
**Project:** Designing and conducting an experimental study in formal semantics  
**Supervisors:** Cornelia Endriss, Judith Degen

This project will support the design and evaluation of an experimental study, which aims at a closer investigation of the scope possibilities of indefinite noun phrases. Depending on the actual state of the running experimental study the assignments will focus on either the design, the preparation, the implementation, or the evaluation of the study.

**Prerequisites:** Introduction to Linguistics, Foundations of Logic

**Required reading:**

**Background**
Indefinites such as *some professor* have different readings depending on their scope. Consider the following examples:

1. *Every student will leave if some professor shows up.*
2. *Every student announced she will leave if some professor shows up.*

Allegedly, (2) has four different readings, while (1) has only three. If the indefinite takes **narrow scope**, every student will leave if anybody with the property of being a professor shows up, allowing the continuation “…whoever it may be”. If the indefinite takes **wide scope** over *every student* it has a referential reading, i.e. there is a professor - say Prof. Bailey - such that every student will leave if Prof. Bailey shows up. This allows the continuation “…namely Prof. Bailey”. If the indefinite takes **functional wide scope** over *every student*, different students will leave if different professors show up. This is expressed in the continuation “…namely her philosophy lecturer”. Finally, only (2) allows for the **intermediate scope** pair-list reading. In these cases, every student will leave if a different person shows up, allowing for the continuation “…namely Carol if Prof. Ross shows up, John if Prof. Benton shows up, and Mark if Prof. Carter shows up”.

**Study**
Participants are introduced to Max, a boy that they will see in a number of different situations (short films/pictures) during the experiment. Max’ job is to report to a friend what happened in these situations. The participants’ job is to judge whether Max’ report is adequate or not.

For every pair of target sentences (“*Every student will leave if some professor shows up.*”/”*Every student announced she will leave if some professor shows up.*”), there are four context variations (situations). For example, participants will see the following situation that corresponds to the **wide scope reading**.
Max is at a student party. The students are talking about their lecturers. They all say they will leave if Prof. Bailey shows up. Participants then see Max talking to a third party. Max says either (1) or (2). They are then required to judge Max’ report’s adequacy. These judgments will be measured to determine availability and accessibility of readings.
Chapter 4

Exceptional Wide Scope

4.1 Scope Islands

As could be seen in the preceding chapter, indefinites can take scope wider than operators that c-command them at the surface. I repeat example (3.25a) below as (4.1a). (4.1b) gives an example for a strong quantifier that is c-commanded by an indefinite.

(4.1)  a. Every student has read some book that Anne recommended.

b. Some student has read every book that Anne recommended.

Both (4.1a) and (4.1b) are ambiguous between a scope reading that corresponds to the c-command relations at the surface and one where the embedded quantifier takes scope over the one that c-commands it. The (simplified) readings for (4.1a,b) are given in (4.2a,b), respectively.

(4.2)  a. 1. \( \forall x[\text{student}(x) \rightarrow \exists y[\text{recom\_book}(\text{anne}, y) \land \text{read}(x, y)]] \)

2. \( \exists y[\text{recom\_book}(\text{anne}, y) \land \forall x[\text{student}(x) \rightarrow \text{read}(x, y)]] \)

b. 1. \( \exists x[\text{student}(x) \land \forall y[\text{recom\_book}(\text{anne}, y) \rightarrow \text{read}(x, y)]] \)

2. \( \forall y[\text{recom\_book}(\text{anne}, y) \rightarrow \exists x[\text{student}(x) \land \text{read}(x, y)]] \)

Whether (4.1b) actually has an inverse reading under ‘neutral’ intonation is controversial (see references in Pafel 2005 for the two different views). What is uncontroversial, I believe, is that (4.1b) can have an inverse reading when a special rise-fall-contour is realized on the sentence, where the rising tone falls on some and a falling one on every (cf. Jackendoff 1972 on scope inversion of quantifiers and negation). Disregarding intonation, we can see that both sentences allow for two different readings. In this respect it plays no role whether the
c-commanded DP is an indefinite as in (4.1a) or a strong quantifier as in (4.1b). Both allow for an inverse scope reading.

The situation changes dramatically if we look at the behavior of indefinites and strong quantifiers that are embedded in scope islands (cf. e.g. Ruys, 1992; Reinhart, 1997; Szabolcsi, 1997b; Winter, 1997).

\[(4.3)\]

a. *Anne has read every book that some teacher recommended.* \([\forall \succ \exists] [\exists \succ \forall]\]

b. *Anne has read some book that every teacher recommended.* \([\exists \succ \forall]^{*} [\forall \succ \exists]\]

In (4.3a,b), an indefinite and a strong quantifier are each embedded in a relative clause. Relative clauses are regarded as syntactic islands, which means that overt extraction from them is prohibited. As syntactic islands are also always scope islands, the relative clause constitutes a scope island. Consequently, (4.3b) is indeed unambiguous and does not support a wide scope reading for the quantifier *every teacher*, i.e. the strong quantifier cannot take scope out of the relative clause island. The sentence only has the reading that corresponds to the surface c-command relations, where the indefinite takes scope over the universal quantifier. It then means that Anne has read some particular book that has the property that it has been recommended by every teacher. The inverse scope reading is not possible, and even intonation cannot help to make it available. (4.3b) cannot mean the following: for every teacher it holds that Anne read some book that he recommended. The unavailability of an inverse scope reading of a quantifier that is embedded in a syntactic island is expected if inverse scope is derived via QR or an alternative mechanism that obeys syntactic constraints.

It is surprising that (4.3a) is ambiguous and does allow for a wide scope reading of the indefinite *some teacher*, even though this indefinite is embedded in the same relative clause-island. (4.3a) has two readings, a wide scope and a narrow scope reading for the indefinite. It can mean that Anne has read every book that has the property of having been recommended by a teacher. Or it can mean that there is some particular teacher such that Anne has read every book that he recommended. Hence, indefinites seem to allow for exceptional wide scope.

To derive this inverse scope reading via QR, one would have to assume island-free QR. This assumption would be highly undesirable because QR, being a syntactic mechanism, should obey syntactic constraints. And even if one assumed island-free QR, it would have to be restricted to certain quantifiers, because (4.3b) does not allow for a wide scope reading. If the two readings of (4.3a) actually are different scope readings of the indefinite, the only plausible way to explain the wide scope reading is to assume a scope shifting mechanism that does not obey syntactic constraints. And indeed, as pointed out in the preceding chapter, my mechanism \(M\) interprets topical DPs, which suggests that \(M\) is subject to information structural constraints rather than syntax.

There are other scope islands that do not allow embedded quantifiers to take scope out of them in the general case, but allow for scope extraction of indefinites, for instance *If*-clauses.
The following example (based on an example from Ruys (1992)) illustrates this.

(4.4) a. If some relative of Paul dies, Paul will inherit a fortune. \[ \text{If} \succ \exists \succ \text{If} \]

b. If every relative of Paul dies, Paul will inherit a fortune. \[ \text{If} \succ \forall \succ \text{If} \]

While (4.4a) can be interpreted both as a wide scope and a narrow scope reading of the indefinite, (4.4b) only has a narrow scope reading. In other words, (4.4a) has a wide scope reading saying that there is one specific relative of Paul, say Uncle Mike, who is such that if he dies, Paul will inherit a fortune. Should other relatives of Paul die, he may not inherit anything. The narrow scope reading of (4.4a) is clearly different from its wide scope reading. Here, it suffices that just any relative of Paul dies and he inherits a fortune. While (4.4a) is ambiguous, (4.4b) only supports the narrow scope reading, which says that all relatives of Paul have to die to make him inherit a fortune. The sentence does not have a wide scope reading, which would be the following: for every relative of Paul it holds that if he dies, Paul will inherit a fortune. In this case, the death of only one relative would make Paul a rich man.

Let me note in passing that there are different possibilities to treat natural language conditionals, among which the most unattractive one is probably to treat them as material implications, i.e. just like the first order logical operation ‘\( \to \)’. However, in those cases where a treatment of the conditional under discussion as material implication does not lead to different results than a more sophisticated treatment I will assume that conditionals could be safely treated as material implications – simply because it is the easiest among all options. Yet, we will also have to face cases where the conditionals cannot be treated in this simplistic manner. Consider e.g. the following example from (King, 1988, p. 426).

(4.5) If I jump out the window, I won’t fall on the ground.

Intuitively, the sentence is not true if uttered in our world, whether I actually jump out of the window or not. This is so because we actually know that I would fall on the ground if I jumped out the window. Yet, the sentence would come out as true if the conditional is treated as a material implication and I do not actually jump out of the window. In this case, the antecedent of the implication is false and hence the entire formula is true. Different strategies have been developed to get out of this dilemma. The most famous ones are Robert Stalnaker’s and David Lewis’ accounts of conditionals within the framework of possible world semantics. The core idea of Stalnaker’s approach is the following: a conditional is true if its consequent is true in a world \( w' \), which is most like the actual world \( w \) except that the antecedent is true in \( w' \). It follows directly that (4.5) is not true in our world: to make the sentence true it would be necessary that in a world \( w' \) which is like our actual world except that I jump out of the window it would be true that I do not fall on the ground. As this is implausible, the sentence does not come out as true just because I do not jump out of the window, as it would under material implication. The reader is asked to keep this Stalnakerian treatment of conditionals in mind for subsequent discussion in Section 4.6 (in the context of example (4.54)) and Section 4.7 (in the context of example (4.65)).
Not only is the assumption of island-free QR be conceptually highly problematic because a syntactic mechanism ignores syntactic islands, there is also an empirical problem with such an assumption. If wide scope readings of plural quantifiers were derived via such a mechanism, this would predict readings which, in fact, do not exist.

(4.6)  a. If three relatives of his die Paul will inherit a fortune.

b. [three relatives of Paul]i [IF ti die THEN Paul will inherit a fortune]

c. \[\lambda P[|rel_{of \_paul} \cap P| \geq 3](\lambda x[\text{die}(x) \rightarrow \text{inherit}(\text{paul})]) \equiv |\text{rel}_{of \_paul} \cap \lambda x[\text{die}(x) \rightarrow \text{inherit}(\text{paul})]| \geq 3\]

If three relatives of Paul is interpreted as a GQ (of type \((e, t, t)\)), the movement operation QR – applied to a GQ – would leave behind a trace of type \(e\) (see Heim and Kratzer, 1998). This would yield the wide scope representation sketched in (4.6b) and derived in (4.6c). But this is not a reading of (4.6a). The representation in (4.6c) can be paraphrased as: three relatives of Paul are such that if any one of them dies Paul will inherit a fortune. This is a distributive wide scope reading, which does not exist for this sentence. However, the sentence does have a collective wide scope reading, which translates as follows: there are three relatives of Paul, and if they all die Paul will inherit a fortune. This reading cannot be obtained via a QR mechanism. Eddy Ruys made the observation that indefinites that take exceptional wide scope out of syntactic islands do not allow for wide scope distributive readings. Therefore, this observation is often referred to as the Ruys-observation.

However, this observation has been questioned from time to time (see Abusch, 1994; Matthewson, 1999; Geurts, 2002; Kempson and Meyer-Viol, 2004; Martí, 2005). My favourite counterexample comes from Hans-Martin Gärtner (p.c.).

(4.7)  a. Wenn zwei Spielstellungen eintreten, ist das Schachspiel beendet.

“Two configurations terminate a chess game.”

b. Nämlich Schachmatt oder Remis.

“Namely checkmate or draw.”

(4.7a) can only be interpreted to say that either checkmate or draw finishes a chess game. This is, of course, a wide scope distributive reading, which has been argued not to exist by

To keep things simple, I assume a very simple analysis of three \(N\) here, which will not be the final one. In line with most other authors, I hold the view that bare numeral DPs such as three \(N\) denote the GQ \(at least three N\). They receive the exactly-reading by extra-semantic mechanisms such as implicatures.

In fact, it has also been questioned by Ruys himself in (Ruys, 2003) – but not on empirical grounds as in the above-mentioned approaches, but on theoretical grounds. Ruys remarks that actually the distributive wide scope reading of e.g. (4.6a) entails the collective wide scope reading and is thus more specific than that reading. In other words, the distributive wide scope reading would be a special case of the collective wide scope reading, which means that it cannot be proven not to exist.
4.1. Scope Islands

Ruys (1992) and others. Manfred Krifka (p.c.) furthermore observes that the wide scope distributive readings involve focal rather than topical stress on the determiner. In other words, (4.7a) in the relevant reading is particularly well suited as an answer to How many configurations terminate a chess game? With such a context question, a wide scope distributive readings can also occur with the original example from Ruys (4.6a), which is usually assumed not to support such a reading (but see Kempson and Meyer-Viol, 2004).

(4.7a) a. How many configurations terminate a chess game?

(4.8) a. How many relatives will bequeath Paul a fortune if they die?

b. If THREE relatives of Paul die, Paul will inherit a fortune.

So it seems that exceptional wide scope readings are possible with focal, i.e. non-topical, DPs, also. But then they support a distributive wide scope reading. At the moment, I have no explanation for these findings and have to assume that this is no genuine wide scope, but some kind of apparent wide scope reading (as in my system only topical DPs can take exceptional wide scope). In other words, I think that, in this case (and all other instances of counterexamples against the Ruys-observation), something other than wide scope distributivity is going on. For now I could not come up with a convincing analysis for these cases and have to leave this issue for another occasion.

Anyhow, as has been shown by Winter (1997), wide scope distributivity is usually impossible even if world knowledge makes a collective reading highly unlikely and would therefore strongly support a distributive wide scope reading. The following examples are taken from (Winter, 1997, ex. (32), (33), pp. 416f.).

(4.9) a. #If three women gave birth to John then he has a nice mother.

b. #Every artist who was born in three cities became famous.

(4.9a) can only be understood as to say that John has a nice mother if he had three mothers at the same time, which contradicts our world knowledge. Something similar holds for (4.9b), which seems to say that we make a statement only about those artists that were born in three cities simultaneously. As we know that a human being can only be born in one place, the sentence sounds odd. However, if wide scope distributivity were allowed, the sentences could have fully coherent readings, namely a) that there are three women such that if one of them was the mother of John, he would have a nice mother and b) that every artist who was born in one of three cities became famous. World knowledge would definitely support these readings. The fact that they are yet not available strongly suggests that a mechanism that would derive those readings should not be assumed, i.e. wide QR and all alike mechanisms must be prohibited. As opposed to the above mentioned authors, who question the Ruys observation, I believe that these data prove that we should stick to the view that wide scope distributive readings must be excluded, and that counterexamples such as (4.7a) are the exception to the rule and have to be accounted for by other means. Unfortunately, I have no concrete suggestion for what it might be that distinguishes (4.7a) from the sentences in
Chapter 4. Exceptional Wide Scope

4.2 The Class of Wide Scope Quantifiers

Going back to examples (4.3) and (4.4), we see a clear difference between strong quantifiers and indefinites embedded in scope islands. While indefinites seem to be able to escape these islands, strong quantifiers cannot. However, the ability to take exceptional wide scope out of islands is not a property of the entire class of weak quantifiers. Only a certain subclass of the weak quantifiers can take exceptional wide scope (cf. Kamp and Reyle, 1993; Reinhart, 1997; Szabolcsi, 1997b). The following enumeration illustrates the class of indefinites that take exceptional wide scope and its complement class.

(4.11)  
\( \text{a. Clarissa will be surprised if some horse falls ill.} \)  
\( [\text{If} \succ \exists] [\exists \succ \text{If}] \)
\( \text{b. Clarissa will be surprised if some/three/several horses fall ill.} \)  
\( [\text{If} \succ \text{some/three/several}] [\text{some/three/several} \succ \text{If}] \)
\( \text{c. Clarissa will be surprised if at least three/more than two/almost all horses fall ill.} \)  
\( [\text{If} \succ \geq 3/\succ \geq 2/\text{alm} \forall] [\geq 3/\succ \geq 2/\text{alm} \forall \succ \text{If}] \)
\( \text{d. Clarissa will be surprised if exactly three horses fall ill.} \)  
\( [\text{If} \succ =3] [\leq 3 \succ \text{If}] \)
\( \text{e. Clarissa will be surprised if no horse falls ill.} \)  
\( [\text{If} \succ \neg \exists] [\neg \exists \succ \text{If}] \)
\( \text{f. Clarissa will be surprised if at most three/few horses fall ill.} \)  
\( [\text{If} \succ \leq 3/\text{few}] [\leq 3/\text{few} \succ \text{If}] \)

Monotone decreasing (4.11e,f) and non-monotonic quantifiers (4.11d) are excluded from an exceptional wide scope interpretation. But note that there is an acceptability difference here: it seems entirely impossible to interpret the monotone decreasing quantifiers in (e)/(f) with

\(^3\)Malte Zimmermann suggested to me that the decisive difference might be that (4.7a) is a generic sentence, where das Schachspiel (the chess game) is not interpreted as to refer to one concrete game, but rather denotes chess games in general. Though this would still not tell us why generic sentences might behave differently from episodic ones in this respect, Zimmermann’s speculation seems indeed borne out. When we modify (4.7a) slightly such that it makes a concrete, non-generic statement about one chess game in particular, the wide scope distributive reading is much harder to obtain.

(4.10)  
\( \text{a. Wenn zwei Spielstellungen eintreten, ist dieses Schachspiel beendet.} \)  
\( \text{if two configurations occur, this chess game will be finished.} \)
\( \text{'If two configurations occur, this chess game will be finished.'} \)
\( \text{b. } \text{\"Nämlich Schachmatt oder Remis.} \)  
\( \text{namely checkmate or draw} \)
\( \text{'Namely checkmate or draw.'} \)
scope over the *If*-clause, whereas an inverse scope reading of non-monotonic quantifiers in (d) and also of the monotone increasing ones in (c) is not easily available, but yet not as strictly excluded as for the cases (e) and (f). *Clarissa will be surprised if few horses fall ill* can by no means express that there is a specific set of few horses such that Clarissa will be surprised only if the members of this set fall ill. It can only mean that Clarissa will be surprised if few horses (whatever horses that may be) fall ill. The same holds, mutatis mutandis, for *Clarissa will be surprised if exactly three horses fall ill*. This does not support a wide scope reading for *exactly three horses*, although such a reading might be not as strictly excluded as in case of the monotone decreasing quantifiers in (e)/(f). The class of monotone increasing quantifiers behaves inconsistently. As the contrast between *three* in (b) and *at least three* and *more than two* in (c) shows, only a subclass of the monotone increasing quantifiers can actually take exceptional wide scope. This is particularly puzzling if one considers that *three*, *at least three*, and *more than two* are typically assumed to have the same semantics (but see Kay 1992; Krifka 1999; Geurts and Nouwen 2005; Krifka 2005 for a different view).

