagedissen met een zakmes heeft

*..that every boy scout three agamids with a pocket-knife has
opengesneden.*

cut-open

that every boy scout cut open three agamids with a pocket-knife.

- c. *..dat iedere jongen een paar vrienden elke week versloeg met tennis.*

..that every boy a few friends every week beat with tennis

that every boy beat a few friends at tennis every week.

- d. *..dat bijna elke arts een andere arts met grote tegenzin behandelde*

..that almost every MD an other MD with great aversion treated

that almost every MD treated another MD very grudgingly.

As noted, it is usually assumed that bare plurals become generic when strong; NPs with determiners such as *many*, or with numerals, become partitive; singular indefinites become generic or specific. But the bare plural in (11a) need not be generic. *Drie boomhagedissen* 'three agamids' in (11b) need not be partitive,¹⁸ nor does *een paar vrienden* 'a few friends' in (11c). Each of these NPs can be weak, and is preferably interpreted as weak in these examples.

In (10) and (11) the specific reading on the scrambled indefinite is ruled out by keeping the indefinite (sometimes containing an anaphoric element, such as *een andere* 'another' in (11d)) in the scope of the quantificational subject. In a second type of example, we can place the scrambled object in the scope of a second, higher adverbial. The accounts discussed in section 1 above predict that such object NPs must be strong, since they have undergone scrambling, or movement to a position not dominated by all segments of VP, respectively. This prediction is not borne out:

- (12) a. ..dat iedere leraar wel eens studenten vóór tijd heeft weggestuurd.
..that every teacher PRT once students before time has sent-away
that every teacher has sent students away early at one time or another.
- b. ..dat iedereen wel eens iemand/mensen zonder reden heeft
uitgescholden.
..that everyone PRT once someone/people without cause has abused
that everyone has abused someone/people without cause at one time or
another.
- c. ..dat Jan waarschijnlijk een eenhoorn drie keer heeft gekust.
..that J. probably a unicorn three times has kissed
that John has probably kissed a unicorn three times.

The point is that these additional adverbs can be chosen in such a way that they suppress, e.g., the generic reading in sentences with scrambled bare plurals. Thus, (12a) is neither generic, nor ill-formed; it has only the existential reading for *studenten* 'students'. (12c) does not entail the existence of unicorns, so *een eenhoorn* 'a unicorn' is not specific.¹⁹

In this section, we have argued that scrambled NPs can be weak. Nevertheless, there are many examples in the literature (see section 1) which show that scrambling does affect meaning, in the sense that scrambling is not a 'meaning-preserving transformation.' The next section will address this issue; we will also have occasion to inspect further examples of scrambled, but weak object NPs.

3. Scrambling and Scope

The hypotheses by Kerstens, De Hoop, and Diesing outlined above all imply that the denotation or the denotational type of the indefinite object itself depends on its absolute structural position. But when an NP scrambles across an adverb, this very likely affects the meaning of the structure as a whole, independently of the inherent semantics of the scrambled NP: there will be different scope relations between the NP and the adverb it has crossed.

Consider (13):

- (13) a. ..dat Jan waarschijnlijk een oplossing heeft gevonden.
 ..that J. probably a solution has found
 that John has probably found a solution.
- b. ..dat Jan een oplossing waarschijnlijk heeft gevonden.
 ..that J. a solution probably has found
 that there is a solution that John has probably found.

The semantics of (13a) and (13b) differ clearly, e.g. in that (13b) entails the existence of a solution, whereas (13a) does not.²⁰ But this is not, of course, sufficient reason to say that the inherent semantics of *een oplossing* in (13b) is different than in (13a), i.e. that it has become specific. One need only observe that in (13a) *een oplossing* is in the scope of a modal operator, *waarschijnlijk*, whereas in (13b) it is not - this trivially gives the desired result, and there is no need to assume that *een oplossing* denotes anything but a simple existential quantifier in either case.²¹

We have then two approaches to the semantic effects of scrambling. One seeks to explain these effects by stating that scrambled indefinites become strong; the other says that they are

due (at least in part) to other factors — relative scope being one likely candidate. One way to compare these approaches is to see whether indefinites *can* denote weak quantifiers after scrambling; we have argued in the preceding section that this is the case. The argument we concentrate on in the present section runs as follows.

We will show that the meaning of a structure is affected also when a *strong* quantified NP scrambles. It follows that scrambling has some effect on interpretation other than the effect that the denotation of scrambled NPs must be strong.²² This observation detracts from the validity of existing evidence that scrambled indefinites become strong: it entails that in order to support the claim that scrambled indefinites become strong, it is not sufficient to provide examples where scrambling an indefinite affects meaning in some way that is merely consistent with the indefinite becoming strong. One must first factor out those meaning effects that can simply be explained if the indefinite remains weak, but undergoes the same meaning effects that are observed independently with strong NPs. One must then demonstrate that indefinites show a *residual* meaning effect, which cannot be so explained, but which can be explained by stating that scrambled indefinites become strong. To my knowledge, such a demonstration has never been attempted.