Note that there is a wide scope reading available in the case of *at least three horses*, but this reading is not one where the entire GQ takes wide scope. Consider (4.12) below.

(4.12) *Clarissa will be surprised if at least three horses fall ill.*

The sentence does not have a wide scope reading for *at least three horses*, which would be the following: there is a set of at least three horses, i.e. a particular set of three, four, five, etc. horses, such that Clarissa will be surprised if exactly those horses contained in the particular set fall ill. But interestingly, the meaning of the sentence is ambiguous. It has the expected narrow scope reading and another reading, that can be paraphrased as follows: there is a particular set of three horses such that Clarissa will be surprised if at least the three horses contained in this set fall ill. This reading is no genuine wide scope reading of *at least three horses*, which would allow for a particular set of four or five horses that can cause Clarissa to be surprised if they fall ill. Instead, the wide scope reading that (4.12) exhibits must come about by other means than simple wide scope of the involved quantifier.

My assumption is that in this case *at least* has to be interpreted as an operator that is applied to the GQ corresponding to *three horses*. This is in line with Krifka (1999), where *at least* is interpreted as a focus sensitive operator that can combine syntactically with all different kinds of categories. The GQ *three horses* alone then takes wide scope over the *If*-clause, and the *at least*-operator stays in its original position inside the *If*-clause. These assumptions can account for the wide scope reading that is attested for the sentence. Note that a similar wide scope interpretation of an embedded GQ is not available for the following sentence.

(4.13) *Clarissa will be surprised if more than two horses fall ill.*

---

4Note that Krifka assumes an adjectival treatment of numerals such as *three* and hence does not analyze *three horses* as GQ, but as a set of plural individuals, each comprising three horses. For my concerns here, I assume that *three horses* has the usual GQ semantics.
The unavailability of this reading as opposed to the availability of such a reading for (4.12) can be traced back to the following contrast.

(4.14)  

a. At least Paul came.  
c. At least my relatives came.  
d. ?? More than my relatives came.

The operator *more than* seems to be different in nature from *at least*. In particular, it cannot be applied to full DPs as easily (cf. also Geurts and Nouwen 2005 for this observation). It is therefore possible to interpret *three horses* as a GQ and in (4.12) *at least* is applied to it. But this is not a viable option if *at least three* is replaced by *more than two*, because *more than* cannot be applied to the full DP *two horses* in this case. In the first case, the structure to be interpreted would be the following: *at least (three horses)*. In the second case it would be: *more than (3) (horses)*. The GQ *three horses* therefore can take wide scope on its own in (4.12), but this option is excluded in (4.13) as there is no such GQ. For my present concerns however, *at least n N* and *more than n N* behave alike: Both do not allow for genuine wide scope in the sense that the entire GQ *at least n N/more than n N* takes wide scope over the If-clause.

The only quantifiers that can take exceptional wide scope (which I dubbed the *wide scope quantifiers/indefinites*) are the ones in (4.11a,b), i.e. singular indefinites, bare numeral indefinites, *several N*, and plural *some N*. The findings are the same for German (and other languages), where also bare numeral indefinites, singular indefinites and *einige (several)* as well as *manche (≈ some)* allow for exceptional wide scope. The list is probably not exhaustive. Reinhart (1997), de Swart (1999), Szabolcsi (1997b), and Fodor and Sag (1982) for example also regard *many N* as a wide scope/referential quantifier. (Reinhart, 1997, p. 339, ex. (6c)) gives the following example:

(4.16) All students believe anything that many teachers say.

\[∀ ≻ many \] \[many ≻ ∀\]

A similar example can be found in (Geurts and Nouwen, 2005, footnote 10, p. 15). I have no explanation for the acceptability difference between (4.15) and (4.14b,d). Yet, I believe that (4.14) shows that there is a crucial difference between *at least* and *more than* concerning their combinatoric possibilities.

A similar example can be found in (Geurts and Nouwen, 2005, footnote 10, p. 15). I have no explanation for the acceptability difference between (4.15) and (4.14b,d). Yet, I believe that (4.14) shows that there is a crucial difference between *at least* and *more than* concerning their combinatoric possibilities.

The explanation given in Geurts and Nouwen (2005) for the missing ‘specificity’ reading of examples along the lines of (4.13) as opposed to (4.12) is somewhat similar to the one sketched here. They believe that superlative operators such as *at least* are modal operators and that these can be applied to quantifiers, whereas comparative operators such as *more than* are simply focus-sensitive operators that can only be applied to predicates. As predicates cannot receive a specific interpretation, (4.13) cannot be analyzed along similar lines as (4.12). In other words, the underlying reason for a missing wide scope reading in (4.13) is that there simply is no GQ that *more than* is applied to and that could be interpreted as taking wide scope.

See e.g. (Winter, 1997) and (Ludlow and Neale, 1991) for this characterization of wide scope indefinites, especially for the claim that *several* is among the wide scope takers.
However, most English native speakers with whom I consulted do not get exceptional wide scope readings with many. As pointed out to me by Craig Thiersch (p.c.), example (4.16) is a very special case. Here, a wide scope reading does seem possible. However, if anything is replaced by everything, the wide scope reading disappears. In any case, I doubt that viele N (many N) can receive exceptional wide scope in German.

(4.17) Alle Studenten glauben alles, was viele Lehrer sagen.

all students believe everything what many teachers say [If \( \gg \) many] "[many \( \gg \) If]"

I believe that many N cannot take exceptional wide scope in the general case, but I will not discuss this quantifier any further, because the exact formulation of its semantics, which would have to be settled to discuss its wide scope behaviour, is still a highly disputed matter.

### 4.3 Genuine vs. Apparent Exceptional Wide Scope

Similar to the case of local scope inversion, we can also find examples of indefinites embedded in a syntactic island (in (4.18) and (4.19) a relative clause), where we can argue that the indefinite must take genuine wide scope, i.e. where the wide scope reading cannot straightforwardly be explained away as an instance of a specific or referential reading or via implicit extreme domain restriction. Here again, we have to differentiate between the slim and the emphatic version of the indefinite.

(4.18) a. Ich lese grundsätzlich keine Bücher, die von \#einem Aut\(\text{or} / \uparrow\text{Einem Autor}\)
geschrieben wurden.

I read generally no books that from an author / some author

‘I read no books that are written by an/some author.’

b. I read no books that are written by \#an/some author.

c. Nämlich die von Jane Austin.

Namely those from Jane Austin.

In the slim variants, the sentences are odd. This is due to the fact that the solely available narrow scope reading of the indefinite is odd, because the relative clause seems superfluous, and the sentence simply means that I read no books at all. The emphatic variants are felicitous, however, because a non-variation reading becomes available, which then says that there is a specific author of whom I read no books. The sentences with the emphatic indefinites could be followed by (4.18c) and would be perfectly acceptable in this context.

The following examples reveal the same pattern. Slim indefinites allow only for a co-variation reading, whereas the emphatic versions make a non-variation reading available.
(4.19)  
a. *Professor Müller bevorzugt jeden Doktoranden, der von # einer / ↑Elner Uni kommt.*
Professor Müller gives-preference every PhD student who from a / some university comes.

‘Professor Müller gives preference to every PhD student who comes from some university.’

b. Professor Miller gives preference to every PhD student who comes from #a / some university.

c. *Nämlich von der Humboldt-Universität in Berlin.*

Namely from Humboldt University in Berlin.

In their slim versions, the sentences in (4.19a,b) are odd. This is due to the fact that the indefinite receives narrow scope. Because we know that every PhD student must come from a university, in the narrow scope reading of the indefinite the relative clause seems superfluous and the sentence sounds odd. However, if the indefinite is emphatic, the sentence receives an exceptional wide scope reading saying that there is a particular university (say, the Humboldt University) such that every professor prefers every PhD student who comes from there. This wide scope reading is possible, although the indefinite is embedded in the syntactic island constituted by the relative clause. In other words, there is a non-variation reading, where the university does not vary with the PhD students, when the indefinite is emphatic. This reading is enforced by the continuation in (4.19c), which is only felicitous with the emphatic versions of (a) and (b), but not with the slim ones. As argued in the preceding chapter, the emphatic indefinites most likely take genuine wide scope here and the non-variation reading is not just an illusion that results from some specificity/referentiality/domain restriction mechanism.

(4.18) and (4.19) then show that emphatic indefinites can also take exceptional wide scope out of syntactic islands and do not just support local scope inversion. The following example illustrates the same point.

(4.20)  
a. *Wenn EIN Dozent zur Party kommt, gehe ich sofort wieder.* [If > ∃] [∃ > If]
   ‘If some lecturer comes to the party, I will leave immediately.’

b. *Wenn ein Dozent zur Party kommt, gehe ich sofort wieder.* [If > ∃] [∃ > If]
   ‘If a lecturer comes to the party, I will leave immediately.’

\[\footnote{Note that here, a heavy accent on the determiner also disambiguates the English examples towards a wide scope interpretation. This is different from the cases we encountered in Chapter 3. There, stress on the determiner in English often brought the narrow scope reading to the fore. In the cases here, the accent on the determiner evokes a wide scope reading. (Kratzer, 1998, p. 192, footnote 8) notes that ‘the rise on the determiner [of wide scope indefinites, CE] is an instance of a L*+H pitch accent followed by a H* pitch accent and a L boundary tone on the noun’ and attributes this insight to Lisa Selkirk.}\]
4.3. Genuine vs. Apparent Exceptional Wide Scope

c. If some lecturer comes to the party, I will leave immediately. \( \exists \neq [I] \therefore [I] \)
d. If a lecturer comes to the party, I will leave immediately. \( [I] \exists \neq [I] \)

Again, the same picture as above emerges. The sentences in (4.20a) and (4.20c) with emphatic indefinites receive a wide scope reading for the indefinite, whereas (4.20b) and (4.20d) with slim indefinites have to be interpreted with narrow scope. Sentences (b) and (d) can only be read to mean that I am a person that likes lecturer-free parties only. As soon as a lecturer comes, I leave.

Let me point out again that I have no explanation why the slim indefinites in (b) and (d) do not allow for apparent wide scope via domain restriction or some other mechanism. We simply observe that they do not receive such a reading. And again, minimal variants of them with heavier NP-restrictions – at least marginally – do.

(4.21)  
a. Wenn \( \uparrow \text{EIN} \text{ Dozent von mir zur Party kommt, gehe ich sofort wieder.} \)  
if some lecturer of mine to-the party comes, go I immediately again

\( [I] \exists \neq [I] \) \( [I] \exists \neq [I] \)

‘If some lecturer comes to the party, I will leave immediately.’

b. Wenn \( \text{ein DoZENT von mir zur Party kommt, gehe ich sofort wieder.} \)  
if a lecturer of mine to-the party comes, go I immediately again

\( [I] \exists \neq [I] \) \( [I] \exists \neq [I] \)

‘If some lecturer comes to the party, I will leave immediately.’

c. If some lecturer of mine comes to the party, I will leave
immediately. \( [I] \exists \neq [I] \) \( [I] \exists \neq [I] \)
d. If a lecturer of mine comes to the party, I will leave
immediately. \( [I] \exists \neq [I] \) \( [I] \exists \neq [I] \)

(4.21b,d) seem to allow for an apparent wide scope reading, which is probably a referential reading or a reading that comes about via implicit domain restriction. This option to interpret the DP \( \text{ein Dozent von mir} \) (a lecturer of mine) as referential seems to be due to the PP \( \text{von mir} \) (of mine), which is absent in (4.20). The exact source for the apparent wide scope reading in (4.21) and the question why (4.20) does not allow for such a reading will not be investigated further.\(^9\) What matters is the fact that (4.20a,c) plausibly allow for genuine wide scope with emphatic indefinites, something that we cannot guarantee for (4.21a,c), as here an apparent wide scope reading seems to interfere.

\(^9\)The PP \( \text{von mir} \) (of mine) makes the DP heavier and, as pointed out e.g. by (Fodor and Sag, 1982), this makes it easier to interpret the indefinite referentially. Furthermore, it is possible that the entire DP is turned into a presuppositional one by the PP-attachment so that the existence of at least one lecturer of mine is presupposed. This presupposition might be the reason for the illusion of a wide scope reading in (4.21) (see also Kratzer 1998, Chapter 6, who argues that existential presuppositions associated with quantificational DPs are responsible for (intermediate) wide scope readings in attitude contexts).
We can see very clearly at this point why it is important to differentiate between specific, referential, and extremely domain restricted readings on the one hand and genuine wide scope readings on the other. In this and in the preceding chapter, we have encountered examples of specific/referential/extremely domain restricted slim indefinites that have been embedded in a scope island (example (4.21b,d) and also (3.3), where the indefinite is embedded in a finite clause that can be regarded as scope island\(^{10}\)). Although these sentences seem to realize exceptional wide scope readings at first sight, it can be argued that, in fact, they do not. Hence, these examples would not necessitate the assumption of a scope mechanism that disobeys usual scope constraints and syntactic island constraints. But in this chapter we have encountered examples of genuine wide scope readings of (emphatic) indefinites. The examples suggest very strongly that the indefinites involved are to be analyzed as actually taking exceptional wide scope via a scope shifting mechanism (cf. examples (4.18), (4.19), and (4.20)). In other words, we have established that a scope shifting mechanism that disregards syntactic islands is needed. I refer to this mechanism as the mechanism I had previously dubbed \(M\). \(M\) must be essentially different in nature from other scope shifting mechanisms, because it does not obey syntactic constraints. Of course, this is a very exceptional case. Let us therefore assume that except for \(M\), our grammatical system contains only scope mechanisms which obey syntactic constraints. The only way (genuine) exceptional wide scope can come about then is via \(M\), which, as I have briefly pointed out in Section 3.4, only applies to topical indefinites. Hence, only topical indefinites are expected to allow for genuine exceptional wide scope. In the following sections I will discuss alternative approaches that have been put forward to account for exceptional wide scope phenomena.

### 4.4 Approaches Relying on Speaker’s Reference

I have shown in Section 3.2 that one source for apparent wide scope is speaker’s reference. The speaker can utter an indefinite in order to refer to a particular individual/set she has in mind. The speaker uses an indefinite instead of a name or a definite because she assumes that there is a speaker-hearer asymmetry. She knows the individual she wants to refer to, but the hearer does not. While I have shown that such ‘referential readings’ should not be considered real scope readings, many other authors do not differentiate between genuine and apparent wide scope and propose to account for exceptional wide scope via speaker’s reference.

\(^{10}\)If the reader does not agree that the finite clause complement of beliefs constitutes a scope island in these examples, the verb can be substituted by holds the belief in English and ist der Meinung in German. The finite clause complement of the NPs in these complex VPs constitutes a syntactic island and therefore also a scope island without any doubt. I believe that all relevant facts concerning the readings of the sentences are preserved.
4.4. Approaches Relying on Speaker’s Reference

4.4.1 Fodor and Sag (1982)

Originally, it was proposed by Fodor and Sag (1982) that the extraordinary behavior of indefinites can best be captured by the assumption that indefinites are ambiguous between a referential and a quantificational reading (as has been mentioned in Section 3.2.1 above). In their approach, (apparent) wide scope readings are not regarded as scope phenomena, but simply as instances of referential readings. An indefinite such as a student of mine then has two lexical meanings: one which corresponds to the usual quantifier meaning $\lambda P[\exists x[\text{student}(x) \land \text{of}(x, me) \land P(x)]]$ and one where it refers to some specific individual, which is a student of mine. When the indefinite is interpreted as a quantifier, it has all the properties of a quantifier, i.e. in particular the property that its scope is clause-bound. When the indefinite is interpreted referentially, it behaves just like a referential item such as Peter being interpreted as the constant peter. The motivation for this view comes from data as in (4.22) (taken from Fodor and Sag, 1982, p. 374).

(4.22) Each teacher overheard the rumor that a student of mine had been called before the dean.

(Fodor and Sag, 1982) argue that example (4.22) only has two readings, a narrow scope and an apparent wide scope reading for a student of mine. The apparent wide scope reading can be paraphrased as follows: There is a specific student of mine, say Peter, and every teacher overheard the rumor that this student Peter had been called before the dean. The narrow scope reading reads as follows: Every teacher overheard the rumor that some student of mine or other had been called before the dean. But the sentence arguably lacks an intermediate scope reading. This reading would be expected, if indefinites could just freely violate scope constraints. That is because there is another possible scope position where a student of mine could be interpreted, namely below the quantifier every teacher, but above the DP the rumor. The reading of this scope configuration would be the following: For every teacher there is a possibly different student of mine such that the teacher overheard the rumor that this student had been called before the dean. This reading could be called an exceptional wide intermediate scope reading because the indefinite would still take unexpected exceptional wide scope out of its syntactic island (the finite clause complement of the rumor), but not widest scope over each teacher. It is this missing intermediate reading that led Fodor and Sag to the view that apparent exceptional wide scope is in fact not a scope phenomenon. However, I think that example (4.22) is problematic for various reasons, one of them being that the rumor that constitutes an opaque context, which leads to the complication that specific and unspecific readings interfere with ordinary narrow and wide scope readings.
Questioning Fodor and Sag’s original example

Let me point out first that I believe the two available readings of (4.22) to be specific and unspecific readings of the indefinite a student of mine in the sense discussed in Section 3.1 and not a wide scope and narrow scope reading. The unspecific reading is one where every teacher overheard the rumor that someone of the student-of-mine-kind has been called before the dean. In this reading, every teacher could deny for every single student that she overheard a rumor about her, and the sentence could still be true. The specific reading demands that there be one student for whom it holds that she has the property that there exists a rumor about her (that she had been called before the dean) and every teacher overheard this rumor. But even under this view, it would not directly follow that the ‘intermediate scope’ reading, i.e. the reading where there are different rumours for different students (varying with the teachers), is missing. The universal quantifier (each teacher) c-commands the intensional operator (the rumour that) and so variation with the teachers should be possible.

The specific reading should be one where every teacher overheard a rumour about a particular (possibly different) student of mine, namely the rumour that this student was called before the dean. However, the sentence lacks such a reading and it seems as if the indefinite a student of mine can only be read unspecifically or ‘extremely specifically’ (i.e. in a way where the students do not vary with the teachers). In other words, under the specific/unspecific ambiguity it does not follow that the sentence lacks the intermediate reading – just as little as it would follow from a scope mechanism that the sentence only supports either a widest scope or a narrowest scope reading. In the latter case, there is no obvious reason why the indefinite cannot take exceptional wide intermediate scope, i.e. under the universal quantifier, but above the DP with the finite clause complement, as Fodor and Sag claim. And in the former case, there is no reason why the indefinite has to be read ‘so specifically’ that it cannot vary with the teachers. That sentence (4.22) lacks such an intermediate reading is hence very surprising indeed and needs to be explained.

Before turning to my explanation for the missing intermediate reading, let me add one point: I have argued before that slim indefinites do not take genuine wide scope as easily as their emphatic counterparts. So it would be theoretically conceivable that different interpretative possibilities emerge when emphatic indefinites are involved because they allow for scope shifting more easily. However, we will see that the main interpretation facts are preserved with an emphatic realization of the indefinite, i.e. the intermediate reading is also missing in this case. First, consider the following example, where a student of mine has been replaced by some student of mine.

\[
(4.23) \quad \text{Each teacher overheard the rumor that some student of mine had been called before the dean.}
\]

Example (4.23) seems to allow for the same readings as (4.22). Fodor and Sag’s point that
the intermediate scope reading is missing still holds. When the determiner receives a heavy accent in German, only the widest scope reading is available.

\[(4.24)\] *Jeder Dozent hat das Gerücht gehört, dass [EIN Student von mir zum Dekan gerufen wurde.]*

‘Every teacher overheard the rumor that some student of mine had been called before the dean.’

Crucially, (4.23) and (4.24) still unexpectedly lack an intermediate scope reading.

As opposed to Fodor and Sag, I doubt that this fact shows that indefinites are either quantificational or referential. In fact, I think that the missing intermediate scope reading is due to the definite DP *the rumor*.\(^\text{11}\) Although I am not sure about the exact licensing conditions of the definite article in the DP *the rumor*, it is quite clear that the slightly modified version of (4.22) in (4.25b), where the definite article of *the rumour* has been replaced by an indefinite one, (and its German variant in (4.25c)) actually has an intermediate scope reading\(^\text{13}\).

\[(4.25)\]

(a) *Momentan wird viel geredet. Als ich ein bisschen herumgefragt habe, hörte ich folgendes:*

*There is a lot of different gossip around at the moment. When I asked around, I learned the following:*

(b) *Each teacher overheard a rumor that a student of mine had been called before the dean.*

c. *Jeder Dozent hat ein Gerücht gehört, dass ein Student von mir zum Dekan gerufen wurde.*

‘Every teacher overheard a rumor that a student of mine had been called before the dean.’

\(^{11}\)See (Bende-Farkas and Kamp, 2001, p. 33) and (Kratzer, 1998) for a similar conclusion. See also (Ludlow and Neale, 1991), where Fodor and Sag’s original example is questioned and structurally similar sentences are presented that allow for intermediate scope readings.

\(^{12}\)(Fodor and Sag, 1982, p. 369) note that the definite article does not block a wide scope interpretation of each student in *Someone spoke to the father of each student*, which they indirectly take as evidence that the definite article cannot be the reason for a missing intermediate scope co-variation reading. However, *father* is clearly a functional expression, which licenses the use of the definite article in *the father of each student*, even if the fathers vary with the students. Example (4.22) as well as (4.23) do not contain any functional arguments that could license the definite article in a non-rigid reading, i.e. in a reading with varying students for the rumor. In other words, apparently *rumor* cannot be (re-)interpreted as functionally dependent, which would be necessary to license the definite article in a co-varying reading for the students.

\(^{13}\)For the sake of completeness, if the slim variants of the indefinite *ein Student von mir* (a student of mine) were replaced by emphatic ones, the interpretative facts would be preserved: the sentences would still exhibit intermediate scope readings.
d. Und jedes Mal war es ein anderer Student.
   And each time it was a different student.

(4.25a) gives a plausible context for the sentences and (4.25d) a possible follow-up sentence that enforces the intermediate scope reading. Note that (4.22) uttered in the same context would still not allow for an intermediate reading, i.e. (4.25d) could not be interpreted as a coherent follow-up sentence of (4.22).

It now remains to be verified that the finite clause complement of the indefinite DP a rumor constitutes a scope island just like its definite counterpart. It is an indisputable fact that sentence (4.26) does not allow for a reading in which every student of mine takes scope out of the embedded clause (regardless of intonation).

(4.26) Some teacher overheard a rumor that every student of mine had been called before the dean.

This is most likely due to the fact that the indefinite a rumor plus complement counts as scope island for the strong quantifier every student of mine.

Counterexamples to Fodor and Sag’s claim: intermediate scope

There are several papers that challenge Fodor and Sag’s claim empirically (Farkas, 1981; King, 1988; Ruys, 1992; Abusch, 1994). In these works, one can find many examples of sentences that have the intermediate scope reading, which Fodor and Sag claim not to exist. Let us first consider a variant of Fodor and Sag’s example from (Kratzer, 1998, p. 166), which seems to support an intermediate scope reading.

(4.27) [Each teacher] overheard the rumor that a/some student of his had been called before the dean.

The sentence has a reading saying that for every teacher there exists some specific student of his such that the teacher overheard the rumor that this student had been called before the dean. Clearly, the difference to the original example from Fodor and Sag is the presence of the bound pronoun his. Abusch (1994) presents several other examples of this type, which all allow for a reading similar to the one which exists for (4.27). Ruys (1992, 1999), too, uses indefinites containing bound pronouns to enforce such intermediate readings.

Kratzer (1998) offers a different explanation for the fact that (4.25b) has an intermediate scope reading and (4.22) does not. She argues that existential presuppositions associated with certain indefinites can evoke apparent intermediate scope readings. The difference between (4.25b) and (4.22) is due to the well-known different ability of definite and indefinite DPs to allow extraction from them. While an indefinite DP allows extraction easily, a definite does not (see e.g. Diesing, 1992). Accordingly, the presupposition associated with the indefinite a student of mine in (4.22) (which is accommodated into the assumed eventuality res-argument of the rumour) has to be evaluated within the scope of the definite the rumor, whereas this presupposition can leave the DP a rumor in (4.25b).
But there are also intermediate scope readings for indefinites that do not contain any overt bound pronouns or other function inducing elements. One such example comes from (Reinhart, 1997, p. 346), who attributes the origin of a similar example to (Ruys, 1992). A structurally related example can be found in (Farkas, 1981, ex. 17a, p. 64).

(4.28) **Most linguists have looked at every analysis that solves some problem.**

The sentence has a reading where *some problem*, which is embedded in a scope island (i.e. the relative clause), takes scope out of this island over the quantifier *every analysis*, but below the quantifier most linguists. The resulting reading is the following: For most linguists there exists some particular problem – say for linguist A it is antecedent contained deletion, for linguist B it is binding and for linguist C it is conditionals – and each linguist knows every analysis that solves his particular problem.

Another example of an intermediate scope reading of an indefinite would be the following:

(4.29) a. **Every student has announced that he will leave the party immediately if some lecturer shows up.**

b. *Jeder Student hat angekündigt, die Party sofort zu verlassen, wenn every student has announced, the party immediately to leave, if Ein Dozent auftaucht.*

‘Every student has announced that he will leave the party immediately if some lecturer shows up.’

The sentence quite easily receives the reading where for every student there is a different lecturer such that the student announced that he will leave the party immediately if this lecturer shows up.

These examples constitute obvious counterexamples to Fodor and Sag’s original claim that indefinites are only two-way ambiguous between a referential and a quantificational reading.

### 4.4.2 Other Approaches

Many more approaches rely on the assumption that exceptional wide scope comes about via some kind of speaker’s reference (e.g. Kratzer, 1998; Yeom, 1998; Bende-Farkas and Kamp, 2001; Schwarzschild, 2002; Dekker, 2002; Breken, 2003; Umbach, 2004; Schlenker, 2005). However, these authors are all aware of the intermediate scope problem and deliver different kinds of solutions to it. Kratzer’s approach, which makes use of parameterized
Chapter 4. Exceptional Wide Scope

choice functions, will be discussed in Section 4.7, where I discuss the choice function approaches. Schwarzschild, Breñeny, and Schlenker assume that it is actually reference to a certain property that the speaker makes. This property can be so specific that it is met by only one individual, i.e. there is some identifying idea (Breñeny, 2003) or identifying property (Umbach, 2004; Schlenker, 2005) underlying the indefinite under discussion. I will discuss some problematic aspects of these three approaches in the following section and discuss the approaches, more generally, under the rubric domain restriction in Section 4.5 below, because the underlying idea of these approaches is that there is some kind of implicit restriction that evokes the apparent exceptional wide scope interpretation of the indefinite. Yeom’s approach will be examined in Section 4.6 when I discuss approaches that rely on the assumption that exceptional wide scope comes about as a result of presupposition resolution, where a specific indefinite is assumed to presuppose its lexical content.

The advantage of these approaches is evident. When an indefinite is interpreted referentially in some way or other, it acts like a non-scope bearing element and yet seems to take maximal scope. It is hence predicted that syntactic islands play no role and that it only seems as if indefinites could easily scope out of islands.

4.4.3 Problems

The approach of Fodor and Sag (1982) and all approaches that subscribe to the view that exceptional wide scope readings are, in fact, only apparent wide scope readings, which come about via the speaker’s reference to a certain individual or property, have to face the question of how the speaker’s intention (what the speaker wants to refer to) – i.e. a pragmatic notion – eventually enters into semantics. In the end, exceptional wide scope readings are readings, i.e. they must be truth-conditionally differentiable from the narrow scope readings. I understand it that all these theories assume in some way or other that the respective sentence is true in its wide scope reading if the referent the speaker has in mind fulfills the sentence predicate and that it is false (or undefined) otherwise. This assumption is made explicit in (Fodor and Sag, 1982), (Yeom, 1998), and (Breneny, 2003). In (Fodor and Sag, 1982), it is explicitly claimed that a hearer who hears an utterance containing a referential indefinite can only evaluate whether the existential statement (i.e. the same sentence with an ordinary indefinite and not a referential one) is true, but not whether or not the speaker’s assertion is true, precisely because the hearer does not know who or what the speaker is referring to.

Bende-Farkas and Kamp (2001) seem to hold a very similar view to the one of Fodor and Sag, but they differentiate between the ‘specific use’ of an indefinite and the ‘specific interpretation’. A speaker can use an indefinite with specific intention (i.e. as referring – or ‘being anchored’ in their terminology – to a referent) and the hearer can interpret an indefinite specifically if he understands it as the anchor the speaker presumably refers to, i.e. the speaker interprets
the indefinite as the referent he thinks the speaker is referring to. However, this, they say, is possible also if the hearer is not acquainted with the referent himself. It suffices to say that the hearer knows that there is some anchor in the speaker’s mind that the speaker wants to refer to. In other words, both the speaker and the hearer are aware of the speaker-hearer asymmetry that the use of a specific indefinite involves and so the hearer adjusts his interpretation mechanism to this asymmetry. There is intensive discussion in Benedikt and Kamp’s work whether such specific interpretations would better be seen as ‘post-semantic’ inferences or whether they should actually be reflected in the semantics and thus represent an independent reading of their own. As there are overt specificity markers in many languages (e.g. bestimmt (certain) in German), they come to the conclusion that specificity cannot simply be deferred to (post-semantic) pragmatics in its entirety, but has to be represented in the semantics, as well. Be this as it may, my aim is to show that even this would not account for all kinds of (exceptional) wide scope readings and that there are readings that are entirely independent of speaker’s intentions, but simply indicate wide scope of the indefinite.

Reference to What?

Fodor and Sag briefly discuss cases where the speaker uses an inappropriate description such as an anthropology major although, in fact, the student he wants to refer to is a sociology major. (Fodor and Sag, 1982, p. 363f.) say about such cases: ‘if the speaker intended to make an assertion about a particular person [by way of the description ‘an anthropology major’, CE], and was so understood by the hearer, then in Donnellan fashion [...] the hearer might well be able to divine which student the speaker had in mind, and might be prepared to overlook the inaccuracy and judge the assertion to be substantially true’. I will argue in the following that – although I agree with Fodor and Sag that the truth conditions of sentences containing specific or referential indefinites might be dependent on speaker’s intentions and although the hearer might be willing to overlook certain kinds of inaccuracies – not all instances of exceptional wide scope readings are such that speaker’s intentions directly influence the truth conditions of the sentence.

First of all, let me point out that wide scope indefinites can be uttered without the speaker knowing about their corresponding referents. This is a widely acknowledged fact (cf. also Geurts 2002 for discussion).

(4.30) (My grandmother told me that) I will inherit a fortune if some relative of mine dies. But I don’t know who this is.

In case of (4.30), the speaker obviously does not know the referent that makes the predicate
\[ \lambda x. \text{if } x \text{ dies the speaker will inherit a fortune} \] true. There are two explanations that are usually referred to by proponents of the speaker’s reference theories: 1. it is not speaker’s reference that matters in (4.30), but the person who actually knows the referent is someone else, namely the grandmother in this case; 2. the speaker does not need to know the referent itself, but a defining property of the individual that fulfills the sentence predicate. In the above case this could be e.g. the relative that owns five houses. The speaker might know that he has one relative who owns five houses, but he does not know who he is.

However, there are examples of wide scope indefinites, where neither 1. nor 2. is fulfilled. Consider first an example that is problematic for explanation 1\textsuperscript{17}.

(4.31) *Before a football match, someone says:*  
\[ I \text{ bet that Peter will envy every interviewer that manages to talk to some player.} \]  
*(Namely to the one that will have scored the most goals.)*

At the time of utterance of (4.31), the speaker does not know (and no one else does) who the person will be such that Peter will envy every interviewer who talks to this person. This is due to the fact that the speaker cannot know who will have scored most goals after the match, i.e. the indefinite *some player* does not refer at the utterance time. Obviously, explanation 1. does not work in this instance, but explanation 2. is still possible. There is a property that can be assigned to the player, namely that he is the one that will have scored most goals.

Consider now the following example, where neither 1. nor 2. would actually help.

(4.32) a. *Imagine a group of people playing a (very strange) game. The rules are as follows:*  
*if a certain word that is agreed upon by the group is uttered by one person, everyone has to touch the floor with their hands. The person who touches the floor last has lost. Furthermore, if another word that has been agreed on is mentioned, everyone has to try to eat twenty grapes as quickly as possible.*  
*Now Maria enters the scene and asks about the game. Max explains the rules. Then Maria asks back:*  
b. *(So we are playing several runs of the game, right?) And for every run, if some word that we agree on beforehand is uttered, we all have to touch the floor as quickly as possible.*

(4.32b) has a reading where the indefinite takes wide scope over the *If*-clause (and narrower scope than the universal quantifier *every run*). All that matters is that the indefinite takes exceptional wide scope out of the *If*-clause island. The sentence means that for every run, there is one particular word that has been agreed on such that if that word is uttered, everyone has to touch the floor as quickly as possible. This reading is clearly distinct from the narrow scope reading, because in case of some other word that has been agreed on before the game starts, the people do not have to touch the floor, but eat twenty grapes. It is quite clear

\textsuperscript{17}A similar example is discussed in (Umbach, 2004). See also example (5) in (Ludlow and Neale, 1991) and the subsequent discussion, where an indefinite also receives a wide scope interpretation, although the speaker does not know the referent that makes the entire utterance true.
that no one knows the referent of *some word* in (4.32b), because the word under discussion still has to be agreed on, i.e. there is no referent for *some word* yet. Furthermore, there is no property that holds for this word apart from the property that it has to be agreed on beforehand and that it is such that if it is uttered, everyone has to touch the floor. This property is already part of the utterance (4.32b) itself. That is, there is no additional identifying property for the particular word. This is testable by a continuation with a *namely*-phrase. There is no possibility to continue (4.32b) in an informative way. While (4.30) could be followed by *Namely my relative that owns five houses*, there is no informative utterance that could be used to continue (4.32b). The utterance *Namely the word that everyone has agreed on beforehand and that is such that if it is uttered everyone has to touch the floor as quickly as possible* would not be informative, because it contains only information that is known already before the very utterance is made. The assumption that wide scope indefinites always have some additional property that the speaker has to be aware of leads to some kind of *circularity* in the case at hand (as pointed out to me by Ede Zimmermann, p.c.) (essentially in the same way as an uninformative function would lead to some kind of circularity as discussed in Section 3.3 for example (3.57a) and illustrated by the infelicitous continuations in (3.60)). In my opinion, the only way to derive the actual reading of (4.32b) would be to assume that the indefinite indeed takes genuine wide scope over the *If*-clause.

**Truth Conditions**

There is another problem connected to the assumption that apparent wide scope is achieved as a result of speaker's reference. Ludlow and Neale (1991) point out, based on arguments from Russell, that indefinites actually never refer at all, i.e. that they are *not* ambiguous between a referential and a quantificational interpretation as often argued\(^\text{18}\). The authors argue that a sentence such as

(4.33) *A man from York died last night.*

expresses a proposition even if in fact no men from York exist. In this case, there is no object the indefinite could possibly refer to (as, by assumption, there are no men from York). Yet the utterance still expresses a proposition, namely a false one. If the indefinite was a referring expression which fails to refer in this case, no proposition should be expressed by (4.33) and the sentence should be uninterpretable, which it is not.

Related arguments can be found to argue against a referential interpretation of emphatic indefinites. The scenarios I construe and my general line of argumentation is very similar to the one presented in (Ludlow and Neale, 1991), where the authors argue against a referential interpretation of ordinary indefinites. Now consider the following example.

\(^{18}\)See also (Schwarz, 2004) for further arguments against the referential/quantificational-ambiguity based on verb phrase ellipsis.
(4.34) a. ↑EIN Freund von Peter könnte uns hierbei bestimmt helfen.  
   some friend of Peter could us here surely help  
   ‘Surely, some friend of Peter could help us here.’

b. Wenn ↑EIN Freund von Peter zur Party kommt, ist Maria glücklich.  
   if some friend of Peter to-the party comes is Maria happy  
   ‘If some friend of Peter comes to the party, Mary will be happy.’

c. Surely, some friend of Peter could help us here.

d. If some friend of Peter comes to the party, Mary will be happy.