The unsurprising finding that meaning is also affected by scrambling strong quantified NPs is expected on the approach suggested here: the meaning of a structure is affected by the relative scope positions of adverbials and quantifiers, whether strong or weak. The notion that adverbs are involved in scope relations in this way is of course not new; see Jackendoff (1972) for early discussion;²³ see also Diesing & Jelinek (1995). In addition, the focus effects of scrambling may affect both strong and weak NPs.

All this entails that, in order to come to a description of the semantic effects of scrambling, it will be necessary to painstakingly research the semantics and scope properties of various types of adverbial expressions; manner adverbials, time adverbials, place

adverbials, both quantificational and otherwise, etc. Needless to say, this project will not be undertaken here. Nor will I attempt to argue for the explanation in terms of scope and focus in any detail. In the following subsections, I will simply illustrate the semantic effects of scrambling strong NPs across different types of adverbials, and sometimes attempt a comparison with scrambled indefinite NPs in the same contexts.

3.1 *Quantificational Time and Place Adverbials*

The interpretive effects of scrambling with strong NPs can be brought out easily with adverbs of quantification, such as *always*, *three times*, *everywhere*, *in three places*. Still, it is important to point out that while the interpretive effects illustrated here and below cannot be attributed to the strong quantifier 'becoming strong,' it is not clear in all cases what the true relevant factor is. Relative scope is certainly involved. In addition, the defocussing effect of scrambling mentioned in section 1.2 is another potential source of meaning effects. What is important, though, is that 'Strong-ness' *cannot* be the relevant factor.

Consider the following examples (in each case, the b-example is the scrambled version of the a-example. I will omit literal glosses from now on; the paraphrases given below are constructed in such a way as to clearly bring out the meaning effects of scrambling):

(14) a. ..dat Jan drie keer bijna alle glazen omgooide.
On three occasions, John knocked over almost every glass.

b. ..dat Jan bijna alle glazen drie keer omgooide.
Almost every glass, John knocked over three times.

(15) a. ..dat Marie in drie winkels de meeste computers uitprobeerde.
In three stores, Mary tried out most of the computers.

- b. ..dat Marie de meeste computers in drie winkels uitprobeerde.

Most of the computers, Mary tried out in three stores.

The temporal adverbial *drie keer* 'three times' in (14) is not relational, in the sense of De Swart (1991), so that Focus structure does not play a role in the selection of a first and second argument (see section 1.2). Hence, we seem to have a pure scope effect: in (14a), *drie keer* counts the number of events (times, occasions) when John knocked over nearly all the glasses; in (14b), it is the case for nearly every glass *x* that the number of occasions John knocked over *x* is three. Similar observations can be made for the place adverbial in (15).

The following examples contain relational adverbs:

- (16) a. ..dat de premier altijd de meeste journalisten wegstuurt.

Always, the P.M. sends away most reporters.

- b. ..dat de premier de meeste journalisten altijd wegstuurt.

Most reporters, the P.M. always sends away.

- (17) a. ..dat Jan overal waar hij komt bijna al zijn theorieën verdedigt.

Everywhere he goes, John defends almost all his theories.

- b. ..dat Jan bijna al zijn theorieën overal waar hij komt verdedigt.

Almost all his theories, John defends everywhere he goes.

In (16), we can keep the set of contextually relevant reporters fixed, and take the quantificational adverb *always* to range over all occasions when the PM holds a press-conference (first argument recovered from the context of utterance), and there is still a meaning effect of scrambling. The scrambled NP takes scope over the adverb and is not in its

second argument. In (17), the quantificational place adverbial takes a relative clause as its first argument; the strong NP takes scope over the adverb after scrambling.

We can compare these examples with those in (18)-(20), where the scrambled NPs are indefinites.

- (18) a. ..dat de premier meermalen een journalist heeft weggestuurd.
Several times, the P.M. sent away sm reporter.
- b. ..dat de premier een journalist meermalen heeft weggestuurd.
There is a reporter the P.M. sent away several times.
- c. ..dat elke premier een journalist meermalen heeft weggestuurd.
For every P.M. x, there is some reporter y that x sent away several times.
- (19) a. ..dat Jan in drie steden mensen is tegengekomen.
In three cities, John has encountered some people.
- b. ..dat Jan mensen in drie steden is tegengekomen.
There are some people John has encountered in three cities.
- (20) a. Jan is zo'n soort kok die steeds opnieuw drie gerechten uitprobeert.
John is the kind of cook who, again and again, tries out three dishes.
- b. Jan is zo'n soort kok die drie gerechten steeds opnieuw uitprobeert.
John is the kind of cook who tries out three dishes again and again.