(4.34a,c) have a reading saying that, among Peter’s friends, there is one who can help us.  
(4.34b,d) support a wide scope reading, which can be described as follows: there is a friend  
of Peter, and if this person turns up at the party, Mary will be happy. I will now construe two  
scenarios for the two sentences in (4.34) similar to the scenarios discussed in (Kripke, 1979)  
and to the Franz-Ferdinand-example from Section 3.2.1. In all scenarios, Franz is a person  
who makes the sentence predicate true, i.e. who can help us and who makes Maria happy  
if he shows up, and Ferdinand is a person who does not make the sentence predicate true.  
In scenario 1, both Franz and Ferdinand are friends of Peter’s. The speaker has Ferdinand in  
mind, when he utters the sentences. I think it is quite clear that both sentence-pairs (4.34a,c)  
and (4.34b,d) are true in such a situation, irrespective of who the speaker uttering (4.34a-d)  
is referring to. That is, even though the speaker is referring to Ferdinand when uttering  
the sentences, they are still conceived of as true. The speaker says something true, even  
though he does so accidentally. In this respect, I believe, emphatic indefinites do not behave  
differently from ordinary (slim) indefinites. The truth value of the sentence in which they are  
embedded does not depend on the speaker’s reference as e.g. King (1988), Ludlow and Neale  
(1991), and Stalnaker (1998) point out for ordinary indefinites. Even though the sentence  
does not hold for the referent the speaker has in mind, it is true as said.

Let’s take it that in the second scenario Mary actually hates all of Peter’s friends. So she will  
ot be happy if either of them turns up. Hence, she will also not be happy if one specific friend  
of Peter shows up. Furthermore, Peter has no friends who could help us in our situation at  
hand. Let us assume this time that Franz is not a friend of Peter, but that the speaker believes  
him to be so and is referring to Franz, when uttering (4.34a-d). In such a situation, the  
sentences Franz could help us here and If Franz comes to the party, Mary will be happy  
would be true (because, as pointed out above, by assumption, Franz fulfills the sentence predicates).  
But what about the truth value of (4.34a-d)? I would say the sentences are false, even if they  
are uttered by a speaker who is mistaken about the extension of the friends-of-Peter set and  
believes Franz to be one of Peter’s friends. It is at least undoubtable, I think, that they are  
ot true. As mentioned above, Kripke’s intuitions for referentially used definites seem to be  
similar. The speaker is obviously mistaken, but the sentences would still not be conceived of  
as true.
This view is also defended by Dekker (1998, 2002), who argues that (specific) indefinites are always uttered with some kind of speaker’s reference, although they are not referential expressions by themselves. Subsequently used pronouns can relate back to these intended referents. The discourse referent introduced by an indefinite is eventually linked to some entity in the world. This link might be only indirect: the speaker himself might not be able to link it to an individual in the world, but might have only heard of it via others. Yet, this link of a discourse referent to an individual does not necessarily influence the truth conditions of the sentence containing the indefinite. Dekker (1998) gives the following example (his examples (7)–(10), p. 311).

\[(4.35) \quad \begin{align*}
\text{a. } & \text{(A:)} \text{Yesterday, a man came in my office who asked where he could find the secretary.} \\
& \text{(B:)} \text{Was he smoking this smelly pipe tobacco?} \\
\text{c. } & \text{1. } \text{(A:)} \text{He was indeed smoking this smelly pipe tobacco.} \\
& \text{2. } \text{(A:)} \# \text{I don’t know.}
\end{align*}\]

In a situation in which two persons, Rod and Roger, had come in and asked about the secretary, but only Rod was smoking a smelly pipe tobacco, A’s utterance, the combination of (4.35a) and (4.35c.1), would be true – independent of whether the speaker had Rod or Roger in mind when speaking. However, if he had Roger in mind, Dekker says that it would not be ‘licensed’. Furthermore, answer (4.35c.2) would be inappropriate, because the speaker must know who he is talking about and could not argue that he had not actually made up his mind who he was talking about when uttering (4.35a). Most importantly, we see that speaker’s reference has no direct influence on the truth conditions of the sentence containing the indefinite, i.e. (4.35a). According to Dekker (1998) and Stalnaker (1998), (4.35a) would be true independent of who the speaker has in mind. It would also be true in a situation in which only Rod came into the office and Roger did not, but the speaker thinks he did and utters (4.35a) with reference to Roger. He would have said something true by uttering (4.35a), even if he did so only accidentally. When discussing wide scope readings vs. narrow scope readings as in example (4.34) above, all we actually want to account for are the different truth conditions of the two readings under discussion. It seems that speaker’s reference does not help us here. (Stalnaker, 1998, p. 16) puts it this way: ‘Linguists sometimes distinguish specific from nonspecific noun phrases, corresponding roughly to the case where the speaker has someone or something in mind, and cases where he has not. The problem has always been to understand what difference this distinction makes for the truth conditions of statements containing the indefinite expression, and how facts about the speaker’s state of mind that were unavailable to the audience could be relevant to the semantics of what was being said. The account I am sketching suggests that this difference matters, not to the interpretation of the indefinite expression itself, but only to the evaluation of subsequent statements made with pronouns anaphoric to the indefinite expression.’ In other words, according to Stalnaker (1998), the truth conditions of the sentence containing a specific indefinite are not directly influenced by the speaker’s
state of mind. It only matters for the evaluation of subsequent utterances containing pronouns referring to this indefinite. Note that this view differs from the one King (1988) holds, who argues that also the interpretation of pronouns is independent of any notion of speaker’s reference.

**a certain vs. some**

An issue similar to the question raised here is touched by Breheny (2003) for *a certain*-indefinites. Breheny argues that (4.36a) (from Breheny, 2003, ex. 7, p. 40) is true just if the person the speaker has in mind was walking in the park and false otherwise (even if other men were walking around in the park). The same view is defended by Fodor and Sag (1982) for indefinites under their referential interpretation.

(4.36)  

a. A certain man was walking in the park.  
b. A certain friend of Peter could help us here.  
c. If a certain friend of Peter comes to the party, Mary will be happy.

According to (Breheny, 2003), (4.36b,c) would then be false in scenario 1, where the speaker has Ferdinand in mind when he utters the sentences, but Ferdinand is not one that could help us/is not one that makes Mary happy when showing up. I share Breheny’s intuitions here. According to my intuitions, the sentences are considered as false or maybe as infelicitous, but certainly not as true. What about scenario 2? Here, we assumed that Franz is not a friend of Peter, but that the speaker believes him to be so and is referring to Franz, when uttering (4.34b,c). I think that (4.36b,c) would be conceived of as neither true nor false in such a scenario, because the person the speaker wants to refer to (Franz) is not a friend of Peter’s. There seems to be some kind of presupposition failure here, probably because *a certain friend of Peter’s* presupposes the speaker’s referent to be a friend of Peter’s as e.g. suggested by (Yeom, 1998). King (1988) understands Donnellan to hold a similar view. In footnote 8, p. 439 King writes: ‘I assume that for the first sentence in a discourse such as A(n) F is G. He/she/it/the F is H. etc.’ to be true on Donnellan’s view, the object the speaker has in mind must be an F’.

The emphatic indefinites in (4.34) and the *a certain*-indefinites in (4.36) seem to behave rather differently. While speaker’s reference seems to play a role in the second case, it does not in the first. So in my view, it might make sense to interpret the *a certain*-indefinites in (4.36) as denoting the individual the speaker has in mind, but this interpretation is not sensible for the emphatic indefinites in (4.34).

Note that – as discussed in Section 3.1 – the indefinites in (4.36) are interpreted as the individuals the speaker has in mind and this could just be a special case of the general rule that *a certain*-indefinites are to be interpreted specifically with respect to opaque operators. In these cases, we have to assume the introduction of a tacit operator \((K_I)\) (meaning ‘I know
that’) that applies to the sentence. Assuming that the specific indefinite takes scope over the epistemic operator $K_I$, the resulting reading for e.g. (4.36b) then is the following: there is a friend of Peter’s $x$, and the speaker knows that $x$ could help us.

So far, we have seen that not all wide scope readings can be explained in a theory in which wide scope indefinites are assumed to denote some individual that the speaker (or someone else) has in mind (see in particular examples (4.32) and (4.34)). We have also seen that this assumption might be sensible for specific indefinites, i.e. indefinites marked by a certain in English. I now want to show that even specific indefinites – in the sense of specificity discussed in Chapter 3 – do not always involve speaker’s reference. The discussion so far has shown that most of the time it is hard to differentiate between the view that a specific indefinite is interpreted specifically with respect to an opaque operator (which might be tacit) and the assumption that a specific indefinite denotes an individual that the speaker has in mind. However, there are cases that can distinguish the two analyses and actually support the former. Even specific indefinites do not always denote an individual the speaker or someone else has in mind. Reconsider first example (3.21) from (Hintikka, 1986), repeated below, where the claim that specific indefinites denote speaker’s referents could be upheld.

(4.37) a. *Every true Englishman adores a certain woman.*
    b. *The Queen.*
    c. *His mother.*

Sentence (4.37a) has two readings. In one, the indefinite takes widest scope. This reading is enforced by the continuation in (4.37b). It can be assumed, following Hintikka, that the sentence is embedded under a tacit epistemic operator $K_I$ and that the indefinite is specific with respect to this operator in the relevant widest scope reading. This would correspond to a reading where the indefinite is interpreted as an individual the speaker has in mind. But there is another reading, which is enforced by the continuation in (4.37c). This time, the indefinite is interpreted functionally and it is assumed that the speaker knows the function that maps every Englishman to the woman he adores. I dubbed this reading a *functional wide scope reading* in Section 3.3. The sentence only has these two readings. In particular, it does not have a narrow scope reading, which would pair Englishmen with women in some unknown way. As also discussed in Section 3.3, the narrow scope reading and the functional wide scope reading can be told apart by the *nameability* criterion. The function that the speaker is referring to and that pairs Englishmen with women has to be nameable in one way or other. I will refer to this as a ‘natural pairing’.

But now consider another example from (Hintikka, 1986, ex. (24), p. 334).

(4.38) *Every one of these young men hopes to marry a certain woman.*

As opposed to (4.37a), this sentence, so Hintikka claims, does not have a functional reading, but only – or at least very preferably – a widest scope reading for *a certain woman*. He argues that this is due to the fact that there is no natural function available that would pair
young men with women they want to marry. Breheny (2003) agrees with Hintikka (and Kratzer 1998 building on Hintikka) that the sentence receives a functional reading only very marginally. However, the sentence has a reading which is not the widest scope reading, but still different from a simple narrow scope reading, Breheny argues. It is not a natural function reading, but one that can be described as follows: for every young man there is a woman that the speaker has in mind such that the man wants to marry this woman. I believe that this reading is only a special case of a different reading the sentence has, namely a reading where the indefinite is specific with respect to hope. So for every young man there is a specific woman (not just any) that he hopes to marry. In this reading – contrary to what Breheny claims – the speaker can, but does not need to know which woman is paired with which man. He might just have become aware of the fact that all young men have been talking about their arrangements for their forthcoming marriage (with already chosen brides). Hence, he would know that all men hope to marry some specific woman, but he does not know whom each man hopes to marry nor is he aware of a (natural) function that pairs each man with a woman. In such a scenario, a speaker might perfectly well utter (4.38). Thus Breheny’s ‘reading’ would not be a genuine reading, but only a special case of this specific reading.

I believe that sentences such as (4.37a) on the one hand, where no overt opaque operator is present, and sentences such as (4.38) on the other, where there is an overt opaque operator below some other quantifier, shed doubt on approaches relying on the notion of speaker’s reference – even when trying to account for specificity, let alone wide scope readings in general. There is a clear difference between the available readings of (4.37a) and (4.38). While (4.37a) only allows for a natural pairing, (4.38) also has a reading where the pairing might be entirely arbitrary and cannot be described by a natural function such as e.g. the current girlfriend-function. This difference follows directly from the view on specificity which I have been advocating throughout this thesis: that specific indefinites have to be understood specifically with respect to some opaque operator. The difference between (4.37a) and (4.38) lies in the fact that the second sentence does contain an overt opaque operator (hopes), while the first sentence does not. Hence, in (4.38) a certain woman can be understood specifically with respect to this operator. In (4.37a), on the other hand, specificity is only possible with respect to some tacit operator \(K'\), which then evokes the epistemically specific interpretation. This in turn forces the function to be a natural function that the speaker has in mind.

Consider another example from (Pafel, 2005, p. 192), where a specific indefinite clearly takes wide scope over an opaque operator (must), but not widest scope with respect to all involved operators.\(^{19}\)

---

\(^{19}\) Pafel (2005) does not analyze the indefinite in (4.39) as taking scope over an opaque operator. He tentatively suggests that the indefinite contains a covert bound pronoun and does not take widest scope for this reason. However, I believe that the presence of the opaque operator must is decisive, here.
(4.39) Bei jedem Sport muss man bestimmte unlogische Dinge
at every sport must one certain illogical things
lernen. [Süddeutsche Zeitung Magazin, 28.6.96, 24]
learn
‘For every type of sport, one must learn certain illogical things.’

The specific indefinite takes wide scope over muss (must), but not over jedem Sport (every type of sport), as expected.

To be fair, I want to discuss example (4.40) (brought up by Breheny, 2003, p. 42, ex. (12b)), which is crucial for the speaker’s reference analysis and which cannot be aptly explained by my account.

(4.40) I don’t think much of Freud and his type but I do admit that most problems my patients have stem from a certain childhood experience.

Imagine the sentence is uttered by an anti-theoretical psychiatrist, who does not believe that most problems stem from a certain kind of childhood experience, say from the fact that the patients did not get enough attention from their parents between the age of one and two. That is to say the sentence has no natural function reading. Yet, Breheny claims, it has a reading that is not equivalent to the widest scope reading, namely one where ‘the individuals in the binding domain are paired with an individual (or collection) which the speaker has in mind’ (Breheny, 2003, p. 42). Again, I would agree that indeed there is a non-widest scope reading, but I disagree with the judgement that the speaker has to know which experience is paired with which problem (although such an assumption is, of course, very likely, because the therapist most probably knows about the childhood experiences of his patients). But the therapist could continue (4.40) with

(4.41) Although concerning some patients, they have not told me about their childhood experience yet. But it is quite clear that there is one such experience that caused their problems.

If I want to stick to my above assumptions that a certain-indefinites are specific with respect to opaque operators, I will have to assume that to stem from denotes such an opaque operator. The following example supports this assumption.

(4.42) Paul’s problems stem from (the fact that he had) a bad childhood experience.

Sentence (4.42) seems to have a specific and an unspecific reading, which can only be present due to the existence of some opaque operator – most likely the verb to stem from. In the specific reading, there was a certain bad experience Paul had (among possibly many others) that caused his present problems; and in the unspecific reading, the mere fact of having had a bad experience during his childhood caused Paul’s problems. If it is assumed that to stem from is an opaque operator, the a certain-indefinite in (4.40) is specific with respect to this operator on the most prominent reading of the sentence, which is the following: for most
problems of my patients there is one childhood experience such that this experience is the source for the respective problem.

Finally, let me also point out that all approaches that rely on some concept of speaker’s reference or other have virtually nothing to say about the classification of wide scope indefinites, illustrated by way of example (4.11) of Section 4.2. It was shown that e.g. *several horses* is a wide scope quantifier, but *few horses* is not. But why is it that only a small class of quantifiers can take exceptional wide scope? This does not follow from the speaker’s reference view, of course. It is simply a stipulation that a speaker is able to utter a DP such as *several horses* as a speaker’s referent (when referring to a particular set of horses she has in mind), whereas she cannot utter *few horses* in the same way (as referring to a particular set of horses, which are overall few). (Schwarzschild, 2002) and (Schlenker, 2005) have some comments about the difference between modified numeral quantifiers such as *at least three/more than two horses* and unmodified ones such as *three horses*, which are aimed at explaining why only the former and not the latter appear to take wide scope out of syntactic islands. The argument is as follows: if the speaker knew the exact number of horses, she would not use a modified numeral quantifier, but an unmodified one. Hence, she cannot use such a modified numeral quantifier as speaker’s referent (because in this case she would know the exact number) and the indefinite cannot receive exceptional wide scope via this mechanism. Although I follow this argument, it does not account for the fact that *exactly three horses* belongs to the group of non-wide scope quantifiers. By using this indefinite, the speaker reveals that she knows the exact number of horses; hence a speaker’s reference use of this indefinite should be possible just as in case of *three horses*. But we do not observe exceptional wide scope readings of such quantifiers. Furthermore, this argument does not, of course, give a reason for the difference between *few horses* and *several horses* with respect to their wide scope behavior. Both quantifiers are equally vague, but only the latter allows for exceptional wide scope. After all, the approaches relying on speaker’s reference cannot felicitously account for the classification into wide scope and non-wide scope quantifiers.

In conclusion, it has turned out that specific indefinites are better not interpreted as ‘the individual the speaker has in mind’. As pointed out in Chapter 3, my understanding of specificity follows (Ioup, 1977), where specificity is defined as holding with respect to opaque operators. That specific indefinites sometimes seem to denote speaker’s referents then might just stem from the fact that sentences can contain (possibly tacit) epistemic operators with respect to which the involved indefinite has to be read as specific. Hence, when the involved opaque operator is an epistemic one, the two conceptions of specificity – the speaker’s referent view and the opacity view – yield the same results. But when other non-epistemic operators are involved, the account of (Ioup, 1977) yields much better results (cf. e.g. the possible readings of example (4.37) vs. (4.38)). Furthermore, there are cases of indefinites that take genuine wide scope (see examples (4.32) and (4.34)). These indefinites behave entirely differently from specific (*bestimmt (certain)-*) indefinites, which can be evidenced by an inspection of
the underlying truth conditions of the sentences in which they are contained. This shows that at least some indefinites have to be treated like ordinary exceptional wide scope taking indefinites independent of any notion of speaker's reference. To conclude this section, let me cite (King, 1988, p. 438): ‘I suspect that this feeling [that indefinites must sometimes refer to particular individuals, CE] stems not so much from the arguments that have been offered for AT [the ‘ambiguity thesis’, i.e. that indefinites are ambiguous between an existential and a referential(-like) reading, CE] as from the undeniable fact that we often use indefinites when we are thinking of particular individuals. Thinking of an old college friend, I say, for example ‘I have a friend who lives in Denver.’ In such instances we are apt to say that we were ‘talking about’ the old friend and the step from ‘talking about’ to ‘referring to’ comes all too quickly. Such cases need not bother the proponent of UT [the ‘univocality thesis’, i.e. that indefinites always have the semantic function of asserting existential generalizations, CE]. He/she simply describes this as a case in which one believes $F a$ and asserts $(\exists x) F x$. He/she can even agree that $a$ was being talked about, though he/she will understand this to mean simply that $(\exists x) F x$ was asserted because or on the basis of a belief that $Fa$.

4.5 Approaches Relying on Domain Restriction

The approaches of (Portner and Yabushita, 2001; Portner, 2002; Schwarzschild, 2002; Breheny, 2003; Schlenker, 2005) have very much in common with the speaker's reference approach of Fodor and Sag (1982) above. But whereas Fodor and Sag assume that there is some individual the speaker has in mind, in these approaches there is some salient property that is only known to the speaker. For example the restrictor of three horses can be implicitly restricted to horses that have a particular property the speaker has in mind. In the end this property might be so specific that it holds only for three horses. These are the three horses she wants to refer to. But the speaker does not necessarily have to know the referents for these three horses. She might simply know about some identifying property.

4.5.1 Schwarzschild (2002)

The theory of Schwarzschild (2002) has become the most influential one among the domain restriction approaches. The idea is that in the case of singular indefinites, the restrictor is explicitly or implicitly restricted by some property that might be so specific that it is met by only one individual. This accounts for the apparent wide scope cases of singular indefinites. In example (4.30), the identifying property might be $\lambda x[\text{relative}(x) \land \text{own}_3 \text{houses}(x)]$ as hinted at above. The speaker might not actually know the referent that meets this property, but she knows that there is (at least) one such relative. Again, there is a speaker-hearer asymmetry here. (Schwarzschild, 2002, p. 307) refers to this asymmetry by the ‘privacy
Conclusion

What I have shown in this section is the following: some sentences support a non-variation reading with slim indefinites, but these readings can be argued to be only apparent wide scope readings – either because they are special cases of the narrow scope readings and therefore not genuine readings, because they are instances of specific or referential readings, or because they are evoked by extreme domain restriction. There are however sentences that only allow for a co-variation interpretation of the involved slim indefinite, i.e. genuine wide scope as well as specific/referential/extreme domain restricted readings are missing – for whatever reason that may be the case. Yet, emphatic variants of these indefinites allow for a non-variation reading in the same environment. I have shown that the only way to account for these readings is via the assumption that the emphatic indefinites take genuine wide scope. I thus have shown that not all non-variation readings can be reduced to apparent wide scope readings. Some wide scope readings are genuine.

Note that my claim affects only one direction of the imaginable implication concerning emphatic form and wide scope interpretation. I claim that emphatic indefinites receive a genuine wide scope interpretation. The other direction does not necessarily hold. There may very well be indefinites that receive a (scope-shifted) genuine wide scope interpretation without being realized emphatically.

My explanation of the facts discussed above also clarifies the observation (cf. e.g. Farkas, 1981; Abusch, 1994; Kratzer, 1998; Bende-Farkas and Kamp, 2001) that a some indefinite lends itself more readily to non-local interpretations and in particular exceptional wide scope interpretations than an indefinite with the determiner a. According to the view presented here, this is so because some indefinites often allow for genuine (exceptional) wide scope interpretations when a indefinites do not. This fact is especially clear when the NP-complement of the indefinite is not heavy enough to allow for a referential/specific/extremely domain restricted interpretation of the indefinite, i.e. to allow for a seemingly wide scope interpretation. As a referential/specific/extremely domain restricted interpretation is not always possible (only in certain contexts and/or when the descriptive content is ‘heavy’ enough), but scope shifting always is, some indefinites allow for a wide scope interpretation more easily.

3.3 Functional readings

In the preceding section, we have discussed cases of apparent wide scope, i.e. cases where an indefinite seems to receive wide scope over another operator, although in fact it takes
narrow scope, and the illusion of a wide scope interpretation is evoked by other factors. We concluded that genuine wide scope readings do nevertheless exist. In this section, we will investigate the reverse phenomenon. There are readings of indefinites, in which the value of an indefinite co-varies with the values of some other operator, because the indefinite contains a functional element. I claim that such a co-variation reading can nevertheless be an instance of a wide scope reading, namely a wide scope functional reading. I will show that this functional wide scope reading is – empirically and formally – distinguishable from a narrow scope reading. I want to make two major claims here: 1. functional wide scope readings or apparent narrow scope readings, exist, and 2. these readings are semantically different from genuine narrow scope readings, which means that not all narrow scope readings can be reduced to functional readings; hence genuine narrow scope readings also exist. Combining the claim from the last section that wide scope readings actually exist with the second claim of this section, we can conclude that scope readings are genuine. Neither can narrow scope be reduced to functional wide scope nor can wide scope be reduced to referentiality or some other phenomenon.

### 3.3.1 Data

Let us start with the following example.

(3.42) Everyone hates some relative (of his).

Example (3.42) has two readings: one which represents the ordinary narrow scope reading, in which everyone is paired with some relative whom he hates; and one, which I call the functional wide scope reading, in which there is some specific kind of relative, say his mother in law, whom everyone hates. The first reading instantiates a pair-list reading, whereas the second reading is a genuine functional reading. The function could be the mother-in-law function, which is a function that maps every \(x\) to \(x\)'s mother in law. The functional reading is triggered by the NP relative of his, which is obviously a functional element that maps people to their relatives, where the pronoun his is bound by everyone. It can already be seen that indefinites can have the decisive functional reading even if there is no overt pronoun involved. For instance, example (3.42) also supports a functional reading if the material in parentheses is omitted. This is because the NP relative of his is functional by itself, as a relative has to be interpreted with respect to someone whose relative he is. Quite generally, most NPs allow for a functional interpretation, even if they do not seem functional at first sight. The NPs book or picture for example can be reinterpreted as functional items to mean a book belonging to / written by someone or a picture of someone, respectively. The more likely such a reinterpretation is according to the context, the more readily available is a functional reading.
I will differentiate between the wide scope functional reading and a simple narrow scope one by means of methods that are known from discussions about functional vs. pair-list readings of questions (as well as from discussions about functional DPs with relative clauses containing a quantifier). The function/pair-list distinction is usually not discussed in the context of quantifier scope, although it might have important consequences for the interpretation of wide (and intermediate) scope indefinites by means of – parameterized or non-parameterized – choice functions (see Section 4.7). The only exceptions I am aware of are (Groenendijk and Stokhof, 1984, Section 3.4) and (building on this) (Gartner, 2001, p. 132), where a distinction between functional readings and pair-list readings is drawn in a very brief discussion of quantifier scope phenomena. I hope to convince the reader that a further investigation of the questions raised in this section might be worthwhile in order to learn more about the correct treatment of indefinites. Consider example (3.43), given the following context:

In einer Schule möchte die Kunstlehrerin mit ihren Schülern eine Collage basteln und bittet alle Schüler, ein Bild mitzubringen. Vor der nächsten Kunststunde erinnert sie die Kinder noch einmal daran, an alles zu denken, weil normalerweise immer jemand irgendetwas vergisst. Am nächsten Tag kommt sie in die Schule und ist total erstaunt, ...

(At school, the arts teacher wants to make a collage with her pupils and asks each pupil to bring a picture to the next day’s lecture. Before the next class she reminds her pupils again not to forget, because usually at least some children forget what they were asked to bring. The next day the teacher comes to school and is surprised, ...)

(3.43) denn **Ein Bild von sich, das hatte überraschenderweise jeder Schüler mitgebracht.**

‘because, surprisingly, every pupil had brought some picture of himself.’

(3.43) has a co-variation reading, where the pictures vary with the pupils\(^{15}\). But interestingly, the reading is not a simple narrow scope reading. The sentence cannot mean that every pupil brought along just some picture whatsoever, although this reading is made highly salient by the context and should therefore be expected by the hearer. The sentence exhibits only a functional wide scope reading. This reading can be paraphrased as follows: there is a method \(f\) of assigning pictures to pupils \(x\), such that every \(x\) brought \(f(x)\).\(^{16}\)

\(^{15}\)Note that the indefinite is realized emphatically, which is the usual way of realizing a left-dislocated indefinite in non-contrastive sentences, non-generic sentences and sentences that do not contain a quantificational adverb, i.e. in non-marked true episodic sentences. We will discuss the reasons for this in Chapter 5. For the moment, it suffices to say that there is no other non-marked way of realizing the indefinite. In particular, a slim realization (with an accent on the NP-complement) would lead to a contrastive interpretation, where the NP Bild (picture) would have to be contrasted with other things. (3.43) would then have to be followed by a sentence such as *Aber die Bastelpappe hatten wieder alle vergessen* (But everyone forgot the paperboard).

\(^{16}\)I assume that properties such as \(\text{picture}_{fn}\), are predicates that range over functions, i.e. \(\text{picture}_{fn}\), denotes a set of picture-functions, functions that yield pictures when applied to some individual. This is only for expository
Interestingly, a simple narrow scope reading is available in (3.45a) (uttered in the same context as (3.43)), which is indicated in (3.45b) (and which is equivalent to (3.45c)).

\[(3.45)\]
\begin{align*}
&\text{a. denn jeder Schüler hatte tatsächlich ein BILD von sich mitgebracht,} \\
&\text{because every pupil had indeed a picture of himself brought-along}
\end{align*}

‘because every pupil had brought a picture of himself, indeed.’

\begin{align*}
&\text{b.}\quad \forall x[pupil(x) \rightarrow \exists f[\text{picture}_f(f) \land \text{brought}(x, f(x))]] \\
&\text{c.}\quad \forall x[pupil(x) \rightarrow \exists y[\text{picture}(y) \land \text{of}(y, x) \land \text{brought}(x, y)]]
\end{align*}

In anticipation of my results, the difference between (3.43) and (3.45) lies in the fact that in (3.43) the decisive indefinite is topical and in (3.45) it is not. The interpretation of such topical functional indefinites will be discussed in Section 6.6.

As it stands, the difference between (3.43) and (3.45a) is not correctly represented, because the formulas (3.44) and (3.45b,c) are obviously equivalent (for this conclusion cf. also Groenendijk and Stokhof, 1984)\(^{17}\). In other words, if simply the existence of a function \(f\) in (3.44) that maps pupils to pictures of themselves made sentence (3.43) true, the wide scope functional reading would be indistinguishable from the narrow scope reading. A model for the narrow scope scenario, i.e. where every pupil brought a picture of himself, certainly also satisfies (3.44), because there exists a function \(f\) such that every pupil brought \(f(x)\). This function maps every pupil to the picture he brought. To distinguish the functional wide scope reading from the narrow scope reading, I will hence argue that \(f\) must not be a function that can be inferred to exist in any model that satisfies the narrow scope reading. This requirement, however, will be shown to follow from a more general constraint on informativity and economy principles.

Groenendijk and Stokhof (1984) propose that one can differentiate between the different readings (here of (3.43) on the one side and (3.45) on the other) by means of the possible continuations of the respective sentences. In other words, empirically, the difference between the functional wide scope reading and a true narrow scope reading can be tested by the possible subsequent contexts. (3.43) can be followed by

\(^{17}\)A functional construal of narrow scope as in (3.44) goes back to Thoralf Albert Skolem, who has shown that a first-order formula of the form \(\forall x[\exists y[R(x, y)]]\) is (satisfiably) equivalent to \(\forall x[R(x, f(x))]\), where \(R\) is a relation and \(f\) is a function – both being non-logical constants and thus to be interpreted by the model. To prove this equivalence, one has to assume the Axiom of Choice (at least in the case of infinite functions).

**Definition 3.2** (The Axiom of Choice)

Let \(C\) be a collection of nonempty sets. Then one can choose a member from each set in that collection. Hence, there exists a function \(f\) defined on \(C\) with the property that, for each set \(S\) in the collection, \(f(S)\) is a member of \(S\).
Nämlich das (jeweilige) Einschulungsbild.

namely the (respective) picture of the first day at school

‘Namely the picture of the pupil’s first day at school.’

But an enumeration of person-picture pairs such as given in (3.47) would not be an appropriate continuation of (3.43).

Nämlich/Und zwar Peter ein Bild seiner Einschulung, Fritz ein Bild, auf dem er auf einem Pferd reitet, Maria ein Bild von ihr und ihrer Mutter, ...

‘Namely Peter brought a picture of his first day at school, Fritz, a picture where he is riding a horse, Maria, a picture of her and her mother, ...’

In fact, (3.47) would be a perfect continuation of (3.45a), where ein Bild von sich (a picture of himself) has narrow scope with respect to the pupils.

If the formula in (3.44) is the correct representation of (3.43), i.e. of a functional wide scope reading, the data in (3.46) and (3.47) suggest that $f$ can be equated with the function $x$’s picture of his first day at school, which maps every $x$ (pupils in this case) to the picture of $x$ at his first day at school, but not with the enumeration of person-picture pairs as in (3.47).

In line with Groenendijk and Stokhof (1984), I take this as an indication that pair-listings do not count as functions per se.

The difference between functional readings and pair-list readings, on the other, is better known from constituent questions with quantifiers exemplified in (3.48) and (3.49) from (Krifka, 2001b, pp. 1f.).

a. Which dish did every guest make?
   b. Pasta.
   c. His favorite dish.
   d. Al, the pasta; Bill, the salad; and Carl, the pudding.

All answers (3.48b-d) are legitimate answers to (3.48a). At first sight, it might appear that (3.48b) is different in nature from answers (3.48c,d), which can be grouped together as exemplifying some kind of functional answer. (3.48c) might just be a short form for (3.48d). However, the following example shows that it is in fact answers (3.48b,c) that should be grouped together, and (3.48d) that should be regarded as a special case that has to be accounted for by entirely different means.

a. Which dish did most guests make?
   b. Pasta.
   c. Their favorite dish.
   d. *Al, the pasta; Bill, the salad; and Carl, the pudding.
3.3. Functional readings

While (3.48a), which contains the quantifier every guest, allows for the pair-list elaboration in (3.48d), (3.49a) with the quantifier most guests in subject position does not allow for such an answer, a property shared by most other quantifiers. This in turn shows that there is a crucial difference between the functional reading on the one hand and the pair-list reading on the other, because most quantifiers in questions trigger the former, but not the latter (cf. Groenendijk and Stokhof, 1984, Chapter 3).

Groenendijk and Stokhof (1984) give more arguments that pair-list and functional answers have to be kept separately, i.e. that (3.48c) cannot just be regarded as a short answer for (3.48d) and that the different possibilities of answering (3.48a) reflect a genuine ambiguity. The authors note that the two answers have different exhaustivity implications. Let us assume that the guests under discussion are Al, Bill, and Carl. The answer in (3.48c) would count as a true and complete answer to the question as long as everybody made his favorite dish, even if one of the guests, say Al, made more than one dish. This is different for answer (3.48d), which would be understood as incomplete if, in fact, Al made an additional dish. Sharvit (1997) uses this observation to argue that the two answers actually reflect two different readings of the question, because the appropriateness conditions of the corresponding answers are distinct. She builds on (Dayal, 1996), who argues that singular which-phrases come with uniqueness presuppositions, in addition to the generally assumed existence presupposition. According to Dayal (1996), a question such as Which dish did Al make? presupposes that Al made a dish and that he only made one dish. Likewise, so it is argued by Sharvit (1997), (3.48a) also comes with a uniqueness presupposition. But the presupposition in the genuine function reading is different from the presupposition in the pair-list reading of the question. (3.48d) would only be an appropriate answer to (3.48a) if neither Al, nor Bill, nor Carl made more than the dish indicated in the answer. However, in (3.48c), the presupposition is fulfilled if there exists only one unique function \( f \) of a specific kind such that every guest \( x \) made \( f(x) \). The answer would still be appropriate if one of the guests made more than just his favorite dish. This indicates that pair-list enumerations and ‘real’ functional interpretations have to be kept apart. My example (3.43) in combination with (3.45a) delivers further evidence that the distinction between ‘real’ functions and pair-list enumerations exists. The presumed distinction is not only observable in the context of questions and answers, but also in the context of an entirely different set of data, namely in the context of quantifier scope readings, as Groenendijk and Stokhof (1984) have already hinted at.

Sharvit (1999) points to an additional difference between ‘real’ functions and pair-lists. ‘Real’ functions allow to be picked up anaphorically, whereas simple pair lists do not (cf. the Hebrew examples in Sharvit, 1999, p. 602, examples (37) & (38), given here as (3.50a,b)).
It is reported in Sharvit (1999) that (3.50a) allows for a reading where the pronoun ota (her) denotes the expression $f(x)$, where $f$ is the ‘best friend’-function and $x$ is bound by none of them. This interpretation is not available in (3.50b), where ota (her) can only refer back to some individual introduced before. The second sentence of (3.50a) then receives the following reading: none of the students invited his best female friend, whom he had talked to beforehand. (3.50b) lacks the functional pronoun reading even if the argument-value-pairs happen to be person-‘this person’s best friend’-pairs, i.e. if the pair-list explicates in fact the ‘best friend’-function. The pronoun ota (her) can only refer to some contextually salient individual. The contrast is existent in English as well, which the reader can appreciate when he compares the English translation of (3.50a) with that of (3.50b). (Sharvit, 1999) explains the contrast in (3.50) with the assumption that ‘real’ functions, but not pair-list enumerations, are permissible referents of pronouns. Under the assumption that pronouns can denote functional expressions, $f$ of the pronoun denotation $f(x)$ can refer back to (or be dynamically bound by the existential quantifier of) the ‘real’ function in (3.50a), but it cannot refer to the enumeration in (3.50b).

The data in (3.50) fall out straightforwardly under the assumption that pair-lists as such do not count as functions. It is known that pronouns – among them functional pronouns – need a licit antecedent. In (3.50a), the first sentence explicitly introduces a function, which can be picked up by the pronoun in the second sentence. In (3.50b), there is no function, but only an enumeration of argument-value-pairs. The pronoun ota (him) therefore lacks an antecedent. This is reminiscent of the famous marble example from Barbara Partee, which illustrates the need for explicit introduction of discourse referents.

(3.51)  

a. I had ten marbles but dropped them. I found nine. ??It had rolled under the sofa.

b. I had ten marbles but dropped them. I found all but one of them. It had rolled under the sofa.
(3.51a) is judged infelicitous although it delivers the same information as (3.51b), which is a coherent utterance. In both cases, it is meant to refer to the missing marble. The difference between (3.51a) and (3.51b) lies in the fact that the missing marble is explicitly introduced by one of them in (3.51b), whereas the information about the missing marble can only be inferred in (3.51a). Sharvit's example (3.50) is entirely parallel. The information that the argument-value-Enumeration is in fact the 'best friend'-function might be inferred in (3.50b), but is explicitly given in (3.50a). Consequently, a functionally interpreted pronoun can only refer back to this function in (3.50a) just like the pronoun it can only refer back to the marble in (3.51b) and not in (3.51a).