We already discussed the interaction of scrambled indefinites and relational adverbs (*always*) in section 1.2; (18) - (20) are examples with non-relational adverbs. When *een journalist* 'a reporter' in (18) is scrambled across the non-relational adverb *meermalen* 'repeatedly', meaning changes in exactly the way we expect given that scope relations are determined by c-command. Since *een journalist* is not in the scope of *meermalen* after scrambling, one may

be tempted to say that it is specific, since specific NPs always take wide scope - but concluding this would be an obvious fallacy. We need to look at examples where the indefinite is still c-commanded by an operator after scrambling, to determine whether scrambling has rendered it specific; (18c) is such an example. The scrambled indefinite remains in the scope of the subject in (18c); so this is a clear example of a weak scrambled indefinite. (19b) is remarkable in that it contains a bare plural which, although in a scrambled position (and outside the scope of the adverbial) need not be interpreted as a generic, although this is the usual interpretation for a scrambled bare plural. Similarly, the value of *drie gerechten* 'three dishes' may vary with *steeds opnieuw* 'again and again' in (20a), and not in (20b), but in (20b) it does not necessarily have a partitive reading ('three, but others not').²⁴

3.2 Modal Adverbs

It is generally difficult to distinguish wide scope and narrow scope readings for strong quantifiers relative to modal and intensional operators. But consider (21):

(21) a. ..dat x mogelijkerwijs alle priemgetallen overtreft.

Potentially, x exceeds all prime numbers.

b. ..dat x alle priemgetallen mogelijkerwijs overtreft.

All prime numbers are potentially exceeded by x.

(21) shows the relevant scope distinction. Recall, that we identified a similar scope effect with an indefinite in (13) above.

3.3 Subject Oriented Adverbs

The above examples show that when scrambling occurs across quantificational or modal adverbials, the resulting interpretive effects can very well be described in terms of scope relations; there is no indication that indefinite NPs must be given any special treatment. We turn now to those adverbs that are not usually associated with scope effects: manner adverbs, 'point' place and time adverbials. If we find that scrambling of strong quantifiers has semantic effects with such adverbs, this again shows that a reduction of scrambling-associated meaning effects to the 'Strong-ness' property cannot be maintained. It is less obvious, however, what the correct analysis will be. Focus very likely will play a role here, especially when indefinite NPs are scrambled across such adverbs. Consider first (22) and (23):

- (22) a. ..dat Jan met tegenzin alle problemen heeft opgelost.
Against his will, John solved all problems.
- b. ..dat Jan alle problemen met tegenzin heeft opgelost.
John solved all problems against his will.
- (23) a. ..dat Jan tegen mijn uitdrukkelijke verbod in alle boeken heeft meegenomen.
Against my explicit prohibition, John took away all the books.
- b. ..dat Jan alle boeken tegen mijn uitdrukkelijke verbod in heeft meegenomen.
All the books were taken away by John against my explicit prohibition.

(22a) and (22b) differ in meaning, in that (22a) says that John has an aversion to the entire enterprise of solving all the problems, whereas according to (22b) there was not any problem that he didn't hate solving (there may have been such a problem in (22a)). Of course,

intuitions cannot be very sharp, as the two readings are closely related. Similar comments hold for (23); the paraphrases speak for themselves.

In this context, we can again scramble weak NPs, with similar interpretive effects, but without their becoming strong (this is particularly striking in (25)):

- (24) a. ..dat Jan graag weinig problemen oplost.
..that J. gladly few problems solves
 John likes it when he solves few problems.
- b. ..dat Jan weinig problemen graag oplost.
..that J. few problems gladly solves
 There are few problems John likes to solve.
- (25) a. ..dat de premier met tegenzin (twee) journalisten heeft weggestuurd.
Against his will, the P.M. sent away two/sm reporters.
- b. ..dat de premier (twee) journalisten met tegenzin heeft weggestuurd.
There are two/sm reporters the P.M. sent away against his will.

3.4 Instrumentals, and Intensional Verbs

In some cases, the semantics of the adverb is such that it will not show any scope effects; but in those cases, the absence of interpretive effects (Focus apart) will hold across weak and strong NPs. In fact, sometimes the case is reversed: in (26)-(27), scrambling a singular indefinite has no truth-conditional effect, but scrambling a universal quantifier has:

- (26) a. ..dat Jan met een bijl een boom omhakte.
- b. ..dat Jan een boom met een bijl omhakte.

John cut down a tree with an axe.

- (27) a. ..dat Jan met een bijl alle bomen omhakte.

With one and the same axe, John cut down all the trees.

- b. ..dat Jan alle bomen met een bijl omhakte.

John cut down all the trees with an axe.

But the adverb is not the only element which may have scope interactions with the object; intensional verbs have as well. Consequently, there is a meaning effect in (28):

- (28) a. ..dat Jan met een verrekijker een eenhoorn zoekt.

With binoculars, John seeks a unicorn.

- b. ..dat Jan een eenhoorn met een verrekijker zoekt.

There is a unicorn John seeks with binoculars.

While (28a) is ambiguous between a *de re* reading and a *de dicto* reading for *een eenhoorn* 'a unicorn', (28b) only has the *de re* reading (cf. (3)). But we need not attribute this to a forced change in the inherent semantics of the indefinite; the verb in (28b) fails to take scope over the object since the object is not c-commanded by the verb (see Williams 1984).