The exact conditions under which the use of pronouns is licensed is a matter of ongoing discussion. Heim (1990) and Elbourne (2005) (building on observations of Evans 1980 and Kadmon 1987) discuss certain variants of so-called 'E-type' pronouns which can refer to an entity that does not correspond to a linguistically given expression. The referent has to be 'constructed' on the basis of the information previously given. (Sharvit, 1999, p. 607, ex. (44)) also gives an example for a pronoun that refers to a function that is not explicitly mentioned, but has to be constructed. Whatever it is that licenses the use of pronouns in those cases where a pronoun lacks an explicit antecedent, it is an undisputed fact that a pronoun should always be able to refer back to an explicitly introduced entity. Just like an individual pronoun can always refer back to an already established individual discourse referent, a functionally interpreted pronoun should always possibly refer back to a function that has been previously introduced. In (3.50b) the pronoun cannot refer to the pair-list enumeration. If this pair-list enumeration denoted a function, it would be mysterious why the pronoun in the subsequent sentence cannot refer to this function. I believe this is good evidence that pair-lists do not denote functions per se.

However, many authors (among them Engdahl, 1985; Chierchia, 1993) consider pair-list readings of questions to be functional readings, because various phenomena can be explained more or less easily under this assumption. There are others (e.g. Groenendijk and Stokhof, 1984; Krifka, 2001b), who refrain from treating these readings as functional and account for the relevant data by other means.\(^{18}\)

Adopting, for the moment, the first view that pair-list enumerations denote functions, the data in (3.48), (3.49), (3.50), and the different possibilities of follow-up contexts for (3.43) and (3.45) call for a differentiation between those pair-lists and the 'real' functions. In the following I will discuss how approaches that adhere to this assumption accomplish such a distinction. Eventually, I will argue in line with the latter authors that pair-lists should not be

\(^{18}\)It is beyond the scope of this thesis to discuss all the advantages and problems of the two divergent views. For an overview of the arguments for and against a functional treatment and discussion of an alternative method by quantifying into questions, see (Chierchia, 1993).
treated as functions in and of themselves\textsuperscript{19}.

### 3.3.2 Natural Functions

It has been suggested that pair-lists are functions of a general kind (with a fixed domain), whereas other functions can be regarded as natural functions (see e.g. Chierchia 1993 for functional answers to questions, Hintikka 1986 for a discussion of naturalness with respect to the semantics of functional readings triggered by a certain and Sharvit 1997 for functional readings with relative clauses).

#### Hintikka’s view

Consider again example (3.13), repeated below as (3.52).

(3.52) Each husband had forgotten a certain date – his wife’s birthday.

As discussed in Section 3.1.2, Hintikka proposes that indefinites modified by certain take scope outside of epistemic operators. He assumes a tacit operator I know ($K_I$) applied to the entire sentence in (3.52). The indefinite a certain date now must be interpreted outside of the scope of the epistemic operator I know, which, under standard assumptions, would mean that it would have to take scope over the entire sentence. However, Hintikka argues that the indefinite does not necessarily have to take scope over the quantifier each husband, which is, of course, a very exceptional and non-standard assumption\textsuperscript{20}. This reading, he argues, is representable as the functional reading in (3.53).

(3.53) $\exists f[K_I(\forall y[husband(y) \rightarrow forgot(y, f(y))])]$

However, in light of our discussion in connection with examples (3.42) and (3.43) above, there is now another possibility to derive the reading in (3.53), which does not rely on the undesired assumption that quantifiers can take scope over some operator $O_1$ that c-commands operator $O_2$ without taking scope over this operator $O_2$ at the same time. The indefinite can be interpreted as inherently functional. In this case, the specific DP would be interpreted as a certain date depending on the respective husband. The indefinite can then be assumed to take ordinary wide scope over $K_I$ and all other operators in its scope, i.e. also over each husband. The result would be similar to the one predicted in Hintikka’s approach (the representation given in (3.53)). As the existential quantification over the function $f$ takes wider scope than all other operators, this reading would be a functional wide scope reading.

\textsuperscript{19}It might still be the case that pair-lists can be reinterpreted as functions in specific environments and thereby allow for a functional treatment along the lines of the approaches advocated by the formerly mentioned authors.

\textsuperscript{20}Note that Hintikka assumes that quantifiers quite generally show this exceptional behavior of exhibiting non-linear scope relations, also in the absence of epistemic operators. Hintikka (1974) dubs these readings branching readings.
Just as (3.44) is not the correct representation of our original example (3.43), if no further restrictions are imposed on the possible interpretations of \( f \), the representation in (3.53) also does not correctly account for the truth conditions of (3.52) without further refinement. Clearly, (3.52) is bound to the same restrictions as (3.43). The function \( f \) in (3.53) has to refer to a 'real'/natural function and cannot refer to a simple pair-list of arbitrary husband-date-pairs. Hintikka introduces such restrictions indirectly. He assumes that the function interpretation becomes likelier the more natural the function is. The naturalness can come about in two ways: either the function is a simple and familiar function such as the mother- or father-function, or the sentence under discussion is constructed in such a way that the hearer's attention is drawn to a functional interpretation. (Hintikka, 1986, p. 334) expresses this second possibility for naturalness in the following way: 'What makes the functional reading natural [...] is not that the crucial value of the function variable in question is already familiar to us, but that the writer is unmistakably calling his reader's attention to it, in order to discuss it and perchance even to find out what it is. (3.53) is an example of (this second way of) naturalness as defined by Hintikka (1986). He also gives the example in (3.54) (see Hintikka, 1986, p. 332).

\[ (3.54) \text{ A certain sum of money will be payed for each quantity of this commodity.} \]

According to Hintikka, a natural function reading then is a reading that involves a function that is either familiar, because it describes a concept that is widely known, or that involves a function that is unknown to the hearer, but arouses interest in the hearer to find out more about its nature. Let us now assume that this naturalness restriction was imposed on \( f \) in (3.53), i.e. that the domain of quantification over \( f \) would comprise only natural functions, where naturalness is understood in Hintikka's sense. Unfortunately, these restrictions would still not suffice to single out the correct functional wide scope reading that we are after, because the proposed naturalness definition does not allow us to discriminate between natural function readings and simple pair-list assignments. Nothing would prevent \( f \) in (3.53) from referring to a simple pair-list, if this pair-list could denote the function 'that the writer is unmistakably calling his reader's attention to'. Hence, Hintikka's understanding of naturalness does not help to distinguish 'natural' functions from arbitrary ones or pair-lists and is therefore an inappropriate means to restrict the available functions in (3.53) so that the intuitive truth conditions of (3.52) can be correctly accounted for.

Sharvit's view

Sharvit (1997) believes that both pair-lists and more natural concepts, such as the mother-function, denote functions. However, she furthermore argues that natural functions and pair-lists are of different semantic types. She regards the mother-function as a 'function-in-intension' of type \( \langle \langle e, t \rangle, \langle e, e \rangle \rangle \) and a pair-list enumeration as a 'function-in-extension' of type \( \langle e, e \rangle \) (see Sharvit, 1997, p. 56f.). A function-in-intension is defined by a 'function-definition
schema' and has to be applied to a set to yield a function-in-extension. (Sharvit, 1997, p. 57) gives the following definition for a natural function:

**Definition 3.3** (Sharvit)
A function \( h \) is natural, if there is a contextually salient function-definition schema \( S \), such that \( h \) maps every relevant set to the unique function which satisfies \( S \), and of which that set is the domain.

The natural mother-function would be represented as follows (see Sharvit, 1997, p. 59):

\[
\lambda P \sigma [\text{Dom}(g) = P \land \forall x [x \in \text{Dom}(g) \rightarrow g(x) = \text{mother}_\omega(x)]],
\]

where \( \sigma \) is the uniqueness/maximality operator

Hence, the natural mother-function is a function ‘from possible domains to the functions which satisfy the salient function definition schema ‘mother’ [= ‘mother.\omega’ in the above formula, CE]’ (Sharvit, 1997, p. 58). It is emphasized that the function definition schema has to be contextually salient (in some unspecified sense). I believe this contextual salience is understood in the same way as it is in (Hintikka, 1986) (in his first sense), i.e. the function schema must have been previously mentioned or familiar to the hearer, because it describes a widely known concept.

### 3.3.3 Properties of Natural Functions

I do not assume that ‘real’ or natural functions must be contextually salient in any sense. The function in the pupil-picture example (3.44), for example, can definitely refer to a function that is not salient before it is addressed. This is evidenced by the fact that (3.43) can be followed by (3.56).

\[(3.56) \quad \text{Nämlich das Bild, das auf der letzten Klassenfahrt gemacht wurde und den jeweiligen Schüler mit einem dreiköpfigen Dinosaur zeigt.}\]

‘Namely the picture that had been taken during the last school trip, which shows the respective pupil with a dinosaur with three heads.’

It is quite clear that the function in (3.56) is neither natural in the sense that it is a simple function nor salient in the usual meaning before it has been mentioned. Kratzer (1998, 2003) argues that functions can be salient in the sense that they are in the speaker’s mind; so from the speaker’s point of view, the function under discussion can be regarded as salient. Kratzer admits that there are readings in which the speaker does not know the relevant function himself, but maybe heard from someone else about this function. Yet, so Kratzer argues, he would have some method in mind to determine the value of the function. I think it is not appealing to subsume speaker’s knowledge under the heading salience. Furthermore, I will
show in Section 4.4 that even this assumption cannot account for the full range of data. There are wide scope readings in which the speaker does not know any more about the individual or function that is taking wide scope than the fact that it does take wide scope.

I suggest taking a different route to account for the functional wide scope readings. Although Sharvit’s account is able to differentiate between pair-lists on the one hand and natural functions on the other, I propose that pair-list enumerations do not count as functions in the first place. They are not of a functional type. To single out those functions that are usually referred to as ‘natural’ functions, the domain of the functions that can be quantified over has to be restricted, as has been proposed by Groenendijk and Stokhof (1984). I will show that functions in my sense must have the following properties:\(^{21}\): 1. they must be nameable, which relates to the concept of the function-definition schema of natural functions in (Sharvit, 1997) and is also an idea hinted at in (Chierchia, 1993, p. 212: ‘functions that we can readily access or define’ (my emphasis, CE)); and 2. they must be informative. It might seem as if there was a third restriction on functions, namely that they must not be over-informative, i.e. expected to some extent. But this alleged restriction will in the end turn out not to be a restriction on the functions themselves, but a result from other restrictions triggered by the context in which the functions appear. I will show that all these requirements do not have to be stipulated, but can be derived from more general constraints that have to hold for natural language exchanges anyway.

Let us reconsider the pupil-picture example (3.43) from the beginning of this section (repeated below, slightly simplified) and discuss in detail how my proposed restrictions on functions can correctly account for the functional wide scope reading of (3.57a), represented in (3.57b). (3.57c) shows the version that supports a narrow scope reading, which is represented in (3.57d,e).

(3.57) a. ↑ EIN Bild von sich, das hatte jeder Schüler mitgebracht.
   some picture of himself RP had every pupil brought-along
   ‘Every pupil had brought some picture of himself.’

b. ∃f [picture\(_{pn}(f) \land \forall x [\text{pupil}(x) \rightarrow \text{brought}(x, f(x))]\) ]

c. Jeder Schüler hatte ein Bild von sich mitgebracht.
   every pupil had a picture of himself brought-along
   ‘Every pupil had brought a picture of himself.’

d. ∀x [pupil(x) \rightarrow \exists f [\text{picture}\(_{pn}(f) \land \text{brought}(x, f(x))]\) ]

e. ∀x [pupil(x) \rightarrow \exists y [\text{picture}(y) \land of(y, x) \land \text{brought}(x, y)]\) ]

To ensure that (3.57b) is not simply equivalent to the narrow scope reading in (3.57d) (which is equivalent to (3.57e)), I propose that the domain of quantification of the functions \(f\) must meet the properties specified above.

\(^{21}\) (Groenendijk and Stokhof, 1984, p. 198) only have a short comment on the properties of these functions that one can quantify over. They have to be ‘either conventional in some sense (such as the mother-function, the wife-function, etc.) and thus in some sense computable, or they must be made computable by the context’.
Nameability

First, I claim that the function \( f \) in (3.57b) has to be nameable, which means that it must be possible to refer to the function by a linguistic object. Concepts such as every pupil’s picture of his first day at school then have a name and hence denote functions. Pair-lists on the other hand do not count as ‘naming a function’ and therefore do not denote functions in my sense. This assumption accounts directly for Sharvit’s example (3.50a) discussed above, in which the explicitly introduced ‘best friend’-function can be used as an antecedent for a subsequent pronoun. The mere listing of person-person pairs in (3.50b) fails to introduce a possible antecedent. The crucial point is that this enumeration denotes a set of pairs of individuals of type \( \langle \tau, t \rangle \) (with \( \tau \) being the type for pairs of individuals, e.g. a complex type \( e \cdot e \)), whereas the explicitly introduced function denotes a function of type \( \langle e, e \rangle \).

The assumption also explains why the pair-list continuation with nämlich (namely) in (3.47) (repeated below as (3.58b)) is not possible for (3.57a) and why the function elaboration (3.46) (repeated below as (3.58a)) is an appropriate continuation.

(3.58) a. Nämlich das (jeweilige) Einschulungsbild.  
   namely the (respective) picture-of-the-first-day-at-school

   b. ?Nämlich/Und zwar Peter ein Bild seiner Einschulung, Fritz ein Bild,  
   namely Peter a picture of his first-day-at-school Fritz a picture  
   auf dem er auf einem Pferd reitet, Maria ein Bild von ihr und ihrer  
   on which he on a horse rides Maria a picture of her and her Mutter, ...  
   mother

   ‘Namely Peter a picture of his first day at school, Fritz a picture where he is riding a horse, Maria a picture of her and her mother, ...’

Let us tentatively assume that (3.58a) is elliptic and stands for (3.59a) and receives the interpretation in (3.59b)\(^{23}\).

   every pupil has namely his picture-of-the-first-day-at-school brought-along

   ‘Namely every pupil brought the picture of his first day at school.’

\[^{22}\]Like Sharvit (1997), I thereby assume that pair-list enumerations and functions (which are natural functions in her approach) are of a different type. In my proposal, nothing hinges on the assumption that these functions are of type \( \langle e, e \rangle \) in my proposal. It might turn out to be the correct assumption that they are of type \( \langle \langle e, t \rangle, \langle e, e \rangle \rangle \) as proposed for natural functions in Sharvit’s approach. Note that there are several arguments for the claim that natural functions in Sharvit’s sense do not come with a fixed domain as opposed to pair-lists, which do (for an answer to the question of how this domain is determined, see Groenendijk and Stokhof, 1984; Chierchia, 1993; Dayal, 1996). But this question is independent of the question of which type these functions are, as (Sharvit, 1997, p. 123) remarks herself. I will not address the question concerning the type of ‘natural’ functions in further detail and stick to the (possibly simplistic) assumption that functions of the kind discussed above denote objects of type \( \langle e, e \rangle \). Pair-list enumerations are of different type, namely \( \langle \tau, t \rangle \) (with \( \tau \) being the type for pairs) and do not denote functions in my sense.

\[^{23}\]In addition to the assertion the sentence makes (given in (3.59b)), I assume that nämlich (namely) carries a presupposition which has to be fulfilled. I will come back to this issue below.
The sentence says that every pupil $x$ brought along $f(x)$, where $f$ is the function that assigns to every pupil the picture of his first day at school. It is hard or impossible to interpret (3.58b) as elliptic along the same lines. This is probably the reason why a pair-list enumeration sounds rather odd with *nämlich* (namely) in general – independent of its context –, but acceptable under certain circumstances with *und zwar* (cf. (3.58b)). (3.58b) cannot be given an interpretation along the same lines as (3.58a), because the pair-list elaboration does not describe a function of type $\langle e, e \rangle$. Hence, there is no extractable function predicate such as $\text{first_schoolday_picture}_{fn}$ either and it is impossible to derive a reading similar to (3.59b).

However, there certainly needs to be said more about what can count as naming a function and why pair lists cannot possibly make good names of functions. As Ede Zimmermann pointed out to me, the nameability concept does not exclude to name a function by way of saying something like: *the $y$ such that $x = x_1$ and $y = y_1$ or ... $x = x_n$ and $y = y_n$*. He suggests that an additional naturalness or simplicity criterion would have to exclude such descriptions, which would make my nameability criterion superfluous to a certain extent. A first attempt to exclude such function descriptions would be by postulating that the functions have be open for different kinds of function domains (cf. the concept of a *function definition schema* in Sharvit 1997). The pair-list function described above has a fixed domain, however. Yet, one could construct a related case where the $y$-value of a function of the following kind is given: *the $y$ such that $x = x_1$ and $y = y_1$ or ... $x = x_n$ and $y = y_n$ and $c$ for all other $x$*, where $c$ is some constant. This function is open for all kinds of domains. Yet, intuitively, it should not count as a nameable function in my sense. The relevant feature here seems to be the fact that there is a case differentiation in the domain of the function, which makes it an unsuitable candidate for a function name. An in-depth investigation of these issues would be needed to say more about the underlying factors of nameablity (or naturalness), which is beyond the scope of this thesis.

I believe that the nameability criterion actually follows from a more general constraint on language use. My ideas on this are extremely tentative. I take it that the existence of objects that have names can be taken for granted in any language model. Hence, the existence of nameable functions can be taken for granted. If a speaker refers to an object, he must make sure that this object actually exists in the hearer’s model. If the speaker refers to a function, the hearer assumes that the speaker is referring to a nameable function, because the speaker can only be sure of the existence of nameable functions in the hearer’s model. Certainly, other functions are construable and might exist, but while the existence of these functions cannot be excluded, their existence cannot be taken for granted either – at least not in the case of infinite functions and when the *Axiom of Choice* is not assumed. There is a loose connection to what Moltmann (1997) calls the ‘Acceptance Condition on Domains of Underived Contexts’, which says that ‘for a context $c$, $D(c) [=the domain of c, CE]$ contains only entities that the

---

24 I thank Manfred Krifka and Peter Staudacher for pointing me to the *Axiom of Choice* and its relevance to my concerns. See also footnote 17.
speaker and the addressee accept’. Moltmann uses this condition to restrict the domain of a context to ‘accepted entities (and hence exclude merely possible entities)’. I believe the same holds for functions. Only nameable functions can be assumed to be accepted by the speaker and the hearer; other ‘merely possible’ functions are no elements of the domain.