3.5 'Point' Time and Place Adverbials

Consider finally 'point' time and place adverbials, such as *yesterday*, *during the break*, *here*, *in the library*. We do not expect there to obtain the same type of scope interactions here as we observed with quantificational and modal adverbs.²⁵ We do however find interpretive effects upon scrambling of strong NPs. Consider (29) and (30):

- (29) a. ..dat Jan gisteren alle dronken mannen heeft weggestuurd.
Yesterday, John sent away all men who were drunk.
- b. ..dat Jan alle dronken mannen gisteren heeft weggestuurd.
Yesterday, John sent away all men who are drunk.
- (30) a. ..dat Jan gisteren een dronken vrouw heeft weggestuurd.
Yesterday, John sent away a drunk woman.
- b. ..dat Jan een dronken vrouw gisteren heeft weggestuurd.
There is a drunk woman John sent away yesterday.

(30a) does not entail the (present) existence of a drunk woman (or indeed of any woman). (30b) does. (29a) quantifies over men who were drunk yesterday; (29b) quantifies over men who are drunk presently or always, or over drunk men in general.²⁶

Again, we have very little to say about the proper analysis of these distinctions. It seems that we would need an operator-approach to tense (Prior 1967) in order to derive any scope distinctions, but we would not expect *gisteren* to denote an operator, and even if it did, it is difficult to see why scrambling across it would place the object outside the scope of the PAST-operator as well. In a referential approach to tense (cf. e.g. Enç 1987), it is not clear how scope relations can be derived, and indeed it seems difficult to prevent (30a) from having an existential entailment. One might provide *dronken* 'drunk' with an event-argument (and the Individual level predicate *vrouw* 'woman' as well) and relate this event variable to a time placed in the past by tense and by the time adverbial; then assuming several event quantifications might go some way toward deriving the correct distinctions. On the other hand, nothing more than Focus-presupposition effects may be at work here.

Place adverbials do not present a much clearer picture:

- (31) a. ..dat Jan in de bibliotheek/hier de meeste boeken las.
..that J. in the library/here the most books read
- b. ..dat Jan de meeste boeken in de bibliotheek/hier las.
..that J. the most books in the library/here read

Interpretive effects are rather weak here, but numerous. Firstly, (31a) on one of its more prominent readings quantifies over books that were in the library (here), whereas (31b) quantifies over a contextually relevant set of books, in the library (here) or elsewhere.²⁷ Also, (31a) involves only one library; in (31b) there may be a different library for every book. Also, *de meeste* has a 'comparative superlative' reading, on which (31b) means: 'more books that were read in the library (here) were read in the library (here) by John than by anyone else', and (31a): 'more books that were read were read by John in the library (here) than by anyone else' (with *in de bibliotheek* 'in the library' outside the frame of comparison -- Szabolcsi 1986). These readings, and the selection of Focus all seem to interact with different possible stress-patterns. We shall not attempt to disentangle these phenomena here; it is more important to note that the absence of one clear semantic effect of scrambling with strong NPs correlates with the absence of a clear effect with weak NPs:

- (32) a. ..dat de premier in de tuin (drie) journalisten heeft toegesproken.
- b. ..dat de premier (drie) journalisten in de tuin heeft toegesproken.
The P.M. addressed three/sm reporters in the garden.
- c. ..dat iedere minister journalisten / een journalist in de tuin heeft toegesproken.
Every minister addressed sm journalist(s) in the garden.

The bare plural *journalisten* 'reporters' in (32b) does not need to be generic; *drie journalisten* does not need to be partitive; a singular indefinite in a similar context does not need to be specific, as (32c) shows (they *can* be, of course, but that is not the point).

In this section, we have shown that the meaning of a structure is often affected when a strong object NP scrambles. It follows, that the effects that scrambling has on meaning cannot all be reduced to a simple rule which states that scrambled NPs must be strong. This implies, that if one wishes to propose the rule that scrambling renders an NP strong, then in order to provide evidence for this rule one is obliged to isolate the meaning effects that obtain with all NPs, and then show that there are additional meaning effects with weak NPs, and that this residue is best explained by such a rule. We have serious doubt that this can be done, firstly, because we doubt the existence of such a residue, and secondly because we have given many examples where scrambled weak NPs remain weak.

In most cases, we have not positively identified the cause of the interpretive effects observed, but only given tentative suggestions as to the direction that research might take. Obviously, in view of the diverse semantic properties of the adverbial expressions involved, this research will be many-faceted. We have, however, indicated two factors that are generally relevant: scrambling affects Focus, as argued by Reinhart (1995), and scrambling affects c-command relations, hence relative scope.²⁸

4. Conclusions

The notion that the semantics of weak NPs depends on their structural position has become increasingly popular in recent years. In this paper, we have examined one case which is often cited in favor of this view - Dutch scrambling - and shown that the evidence is far from

convincing. There is no evidence that scrambled weak NPs become Strong or Presuppositional; indeed, this is often very clearly not the case. And those interpretive effects that do arise with scrambling, affect not only weak NPs, but strong ones as well, and seem related to scope and Focus much more than to strength.

It is important to note what we have *not* shown in this paper. We have not argued that weak NPs are never interpreted as Strong or Presuppositional. Also, we have not shown that the semantics of a weak NP never depends on its structural position - in particular, we have not addressed NPs in subject position (see De Hoop (1992) and Reinhart (1995) for some critical discussion of Diesing's (1992) views in this respect). Indeed, we have not even shown that scrambling never renders a weak object NP strong. Also, on the issues we have discussed, our positive results are far more tentative than our negative ones. Overall, it seems that much more research is still required than one might have come to suspect.

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¹ A brief summary of Kerstens (1975) can be found in De Haan (1979).

² A note on terminology: 'weak NPs' are syntactic objects that often denote weak quantifiers (and sometimes strong ones, it is claimed). To avoid confusion, I often use 'indefinite' as synonymous with 'weak NP.'

³ Yet another idea that is presently popular in work on indefinites, namely that the definiteness effect in *there*-sentences is also due to the VP-internal position of the subject, was proposed in Kerstens (1975) as well.

⁴ For definitions of the Weak-Strong distinction, see Barwise & Cooper (1981), Keenan (1987), De Jong & Verkuyl (1984).

⁵ Technical implementation is not trivial. The Mapping Hypothesis states that material from VP is mapped into the nuclear scope, and material from IP is mapped into the restrictive clause (p. 10). With reference to VP, Diesing later defines 'being from' as 'being dominated by all segments of' (this is required so as to allow strong, presuppositional Quantifiers to be adjoined to VP in some cases; p. 77). But on this count, NPs adjoined to IP (wide scope strong quantifiers, scrambled NPs in German (p. 107)) are *not* 'from IP'; if they are in an embedded clause, as is the case in most of Diesing's examples, they are dominated first by the matrix-VP. Hence, without further elaboration, the prediction will be that scrambled NPs in German can only have the weak, existential reading, and not the strong reading, and that strong quantifiers adjoined to IP do not receive the presuppositional reading attributed to them; the exact opposite of what is intended.

⁶ On closer inspection, these facts do not follow without further stipulation from the Mapping Hypothesis and Diesing's assumptions about Existential closure. The assumption is that the scrambled indefinite in (7a) is in the restrictive clause, and lacks a determiner with quantificational force, so that unselective binding by the generic operator is the only option. But since (7a) is in an embedded clause, it is itself dominated by the matrix-VP, hence existential closure should also be an option, albeit (perhaps) with a presuppositional effect because the NP is in a restrictive clause as well. Preventing such an existential reading for

VP-external subjects was the reason why Diesing rejected the existential closure of texts known from DRT; but existential closure of matrix VPs seems to reopen the option.

Note further, that it must be assumed that scrambled objects cannot reconstruct or undergo Quantifier Lowering, or a weak reading will nevertheless be available for scrambled objects. We believe that there is indeed no reconstruction in these cases (see below), but Diesing's account of this observation is open to question. In her discussion of indefinite VP-external subjects in German, which also have a strong reading, she states that semantic interpretation can apply at S-structure in German (p. 39). Therefore, indefinite subjects cannot lower into VP to undergo existential closure (unlike in English), hence the obligatory strong reading. Apart from the fact that such LF-parametrization is suspect (see Reinhart 1995 for some discussion), it leads to an internal contradiction. First of all, it seems clear that we must read *can apply at s-structure* as *must apply at s-structure* (otherwise, the intended prediction does not follow — reconstruction and LF-interpretation would also be an option). But Diesing also claims that in German strong NP-objects QR out of VP at LF, and scope ambiguities arise — hence, LF-interpretation must be possible. The same holds for Dutch: while it must be admitted that scope ambiguities in *someone loves everyone* type examples are hard to find, some such ambiguities do exist (ia); and inversely linked structures are also possible (ib):

- (i) a. ..dat er een jongen op elke ezel zat.
 ..that there a boy on every donkey sat
 (possibly:) for every donkey x, some boy sat on x
- b. Een paar mensen in elke stad hebben de luchtballon gezien.
 a few people in every city have the hot air balloon seen

(preferably:) for every city x, some people in x saw the hot air balloon

⁷ Diesing assumes, then, that specific NPs are quantificational. While we agree with her arguments against Fodor & Sag's (1982) characterization of specific indefinites as referential expressions (see Ruys, to appear), labelling them as presuppositional quantifiers does not explain their properties. If they are quantifiers, their scope properties are very different from those of ordinary presuppositional quantifiers such as *every*, as noted by Fodor & Sag a.o. In fact, a promising recent treatment of the semantics of specific indefinites (Reinhart 1995, 1997b; Winter 1995, 1997, 1998) takes them to be the exact opposite: they are open formulas containing a free variable that gets bound by a wide scope existential quantifier ranging over choice functions (see also Ruys 1992 for a similar treatment).

⁸ p. 94/5. Although this appears at odds with Diesing's earlier assertion that indefinites without a quantificational determiner, which are subject to unselective binding, do not undergo QR (p. 61).

⁹ One might suppose that the verb must move out of VP at LF, as in Chomsky (1994) - but this implies that the verb will always be in the restrictive clause, which is equally untrue. Also, we could limit the scope of the Mapping Hypothesis to NPs, but this leaves us in need of a second Mapping Hypothesis to deal with the remaining material.

¹⁰ We will discuss only Dutch, not German. I suspect, however, that what we have to say about Dutch will turn out to apply to German as well; see Moltmann (1991) for some relevant examples.