**Informativity**

If we want to make sure that wide scope functional readings cannot be trivialized and made equivalent to simple narrow scope readings, it remains to be explained why the function the picture that every pupil brought is not a possible value for $f$ in (3.57b). If $f$ could refer to this function, the functional wide scope reading would be indistinguishable from the narrow scope reading. I claim that the possibility to resolve $f$ to this function would lead to uninformativity. I believe that this issue is independent of the nameability criterion. The function the picture that every pupil brought meets the nameability criterion, of course. It has a name and is thus of the right (function) type, i.e. it can be applied to an individual to yield another individual. However, the mere existence of this function already follows from the narrow scope reading of the indefinite. If every pupil brought along some picture of himself, there also exists a function that assigns to each pupil the picture that he brought. In other words, if the speaker simply intended to communicate the narrow scope reading in (3.57d), there would be no reason for him to choose sentence (3.57a) instead of the simpler form (3.57c) to convey this meaning. Therefore, (3.57c) instantiates the unmarked way to convey the narrow scope reading, whereas (3.57a) would clearly be a marked form. The ‘complicated’ way of communicating the narrow scope reading would be blocked by the possibility of conveying the same information by simpler means. Hence, $f$ cannot be resolved to the function that describes the narrow scope reading of the sentence.

There is a related phenomenon, namely that (3.57a) cannot be continued by (3.60a).

(3.60)  

a. *Namely the picture that every pupil brought.*

b. *Namely, every pupil brought the picture that he brought.

c. $\exists f[\text{brought\_picture}_h(f) \land \forall x[\text{pupil}(x) \rightarrow \text{brought}(x, f(x))]$]

(3.60a) would be entirely uninformative when uttered in continuation of (3.57a). It is understood to mean that $f$ is to be resolved to the function the picture that everybody brought as indicated in (3.60b). But the fact that this function exists is already known after (3.57a) and – more importantly – before (3.60a) is uttered. The very same constraint prohibits (3.61a) from being continued by (3.61b) or (3.62a) from being answered by (3.62b).

(3.61)  

a. *If some relative of mine dies, Paul will inherit a fortune.*

b. *Namely the relative that is such that if he dies Paul will inherit a fortune.
(3.62) a. Who killed Paul?
    b. #Paul's murderer. / #Someone.

The reason why (3.62b) does not count as an appropriate answer to (3.62a) and why (3.61b) is not an appropriate continuation of (3.61a) lies in the information content of the respective utterance. (3.62b) does not increase the questioner's knowledge. The same holds for (3.61b) and the uninformative continuation of (3.57a) by (3.60a). All those continuations would be uninformative, because all worlds that are compatible with the new information are also compatible with the information known before the very utterance is made.

**Expectance**

As Ede Zimmermann has pointed out to me, the nameability and the informativity criterion seem to be insufficient to account correctly for the restrictions on wide scope functional readings. It seems as if there was another restriction on the possible domain of functions, namely that the involved functions can only be resolved to functions that can be expected.

This requirement is easier to see in the following example than in our original pupil-picture example.

(3.63) a. Ein en Verwandten von sich, den hat jeder Schüler mitgebracht.
    Some relative of himself has every pupil brought-along
    ‘Some relative, every pupil has brought along.’

b. *Nämlich (jeweils) seinen besten Freund.
    namely respectively his best friend
    ‘Namely his best friend.’

c. Nämlich (jeweils) seinen Großvater.
    namely respectively his grandfather
    ‘Namely his grandfather.’

Both x’s best friend and x’s grandfather describe functions. The former function maps individuals x to the best friend of x and the latter maps individuals x to the grandfather of x. Both functions describe very simple nameable concepts and both functions are not uninformative with respect to (3.63a). But only (3.63c) and not (3.63b) is a felicitous continuation of (3.63a), even under the assumption that the world in which the sentences are evaluated is such that coincidentally the best friend of every (relevant) person happens to be a relative of this person. The relevant difference between the two functions seems to be that (3.63c) describes a function that yields values that necessarily meet the NP-restriction of the preceding indefinite, i.e. that they are relatives of the respective person. (3.63b), on the other hand, describes a function that maps persons x to their best friends. This function does not necessarily yield values that are relatives of x. It may just happen to be like this in the actual world.
I believe that the unacceptability of (3.63b) in continuation of (3.63a) is in fact not due to a restriction that has to be imposed on the function that appears in the wide scope functional representation for (3.63a), but rather is due to the interpretation of *nämlich* *(namely)*. I want to suggest that *nämlich* *(namely)* triggers the presupposition that the individual or function appearing to its right has the property ascribed to the indefinite in the preceding sentence. Let us first consider a simpler example.

\[(3.64)\]  
\[a. \quad '\text{Ein Freund von mir, den kennt jeder.}' \]  
\[b. \quad '\text{Nämlich Helmut Kohl.'} \]  
\[c. \quad '\text{Nämlich meinen Mitbewohner.'} \]

The most probable reaction of a hearer to (3.64a) followed by (3.64b), if it was uttered by me, would be to express some kind of astonishment at the fact that Helmut Kohl is a friend of mine. But this information is not asserted by the utterance in (3.64a) nor by the one in (3.64b). Recall that we analysed *namely*-sentences as elliptical such that (3.64b) would simply assert that everyone knows Helmut Kohl. The relevant information seems to be presupposed, the presupposition trigger being *nämlich* *(namely)*\(^25\). Consequently, (3.64a) continued by (3.64c) appears much more natural, because the presupposition that my flatmate is a friend of mine is easier to accommodate than the presupposition that Helmut Kohl is a friend of mine. This is reminiscent of the well-known fact that likely things are easier to be accommodated than unlikely/unexpected ones. Consider the following contrast (the example is taken from Kadmon, 2001, p. 19).

\[(3.65)\]  
\[a. \quad 'My dog is at the door.' \]  
\[b. \quad 'My giraffe is at the door.' \]

Let us suppose that the speaker, who utters (3.65a,b), is unfamiliar to the hearer, i.e. the hearer does not know anything about the speaker’s life, in particular the hearer does not know whether the speaker owns any pets or animals. Should the speaker utter (3.65a), a presupposition is triggered by the DP *my dog*, namely that the speaker owns a dog. The hearer is willing to accept this, and hence the presupposition is easily accommodated. But as

\(^{25}\)The presuppositional treatment of *namely* was suggested to me by Christian Ebert, whom I hereby want to thank. The fact that such a presupposition is triggered is not surprising at all considering the origin of the word *nämlich*, as was pointed out to me by Manfred Krifka. It is derived from the Middle High German word *name(n)liche*, which means ‘explicitly named’ (see Kluge, 1999). This supports the view that in our example, there is a presupposition triggered that some friend of mine whom everybody knows can be ‘explicitly named’ as Helmut Kohl/my new flatmate. It thus also makes perfect sense that in case of functional readings, the involved functions have to be nameable as I propose.
it is very uncommon for someone to own a giraffe, a similar presupposition is much harder to accommodate in (3.65b) and the sentence sounds somewhat bizarre. The contrast between (3.64a,b) can be traced back to the same source. As it is much more likely that my flatmate rather than Helmut Kohl is a friend of mine, (3.64c) sounds more natural than (3.64b). Likewise, (3.66) sounds much more natural than (3.63a) when followed by (3.63b), because it is easy to accommodate the idea that every pupil’s best friend is also a classmate.

(3.66)  
\begin{enumerate}
  \item \textit{Einigen Klassenkameraden, den hat jeder Schüler mitgebracht.}
    \begin{itemize}
      \item some class-mate RP has every pupil brought-along
      \end{itemize}
    ‘Some class mate, every pupil has brought along.’
  \item \textit{Nämlich (jeweils) seinen besten Freund.}
    \begin{itemize}
      \item namely respectively his best friend
    \end{itemize}
    ‘Namely his best friend.’
\end{enumerate}

I therefore propose that sentences containing \textit{namely} have to be analyzed as elliptic as suggested above. They assert their full-fledged content and presuppose that the complement of \textit{namely} has to denote a subset or an element of some relevant other property that precedes the sentence\textsuperscript{26}. Unfortunately, the exact analysis for \textit{namely} has to be left for another occasion. I will just sketch the interpretation scheme below.

(3.67) \[ \varphi[X], \text{namely } Y \leadsto \]
\begin{align*}
\text{Asserted:} & \quad \varphi[Y] \quad \text{(ellipsis resolution)} \\
\text{Presupposed:} & \quad Y \subseteq X \text{ or } Y \in X
\end{align*}

Let us walk through some examples to verify that my tentative analysis works for different kinds of uses of \textit{namely}.

(3.68)  
\begin{enumerate}
  \item \textit{Einigen Elefanten, den mag jeder.}
    \begin{itemize}
      \item some elefant RP likes everyone
      \end{itemize}
    ‘Some elefant, everyone likes.’
  \item \textit{Nämlich Benjamin Blümchen.}
    \begin{itemize}
      \item namely Benjamin Blümchen
      \end{itemize}
    ‘Namely Benjamin Blümchen.’
\end{enumerate}

\textit{Example (3.68a) followed by (3.68c) is an instance of the Helmut Kohl example (3.64) above, which can be analyzed along the same lines. Let us now discuss an example that contains a functional indefinite as the introductory example (3.63).}

(3.69)  
\begin{enumerate}
  \item \textit{Ein Bild von sich, das mag keiner.}
    \begin{itemize}
      \item some picture of himself RP likes nobody
      \end{itemize}
    ‘Some picture of himself, nobody likes.’
\end{enumerate}

\textsuperscript{26}Thanks to Christian Ebert and Gerhard Jäger, who both contributed to the development of this idea.
Chapter 3. Genuine and Apparent Scope Readings

b. Nämlich sein Einschulungsbild.
   namely his picture-of-the-first-day-at-school
   ‘Namely the picture of his first day at school.’
   Asserted: \( \exists f[\text{first} \_\text{schoolday} \_\text{pic}_{fn},(f) \land \neg \exists x[\text{likes}(x,f(x))] ] \)
   Presupposed: \( \text{first} \_\text{schoolday} \_\text{pic}_{fn} \subseteq \text{pic}_{fn} \)

The restriction that the licit functions in the namely-sentence here have to be picture-functions (and that they have to be relative-functions in (3.63)) is nothing that is particular to wide scope functions, but something that is particular to namely-sentences. My tentative analysis predicts also the following effect.

(3.70) a. Peter hat etwas sehr Schönes gemacht.
   Peter has something very nice made
   ‘Peter has done something very nice.’

b. Nämlich mal ausgespannt.
   namely once relaxed
   ‘Namely he relaxed.’
   Asserted: \( \exists e[\text{relax}(e) \land \text{agens}(\text{peter}, e)] \)
   Presupposed: \( \text{relax} \subseteq \text{nice} \)

c. #Nämlich geschnarcht.
   namely snored
   ‘Namely he snored.’
   Asserted: \( \exists e[\text{snore}(e) \land \text{agens}(\text{peter}, e)] \)
   Presupposed: \( \text{snore} \subseteq \text{nice} \)

My treatment of namely predicts that (3.70) triggers the presupposition that a relaxing-/snoring-event is also an event of doing something nice. This presupposition is easy to accommodate in the case of (3.70b), but very hard to accommodate in (3.70c), because it contradicts world knowledge about snoring. Hence, (3.70c) is odd.

As a side remark, let me mention that Umbach (2005) notes how, contrary to what is assumed by many authors, namely-insertions or -continuations do not always indicate that a quantificational DP is to be read as referential or specific. They can easily follow truly quantificational sentences, as the following example (from Umbach, 2005, ex. (11)) shows.

(3.71) Most students of mine passed the exam, namely those who participated in the final meeting.

She analyzes namely as introducing a discourse referent which is identified with a referent that comes about via the abstraction operation as proposed by Kamp and Reyle (1993) (for the definition and discussion of this operation and the different possibilities for the introduction of discourse referents see Kamp and Reyle 1993 and Section 6.2.1 of this thesis). In this case, she predicts that namely introduces a referent for the set of students who participated in the final meeting and that this referent is equated with the E-type referent the
students who passed the exam. Obviously, Umbach’s proposal cannot cover the full range of data I just presented, which, of course, it was not designed for in the first place. However, it is easy to see that my tentative analysis can also account for Umbach’s example (3.71) and thus also accounts for her observation that namely-continuations do not necessarily involve a referential/specific/wide scope indefinite preceding them.

Summary

In the last subsection, I showed that namely-sentences always trigger the presupposition that the complement of namely denotes a subset or an element of some other previously mentioned relevant set. This restriction holds for all namely-sentences cross-categorically and is thus not a restriction that is particular to functional interpretations. In the preceding two subsections, I have discussed two restrictions that have to be assumed to characterize the possible values for functions: a ‘real’ function in my sense has to be nameable and informative. These restrictions follow from more general constraints on language use. I have hereby developed an account that allows us to differentiate between a functional wide scope reading and a simple narrow scope reading – in an empirical as well as in a formal manner. Recall example (3.57), which is repeated once again below.

(3.72) a. ↑EIN Bild von sich, das hatte jeder Schüler mitgebracht.  
Some picture of himself RP had every pupil brought-along  
‘Every pupil had brought some picture of himself.’

b. ∃f[picturefn(f) ∧ ∀x[pupil(x) → brought(x, f(x))]]

c. Jeder Schüler hat ein BILD von sich mitgebracht.  
Every pupil had a picture of himself brought-along  
‘Every pupil had brought a picture of himself.’

(3.72d) d. ∀x[pupil(x) → ∃f[picturefn(f) ∧ brought(x, f(x))]]

e. ∀x[pupil(x) → ∃y[picture(y) ∧ of(y, x) ∧ brought(x, y)]]

I have derived a method that enables us to distinguish the functional wide scope reading in (3.72b) and the narrow scope reading in (3.72d,e). The function f in (b) (as well as the ones (depending on the pupils) in (d)) can only refer to nameable and informative functions. Hence, only ‘sensible’, non-arbitrary functions can make the formula in (b) true. As for the narrow scope reading in (d), the functions f also only refer to nameable and informative functions. Yet, these functions may vary with the respective value for the pupil and hence an arbitrary assignment of pupils to pictures is possible. It is easy to see that the functional narrow scope representation in (d) is indeed still equivalent to the usual (non-functional) narrow scope representation in (e), even under the additional requirements of nameability and informativity.
The question I want to raise in this section is whether functional wide scope readings and narrow scope readings are independent of each other and whether there are means to distinguish between the two. So far, we have learned that some co-variation readings are not simple narrow scope readings, but instead they represent functional wide scope readings. I called these readings *apparent narrow scope readings*, because the indefinites involved only appear to take narrow scope. In fact, however, they are wide scope readings that involve functions, even though their values co-vary with the values of some other quantifier. So we have seen that these functional wide scope readings cannot be adequately represented by narrow scope readings (because they are more specific). However, until now we have only seen examples where the functional wide scope reading was more specific than the simple narrow scope reading, cf. e.g. the pupil-picture example (3.43). So it could be that functional readings are, in fact, simply a special case of narrow scope readings. (Just like it was argued that wide scope existential readings could be analyzed as a special case of narrow scope readings in interaction with universal quantifiers.) The interesting question now is whether we can find functional wide scope readings that do not imply the narrow scope readings: are there genuine functional wide scope readings? Relying on findings of (Reniers, 1997; Schwarz, 2001a; Chierchia, 2001), my answer will be positive. Let us investigate the different dependencies systematically.

**Do narrow scope readings imply functional wide scope readings?** In the preceding sections, we have argued that example (3.43) has a functional wide scope reading and that this reading is indeed more specific than the simple narrow scope one, i.e. we have the following non-entailment.

\[
\forall x[pupil(x) \rightarrow \exists y[picture(y) \wedge of(y,x) \wedge brought(x,y)] ] \nRightarrow \exists f[picture_{fn}(f) \wedge \forall x[pupil(x) \rightarrow brought(x,f(x))] ]
\]

We have also seen that the implication would hold if there were no restrictions on the possible values for \( f \). In fact, this was the reason for imposing the restrictions (discussed in the last section) on \( f \) in the first place. This shows that the representation in which the indefinite takes simple narrow scope would not be a good means to represent the functional wide scope reading, because the functional wide scope reading is more specific. However, it could still be argued that the functional wide scope reading is not genuine, but simply a special case of the narrow scope reading. As it stands, we can just say that the narrow scope reading does not always imply the functional wide scope reading or that some narrow scope readings cannot be reduced to functional wide scope readings. Some narrow scope readings are genuine. But how about the other direction of the implication?
3.3. Functional readings

Do functional wide scope readings imply narrow scope readings? Recall that the examples we discussed above were all examples for which it holds that the functional wide scope reading implied the narrow scope reading. In particular, this is true for (3.43) and (3.45), as we have the following entailment.

\[(3.74) \exists f[picture(p(f) \land \forall x[pupil(x) \rightarrow brought(x, f(x))])] \Rightarrow \forall x[pupil(x) \rightarrow \exists y[picture(y) \land of(y, x) \land brought(x, y)]]\]

Schwarz (2001a) (who builds on Chierchia 2001) explicitly addresses the relationship of functional wide scope readings and narrow scope (or non-widest scope) readings. He also does this under consideration of the fact that most people would assume some kind of restriction on functions to the natural ones. The question is also indirectly raised in the papers of (Reniers, 1997) and (Chierchia, 2001). Let us start by discussing example (3.75) (which is inspired by an example from (Reniers, 1997)). (Reniers, 1997) does not consider the possibility to restrict the functions to natural ones. But as he simply aims at pointing to problems of the initially proposed choice function approaches, where no distinction between natural functions and other functions is made, this does not weaken his point.

\[(3.75) \begin{align*}
& a. \text{No man, hates some woman he, went to school with.} \\
& b. \exists f[woman\_went\_to\_school\_with_{fn}(f) \land \neg \exists x[man(x) \land hates(x, f(x))]] \\
& c. \neg \exists x[man(x) \land \exists y[woman(x) \land hates(x, y)]]
\end{align*}\]

The functional wide scope reading in (3.75b) does not imply the narrow scope reading in (3.75c). Actually, (3.75b) is true in many situations in which (3.75c) is false, which, by the way, already follows from the fact that the necessary conditions for skolemization (due to the scope of the negation) are not met\(^{27}\). Reniers illustrates this point by regarding the following model: there are two men \(m_1, m_2\) and two women \(w_1, w_2\). All four went to school with each other. \(m_1\) hates \(w_1\) and there are no other hating-relations. Obviously, it does not hold that no man hates a woman he went to school with. Hence, (3.75c) is false. But, of course, (3.75b) is true. There is a function \(f\) such that no man \(x\) hates \(f(x)\), which is a woman he went to school with, namely e.g. the function \(f_1\) that assigns \(w_2\) to \(m_1\) and \(w_2\) to \(m_2\). This means that there is a model in which the functional wide scope reading (3.75b) is true, but the narrow scope reading (3.75c) is false. Reniers (1997) has used these findings to argue against a functional treatment of wide scope indefinites in downward entailing or negative contexts. He argues that the formula in (3.75b) is definitely inadequate to represent a reading of (3.75a), because the formula can be made true in a situation in which the sentence is intuitively false. I will refer to this problem as the Reniers problem, because, to my knowledge, it was first discussed in (Reniers, 1997).