¹¹ The determiner *many* also has some strong readings (see De Hoop 1992, Westerstahl 1985, Partee 1988) which are truth-conditionally clearly distinct from its weak reading,

namely readings on which the truth of *many A B* depends not only on the cardinality of the intersection of A and B, but on A/B or B/A as well.

¹² At the same time, however, she suggests that this description also applies to the semantic phenomena (exceptional non-narrow scope out of scope islands) addressed by Fodor & Sag a.o.; but this is problematic — see footnote 7.

¹³ This example, as well as those to follow, are intended to be read with a 'neutral' intonation pattern, i.e. with stress on the most deeply embedded element (cf. Cinque 1993), usually the verb, and no contrastive stress on the scrambled element. In particular, we are not dealing with 'Focus-scrambling' in the sense of Neeleman (1994). I feel this still allows for different intonation patterns: the scrambled object may be completely destressed, or a (secondary) stress may be placed on it, which rearranges the Focus structure so that the object may again be 'new information.' These observations are very tentative, however; I am not aware of a comprehensive treatment of these issues.

Examples of 'Focus-scrambling' are distinguished by heavy stress on the fronted DP. Both weak and strong readings for focus-scrambled weak DP's are available; in example (i), suggested by an anonymous JCGL reviewer, focus-scrambled *een meisje* may be either generic, or weak existential, depending on the preceding context A or B, respectively.

(i) A Is it boys that John never insults on purpose?

B Is there a boy that John never insults on purpose?

Nee, ik geloof dat Jan een **MEISJE** nooit opzettelijk beledigt.

No, I believe that J. a girl never on-purpose insults.

¹⁴ Reinhart (1995) diagnoses De Hoop's Principle of Contrastiveness as the requirement that the predicate be able to function as Focus.

¹⁵ Neeleman & Reinhart (1998) claim that the scrambled indefinite must be d-linked (see also Reinhart 1997a); they are unconvinced by counterexamples like (10) because no actual context is given which shows the indefinite to be non-d-linked. Here is a context, which I find felicitous:

We hebben onderzocht of men in ontwikkelingslanden moeilijk toegang heeft tot dure of zeldzame substanties. We ontdekten dat fysici in ontwikkelingslanden bij bijna geen enkel experiment verrijkt uranium gebruikten, hetgeen wijst op een monopoliepositie voor de hooggeïndustrialiseerde wereld. Maar we stelden ook in bijna elk land dat onderzocht werd vast (10).

'We have investigated whether expensive and rare substances are unavailable in developing countries. We found, that physicists in developing countries used enriched uranium in almost none of their experiments, which indicates that the highly industrialized world holds a monopoly position. But we also found in almost every country under investigation, (10).

¹⁶ To corroborate, I feel that (i) is false (depending of course on the matrix verb):

- (i) ..dat elke ontdekkingsreiziger wel een paar eenhoorns meermalen
..that every explorer *PRT a few unicorns repeatedly*
tegen is gekomen.

against is come

that every explorer has encountered some unicorns several times.

¹⁷ Things would be much easier, of course, if we could apply a positive test for weakness, for instance on the basis of the equivalence of $D(A)(B)$ and $D(B)(A)$ when D is weak; but it is difficult to construct such pairs with the appropriate syntactic structures. Possibly, a relevant argument can be based on the equivalence of the examples in (i) (thanks to Yoad Winter for help in constructing the examples):

- (i) a. ..dat elke vrouw wel iets wat zij met tegenzin aanpreeft met plezier afkraakte.
..that every woman PRT something that she reluctantly praised with pleasure condemned
- b. ..dat elke vrouw wel iets wat zij met plezier afkraakte met tegenzin aanpreeft.
..that every woman PRT something that she with pleasure condemned reluctantly praised

¹⁸ The partitive reading can be brought out by stressing *drie* 'three' or suppressed by destressing it.

¹⁹ Consider a model without unicorns in which John has been placed under a spell that is to be lifted only if he kisses one and the same unicorn three times; unbeknownst to us, the Good Witch of the South intervenes and we see that the spell is suddenly lifted; we could then truthfully utter (12c).

²⁰ Given, of course, an appropriate matrix predicate; we will not repeat this caveat below.

²¹ Assuming that *een oplossing* does not undergo LF-lowering; see footnote 28.

²² Since strong quantified NPs always denote strong (generalized) quantifiers, whether they scramble or not.

²³ The type of scope interaction among adverbs described by Jackendoff can be illustrated for Dutch by the examples in (i), suggested by an anonymous JCGL reviewer:

- (i) a. Wij gingen in die dagen volgens Marleen's plan op vakantie
we went in those days according-to M's plan on holiday
- b. Wij gingen volgens Marleen's plan in die dagen op vakantie
we went according-to M's plan in those days on holiday

In the b-example, M's plan extends to the period in which the holiday is supposed to take place, in the a-example it does not. As the reviewer points out, examples of this type show that the relevant semantic effects are directly associated with word order, not with scrambling, since no scrambling is involved in (i).

²⁴ Cf. footnote 18. The extra context in (20) is designed to suppress the partitive reading.

²⁵ This is not entirely true. In (i):

- (i) a. ..dat de premier tijdens de pauze de meeste journalisten wegstuurde
..that the P.M. during the break the most reporters sent-away
- b. ..dat de premier de meeste journalisten tijdens de pauze wegstuurde
..that the P.M. the most reporters during the break sent-away

when *de meeste journalisten* 'most reporters' is scrambled, it can take scope over *de pauze* 'the break', so that (ib) can involve several breaks (one for every reporter).

²⁶ There is a reading for (29b) on which it is synonymous with (29a). This is partly due to the fact that the adverb *gisteren* 'yesterday' can be a modifier of *alle dronken mannen* 'all drunk men'; but reconstruction can also be a factor; see also footnote 28. The reading indicated in the text is the most prominent. What is important, of course, is that (29b) shows that scrambling strong NPs affects meaning; in this case, it does so at least by adding a new reading, even if the original reading is not completely lost.

²⁷ Again, *in de tuin* can also be an NP-modifier; see footnote 26.

²⁸ As for the latter, an obvious question that arises now is why scrambling does not feed reconstruction or Quantifier Lowering, as the examples above appear to indicate. Two possibilities present themselves. It was argued by Neeleman (1994), that scrambling constructions do not involve movement but are base-generated. If this is the case, we do not expect QL to occur (May 1977). On the other hand, Ruys (1992) speculates that there is no quantifier reconstruction from adjoined structures, hence an A-bar movement analysis of scrambling may also provide the necessary equipment to deal with this issue. In either case, we will not need to rely on LF-parametrization (cf. footnote 6). Much more research on scope assignment and quantifier reconstruction in Dutch in general is needed to settle these issues.

De Hoop (2000) claims, contrary to what I state here, that examples can be constructed where scrambled strong NPs scopally reconstruct to their base position. If so, this does not directly affect my main point: it is enough to show that strong NPs are *sometimes* interpreted in their scrambled position, to conclude that scrambling affects meaning in other ways than by rendering the scrambled NP strong. However, if it were shown in addition that strong NPs reconstruct very easily, but indefinites do not, this might indicate that scrambling had some additional effect on the meaning of indefinites. As things stand, I am not yet convinced that reconstruction ever occurs. Consider De Hoop's example in (ia):

- (i) a. ..dat Jan alle boeken een keer verscheurd heeft.
..that J. all books a time torn-up has
- b. ..dat alle studenten mij een keer uitgejouwd hebben.
that all students have booed me at one time.

I agree that (ia), where the scrambled universal NP c-commands the adverbial *een keer* 'one time', has a reading where on one occasion J. tore up all the books. This might be due to reconstruction of *alle boeken* 'all books', but other explanations are possible: *alle boeken* may have a collective reading; or *een keer* may be specific here, as I suspect. Note that (ib) also allows the reading that on one occasion, all students booed me; but since *alle studenten* 'all students' is the subject here, reconstruction to a position below the adverb is not a likely explanation.

References

- Barwise, J. & R. Cooper (1981), 'Generalized Quantifiers and Natural Language', *Linguistics and Philosophy* 4, 159-219.
- Bennis, H. & T. Hoekstra (1984), 'Gaps and Parasitic Gaps', *The Linguistic Review* 4, 29-87.
- Chomsky, N. (1994), 'Categories and Transformations', in *The Minimalist Program*, MIT Press, Cambridge, Mass.
- Cinque, G. (1993), 'A Null Theory of Phrase and Compound Stress', *Linguistic Inquiry* 24-2, 239-297.
- Diesing, M. (1992), *Indefinites*, MIT Press, Cambridge, Mass.

- Diesing, M. & E. Jelinek (1995), 'Distributing Arguments', *Natural Language Semantics* 3, 123-176.
- Enç, M. (1987), 'Anchoring Conditions for Tense', *Linguistic Inquiry* 18, 633-657.
- Fodor, J.D. (1970), *The Linguistic Description of Opaque Contexts*. PhD. Diss. MIT.
- Fodor, J.D. & I. Sag (1982), 'Referential and Quantificational Indefinites', *Linguistics and Philosophy* 5, 355-398.
- Haan, G. de (1979), *Conditions on Rules. The proper Balance between Syntax and Semantics*, Foris, Dordrecht.
- Haider, H. (1993), *Deutsche Syntax - generativ*, Gunter Narr Verlag, Tübingen.
- Heim, I. (1982), *The Semantics of Definite and Indefinite Noun Phrases*, PhD. Diss. University of Massachusetts, Amherst.
- Hoop, H. de (1992), *Case Configuration and Noun Phrase Interpretation*, PhD. Diss., Groningen University.
- Hoop, H. de (2000), 'Optional Scrambling and Interpretation', in H. Bennis, M. Everaert & E. Reuland (eds.), *Interface Strategies*, KNAW, Amsterdam, 153-168.
- Hoop, H. de & H. De Swart (1990), 'Indefinite Objects', in R. Bok-Bennema & P. Coopmans (eds.), *Linguistics in the Netherlands 1990*, Foris, Dordrecht, 91-100.
- Jackendoff, R. (1972), *Semantic Interpretation in Generative Grammar*, MIT Press, Cambridge, Mass.
- Jong, F. de & H.J. Verkuyl (1984), 'Generalized Quantifiers: The Properness of their Strength', in J. van Benthem & A. ter Meulen (eds.), *Generalized Quantifiers in Natural Language*, Foris, Dordrecht, GRASS 4, 21-44.
- Kamp, H. (1981), 'A Theory of Truth and Semantic Representation', in J. Groenendijk et al. (eds.), *Truth, Interpretation and Information*, Foris, Dordrecht, 1-41.
- Kamp, H. & U. Reyle (1993), *From Discourse to Logic*, Kluwer, Dordrecht.

- Karttunen, L. (1971), 'Discourse Referents', in J.D. McCawley (ed.), *Notes from the Linguistic Underground*, Syntax and Semantics 7, 363-385.
- Keenan, E.L. (1987), 'A Semantic Definition of "Indefinite NP"', in E. Reuland & A. Ter Meulen (eds.), *The Representation of (In)definiteness*, MIT Press, Cambridge, Mass., 286-317.
- Kerstens, J. (1975), *Over afgeleide structuur en de interpretatie van zinnen*, ms., University of Amsterdam.
- Kratzer, A. (1989), 'Stage and Individual Level Predicates', in *Papers on Quantification*, NSF Grant Report, Dept. of Linguistics, University of Massachusetts, Amherst.
- Lappin, S. & T. Reinhart (1988), 'Presuppositional Effects of Strong Determiners', *Linguistics* 26, 1021-1037.
- Lenerz, J. (1977), *Zur Abfolge nominaler Satzglieder im Deutschen*, TBL Verlag, Tübingen.
- May, R. (1977), *The Grammar of Quantification*, PhD. Diss. MIT, Repr. by IULC.
- Milsark, G.L. (1974), *Existential Sentences in English*, PhD. Diss. MIT.
- Moltmann, F. (1991), *Scrambling in German and the Specificity Effect*, ms. MIT.
- Neeleman, A. (1994), *Complex Predicates*, PhD. Diss., Utrecht University.
- Neeleman, A. & T. Reinhart (1998), 'Scrambling and the PF Interface', in M. Butt & W. Geuder (eds.), *The Projection of Arguments; Lexical and Compositional Factors*, CSLI Lecture Notes 83, CSLI, Stanford, 309-353.
- Partee, B. (1987), 'Noun Phrase Interpretation and Type Shifting Principles', in J. Groenendijk, D. de Jongh & M. Stokhof (eds.), *Studies in Discourse Representation Theory and the Theory of Generalized Quantifiers*, GRASS 8, Foris, Dordrecht, 115-143.
- Partee, B. (1988), 'Many Quantifiers', in J. Powers & K. de Jong (eds.), *Proceedings of the fifth Eastern States Conference on Linguistics*, Ohio State University.

- Prior, H. (1967), *Past, Present and Future*, OUP, Oxford.
- Reinhart, T. (1995), *Interface Strategies*, OTS working Papers, Utrecht University. To appear at MIT Press.
- Reinhart, T. (1997a), 'Interface Economy: Focus and Markedness', in C. Wilder, H.-M. Gärtner & M. Bierwisch (eds.), *The Role of Economy Principles in Linguistic Theory*, *Studia Grammatica* 40, Akademie Verlag, Berlin, 146-169.
- Reinhart, T. (1997b), 'Quantifier Scope: How Labour is Divided between QR and Choice Functions', *Linguistics and Philosophy* 20, 335-397.
- Rooth, M. (1985), *Association with Focus*, PhD. Diss., University of Massachusetts, Amherst.
- Ruys, E.G. (1992), *The Scope of Indefinites*, PhD. Diss. Utrecht University.
- Ruys, E.G. to appear, 'Unexpected Wide Scope Phenomena', in H. van Riemsdijk and M. Everaert (eds.), *The Syntax Companion*.
- Swart, H. de (1991), *Adverbs of Quantification: a Generalized Quantifier approach*, PhD. Diss., Groningen University.
- Szabolcsi, A. (1986), 'Comparative Superlatives', in N. Fukui, T.R. Rapoport & E. Sagey (eds.), *Papers in Theoretical Linguistics*, MIT Working Papers in Linguistics 8, 245-265.
- Westerståhl, D. (1985), 'Logical Constants in Quantifier Languages', *Linguistics and Philosophy* 8, p. 387-413.
- Williams, E. (1984), 'There-Insertion', *Linguistic Inquiry* 15-1, 131-153.
- Winter, Y. (1995), 'On the Formalization of Choice Functions as Representing the Scope of Indefinites', in G.V. Morrill & R.T. Oehrle (eds.), *Proceedings of the ESSLLI7 Conference on Formal Grammar*, Universitat Politècnica de Catalunya, Barcelona.

Winter, Y. (1997), 'Choice Functions and the Scopal Semantics of Indefinites', *Linguistics and Philosophy* 20, 399-467.

Winter, Y. (1998), *Flexible Boolean Semantics; Coordination, Plurality and Scope in Natural Language*. Diss. Utrecht University.

Wyngaerd, G. Vanden (1989), 'Object Shift as an A-Movement Rule', *MIT Working Papers in Linguistics* 11, 256-271.