However, Kratzer (1998, 2003) notes correctly that (3.75b) is meant to represent the wide scope reading and not the narrow scope reading. The narrow scope reading can be repre-

\(^{27}\)Thanks to Peter Staudacher for bringing this to my attention.
sent by the ordinary narrow scope construal. But the sentence undoubtedly can receive a functional wide scope reading, in which no man hates some particular kind of woman he went to school with, e.g. his first girl friend from school. This reading could indeed be represented as in (3.75b) if the interpretation of the function $f$ underlies the usual nameability and informativity restrictions discussed above, i.e. if an instantiation of $f$ by the arbitrary function $f_1$ would be excluded.

So there definitely are wide scope functional readings that cannot be conceived of as instances of narrow scope readings. Some functional wide scope readings are genuine!

As a last step, let me present an argument for the co-existence of genuine and functional wide/intermediate scope readings, which is in line with the argumentation in (Schwarz, 2001a)\(^{28}\). Functional wide (/intermediate) scope readings and narrow scope ones must be independent of each other, because both can be present at the same time as the following example illustrates.

\begin{align*}
(3.76) \quad & a. \text{Kein Kind hat einem Lehrer alle Lieder vorgesungen.} \\
& \text{No child sang all songs to some teacher.} \\
& \text{‘No child sang all songs to some teacher.’} \\
& b. \neg \exists x[\text{child}(x) \land \exists y[\text{teacher}(y) \land \forall z[\text{song}(z) \rightarrow \text{sing}(x, y, z)]]] \\
& c. \exists f[\text{teacher}_{p}(f) \land \neg \exists x[\text{child}(x) \land \forall z[\text{song}(z) \rightarrow \text{sing}(x, f(x), z)]]]
\end{align*}

(3.76a) has an intermediate scope reading, where some teacher takes wide scope over all songs, but narrower scope than no child. This reading is indicated in (3.76b): for no child there is one particular teacher such that the child sang all songs to this teacher. However, the sentence also has the functional reading in (3.76c), which says that no child sang all songs to a certain type of teacher, say his math-teacher. In this reading, there can be children that sang all songs to one particular teacher as long as it is not the math-teacher. Both readings are easily available. In my view, the fact that sentences such as (3.76a) have these two readings provides evidence that natural language supports both, functional (wide scope) readings and non-functional genuine intermediate scope readings. Together with the fact that neither the functional wide scope reading nor the narrow scope readings are special cases of the other, we can conclude that a representation mechanism that has to account for all different sorts of readings must be able to represent both kinds: functional wide scope and genuine narrow/non-wide scope readings. Sentences containing genuine functional expressions such as e.g. ein Bild von sich (some picture of himself) in (3.43) should be represented by functional construals and non-functional co-variation readings that are not triggered by functional expressions should be represented by means of ordinary scope construals. These

\(^{28}\)However, (Schwarz, 2001a) argues that only a certain-indefinites allow for both, a genuine wide scope and a functional interpretation, whereas ordinary indefinites with a and some do not. I do not share this assumption. Quite to the contrary, I want to argue that all indefinites allow for a functional (re)interpretation. For example my account – in my opinion correctly – predicts that the indefinite einen Lehrer (some teacher) in (3.76) can be reinterpreted as einen Lehrer von ihm (some teacher of it), where the pronoun is bound by kein Kind (no child), and hence triggers a functional interpretation. As far as I can see Schwarz would not subscribe to this view.
3.4 Conclusion

We have seen that specificity is a highly controversial term. As I have outlined, I follow Ioup’s understanding of specificity, which ties specificity to the existence of opaque operators. I pointed out that my main aim in this thesis is not to account for specific readings of indefinites, but rather to account for (exceptional) wide scope readings in purely transparent contexts. The aim of this chapter was a very moderate one: to set the stage for my central object of investigation. Therefore, I had to outline my understanding of specificity and set it apart from ordinary wide scope readings. I furthermore argued that one does not only have to differentiate between specificity and wide scope, but also contrast other apparent wide scope phenomena with genuine wide scope. We have also encountered the reverse picture, namely apparent narrow scope readings, which are, in fact, wide scope functional readings.

I furthermore differentiated between slim and emphatic indefinites. The latter obtain a heavy accent on the determiner. Let me sum up my findings concerning (apparent) wide scope and the relevance of slim and emphatic appearances:

1. Slim indefinites allow for specific readings, explainable via some specificity interpretation mechanism, usually equivalent to wide scope over the involved opaque operator (see e.g. (3.1)).

2. Some sentences allow for non-variation (apparent and non-genuine wide scope) readings, which eventually turn out to be only a special case of the narrow scope readings. These sentences may contain slim indefinites (see (3.26) vs. (3.27)).

3. Some apparent wide scope readings can be conceived of as emerging from a referential interpretation or implicit domain restriction. These sentences may contain slim indefinites, too (see examples (3.30b,c), (3.35)).

4. Some sentences only allow for non-variation readings with emphatic indefinites, but not with the slim variants. I understand these to be instances of genuine wide scope readings (see examples (3.30a) vs. (3.31) and (3.34) vs. (3.36)).

From what has been said so far we have been taught that it is important to distinguish between specific and apparent wide scope readings on the one side and genuine wide scope ones on the other. It might be the case that all apparent wide scope readings are, in fact, instances of specific readings. It is often argued (cf. e.g. Yeom, 1998; Schwarzschild, 2002) that the speaker must know the respective referent in order to license a referential/singleton set reading. Possibly, the indefinite is interpreted specifically with respect to a tacit epistemic
Singleton Indefinites

ROGER SCHWARZSCHILD
Rutgers University

Abstract
I investigate the possibility that the apparent unique scope-taking abilities of indefinites can be explained in terms of quantifier domain restriction, without departing from the classical view of indefinites as existential quantifiers over individuals whose scope is syntactically constrained in the same way as other quantifiers. The key idea is that when the domain of a quantifier is reduced to a singleton set, it becomes effectively scopeless. Indefinites, on this view, are freer than other quantifiers to make use of this option. I argue that alternative accounts which put the action in the semantics or the syntax of indefinites still need a pragmatic mechanism of quantifier domain restriction, so that to demonstrate the necessity for such approaches, one needs to explain why domain restriction down to singletons is not possible.

There is an intuition that indefinites have specific readings in which they are referential and where the speaker can identify the referent, but the hearer cannot. In the final section of the paper, I try to make sense of that intuition in the context of a theory in which indefinites are apt to have singleton domains. I arrive at the conclusion that it is a symptom of a more general phenomenon whereby contextual parameters can be relativized to bearers of propositional attitudes.

1 INTRODUCTORY SKETCH

Certain syntactic configurations are known to limit the scopes of quantifiers. Two such configurations rule out the readings in b. for the sentences in a. in (1) and (2) below:

(1)  a. If each of the six candidates submits a paper, then John will make a fuss.
    b.  ≠ For each of the six candidates: if she submits a paper, then John will make a fuss.

(2)  a. John read the paper that each of the six candidates had submitted.
    b.  ≠ For each of the six candidates: John read the paper that she submitted.

One might have thought that these configurations limit the scopes of all quantifiers, not just universals, but at least since Fodor & Sag (1982), it has been claimed that indefinites do not respect these boundaries. Fodor and Sag’s (3) appears to have a reading where the indefinite has scope over the conditional.
If a friend of mine from Texas had died in the fire, I would have inherited a fortune.

Let us say that an indefinite has exceptional-scope if it is read as an existential with scope outside the limits normally set by configurations like those in (1) and (2). Fodor and Sag argued that indefinites are ambiguous and that those appearing to have exceptional-scope are really just referential expressions. On this view, *a friend of mine from Texas* is used in (3) to refer to a particular friend of the speaker’s. Farkas (1981) and King (1988) subsequently provided persuasive evidence against the view that referential indefinites were responsible, or solely responsible, for exceptional-scope. One of King’s examples is given in (4) below with King’s paraphrase of the intended reading given in (5).

Each author in this room despises every publisher who would not publish a book that was deemed pornographic.

For each author in this room there is a book that was deemed pornographic—possibly different books for different authors—such that the author despises every publisher who would not publish the book.

Throughout the 1990s, linguists continued to discover more evidence of this sort on the basis of which several different accounts were given for how exceptional-scope comes about. Let us call the null hypothesis one that says that indefinites are existential quantifiers which like other quantifiers have their scopes limited by configurations like those in (1) and (2) and which have implicit domain restrictions. It is fair to call this the null hypothesis since it is the limiting case of all accounts of interest here. The first issue I would like to address is as follows.

1 Those particular configurations are the antecedent of a conditional in (1) and a relative clause in (2). These configurations are two of a number of so-called ‘scope islands’ that have been identified. These representatives are adequate for our purposes. Reinhart (1997) and Szabolcsi (2001) give historical overviews of the investigation of scope islands. Abusch (1993–4) looks at the behaviour of indefinites in a wide range of scope islands.

2 These include the works listed in the references by Abusch (1993–4); Cormack & Kempson (1991); Cresti (1995); Kratzer (1998); Liu (1997); Ludlow & Neale (1991); Matthewson (1999); Reinhart (1995, 1997); Ruys (1992); van Geenhoven (1998) and Winter (1997, 2002). See also various contributions to Szabolcsi (1997). The earliest references I have seen to indefinite specific scope rules are Karttunen and Seuren (for further background see von Heusinger (2002)). For a brief summary of some of the issues, see Szabolcsi (2001: 3.2).

3 Here and throughout, I will not be concerned with the special abilities that indefinites appear to have in binding pronouns, receiving generic interpretations or forming the restrictor of an adverb of quantification. Existing accounts of these properties do not by themselves lead to a rejection of the null hypothesis, nor, as far as I know, do they force one to accept it.
To what extent do the **intuitions** motivating claims about exceptional-scope indefinites really fall outside what is predicted by the null hypothesis?

The concern stems from the fact that if the domain of a quantifier is correctly constructed its scope relative to higher quantifiers is neutralized⁴ possibly giving the false impression of wide scope. This claim will be justified in more detail below, but a bit of reflection on King's example (4) will give a sense of where I am going. In hearing King's example, I imagined a room full of authors each of which had written one book that was deemed pornographic which had caused him to despise the publishers who refused to publish on that account. This situation could be described as follows:

(6) Each author in this room despises every publisher who would not publish a book he had written that was deemed pornographic.

If we suppose that for any author only one of his or her books was not published on account of pornography, then the scope of the indefinite in (6) turns out to be neutralized relative to the quantifier 'every publisher'. Aside from the one author-one book assumption, all that is needed to make the same claim about King's original example is to imagine that the explicit *he had written* in (6) is implicit in (4). Once we've done that, King's intuitions concerning (4) are accounted for, within the bounds of the null hypothesis.

Sections 2 and 3 of this paper contain a more gradual introduction to the idea that intuitions of exceptional-scope can be accommodated within the null hypothesis. In section 4, I try to show that even if we grant that indefinites take scope in a way that other quantifiers do not, we still do not succeed in accounting for the relevant intuitions. Something like the story told in sections 2 and 3 is necessary in any case. In section 5, I address the question of what is special about indefinites that allows them to appear to have exceptional-scope more readily than other quantifiers.

In the course of section 2, I will be arguing that Fodor and Sag's *a friend of mine* is a **singleton indefinite**, that is, an existential whose domain has a singleton extension. As in the King example, I will see in this example contextual delimitation of the domain of a quantifier. This analysis follows closely the appeals of Russellians to contextual delimitation.

---

⁴ ∃x takes scope over ∃y in the formula ∃x [Fx & ∃y Gx]], but if their relative scope were reversed, truth conditions would not be affected. So in this case, I will say that the scope of ∃x is neutralized or more properly neutralized relative to ∃y. The same can be said for the two quantificational phrases in *some mouse ate some pretzel*. 
delimitation in their treatment of incomplete definite descriptions such as the table. These appeals have led to the discovery of general properties of contextual delimitation, such as the fact that they must be allowed to contain indexicals ‘the table over here’ (see Salmon 1982 for example). Indefinite descriptions will permit us to discover further properties of contextual delimitation, properties which are masked in the definite case. There are familiarity conditions on the use of definites which do not apply to indefinites. It would be odd for me to assert out of the blue that the aluminum toothbrush is in a museum in New Hampshire, despite the fact that there is a unique aluminum toothbrush. However, I could, out of the blue, speak of there being an aluminum toothbrush in New Hampshire and I would, in this case, be using a singleton indefinite, a complete one in fact. Fodor and Sag’s a friend of mine is also singleton, albeit incomplete, and since it is likewise indefinite there is no requirement that the ‘referent’ be familiar to all discourse participants. This freedom appears to allow the content of the contextual supplementation to be less transparent to the hearer in a way that would be impossible with a definite. What we have in effect is an incomplete indefinite description, where the completion is asymmetrically available to the speaker but not to the hearer. Once this possibility is allowed for, we find a similar circumstance in examples like King’s, where in addition there is no intended referent, making it impossible to dodge this conclusion by appeal to the kinds of arguments found in discussions of the referential/attributive distinction. It will be the burden of section 6 to discover the nature of asymmetric contextual delimitation and to show that it is evident in the behavior of incomplete quantifiers in general and of other contextually completable expressions.

I suspect that previous accounts of the behavior of indefinites have been given in terms of scope or ambiguity precisely to avoid the kinds of issues that are engendered by the speaker-hearer asymmetry discussed in the final section.

2 ABSOLUTE SCOPE NEUTRALIZATION

There was a party at Todd’s house last week at which various movies were discussed. When dinner was over, the guests considered several ways to entertain themselves. In the end

(7) everyone at the party voted to watch a movie that Phil said was his favourite.
Let us assume that somehow or other indefinites receive an existential interpretation. In that case, the phrase *a movie that Phil said was his favourite* indicates existential quantification over movies that Phil said were his favourite. Let us also assume that Phil has only one favourite movie and that that is the one he told us about. In that case, the restrictor of this existential quantifier has a singleton extension. Let’s call an indefinite of this kind a ‘singleton indefinite’.

Although singleton indefinites are existentially quantified, their scope is neutralized. Under the circumstances described above, (7) is truth conditionally equivalent to (8):

(8) A movie that Phil said was his favourite was such that everyone at the party voted to watch it.

Similarly, under those circumstances, (9) is truth conditionally equivalent to (10):

(9) No one had read most of the reviews that were written about a movie that Phil said was his favourite.

(10) There was a movie that Phil said was his favourite but no one had read most of the reviews that were written about it.

When it comes to scope possibilities, singleton indefinites are just like singular definites. The general thesis to be explored here is as follows: the special properties of singleton indefinites have led to the mistaken belief that indefinites have readings in addition to or instead of run of the mill existential readings. The particular thesis in this section is that some so-called ‘referential indefinites’ are just singleton indefinites.

Fodor & Sag (1982) defend the idea that indefinites are ambiguous between a quantificational interpretation on the one hand and an indexical, referential interpretation on the other. In their discussion of examples similar to (7) (see their examples 66–69) they in effect raise the very point made above, namely that the scopes of singleton indefinites are by nature neutralized and that examples of this type would be no cause for positing an ambiguity. What they claim, however, is that there are other cases where an indefinite is used and where its restrictor

---

5 This thesis has been proposed in some form or another by a number of authors. It was suggested in Cooper (1979: 141–2). Barker (1998: 692–693) introduces it in connection with specific indefinites and the Partitive Constraint. Portner & Yabushita (to appear) give an account very similar to sections 2 and 3 of this paper, see also Portner’s contribution to this volume. I probably first heard of this idea in a talk by Kai von Fintel at a conference entitled ‘Mapping the Semantics-Pragmatics Boundary: Context-Dependence,’ held at Cornell University (see von Fintel 1999: section 4.5). He credits Uli Sauerland.
does not have a singleton extension but where referential readings are nevertheless possible. (11) below would likely count as an example of this type:

(11) Everyone at the party voted to watch a movie that Phil liked.

Knowing Phil as I do, it is safe to assume that he likes more than one movie. Given this assumption, the object of watch appears not to be a singleton indefinite. Nevertheless, it does seem possible even under this assumption to understand (11) as being about a particular movie, which would mean it contains a ‘referential’ indefinite that is not a singleton. This description of (11) is almost accurate. What is missing is the possibility that being a quantifier, the existential is implicitly restricted. Compare this example to the following:

(12) Every movie that Phil liked had violence in it.

A natural interpretation of this example allows it to be true even if Phil has a fondness for violent and for non-violent films. This would be the case, for example, if we understand the universal to be quantifying over movies that were discussed at the party. If we likewise understand the indefinite in (11) to be restricted to those movies that were relevant at the time or to those that the guests commented on when the issue of what to watch came up, it becomes more reasonable to entertain the possibility that we in fact are looking at another singleton indefinite.

The main thesis of this section can be summarized as follows. It is generally agreed that indefinites have an existential quantifier interpretation. It is also acknowledged that quantifiers have implicit restrictors. Putting these two together, it follows that, given the right context, any indefinite could in principle be a singleton indefinite. This accounts for the air of referentiality that attaches to some uses of indefinites.\(^6\)

I want to fix some terminology before continuing. The term **singleton** is applicable to any occurrence of a quantifier when its restrictor has a singleton extension. The **restrictor** includes overt material along with any **implicit** contextual restriction. Thinking of quantifiers as two-place relations, the restrictor is the whole of the first argument. So, I could say that a given occurrence of *most mice* is a singleton, if there is exactly one mouse under consideration at the time of utterance in the world of evaluation.

\(^6\) This account is to be distinguished from one in which the actual meaning involves a narrow-scope, non-singleton indefinite, but where by some pragmatic process the hearer comes to understand a singular proposition. I take the quantifier domain restriction to be included in the content of the utterance, not something that gets communicated without actually having been said (see Stanley & Gendler-Szabó 2000, for discussion).
3 RELATIVE SCOPE NEUTRALIZATION

An astute guest at the party happened to notice that:

(13) every boy voted for a movie that his mother said was her favourite.

Let us again assume that, like Phil, each of these mothers has only one favourite movie and that that was the one she mentioned. What that means is that for each value of the bound pronoun his, the indefinite a movie that his mother said was her favourite has a restrictor whose extension is a singleton: it includes just the one movie that that boy’s mother likes best. Let us now redefine the term ‘singleton indefinite’ to include this case. A ‘singleton indefinite’ is an indefinite whose restrictor has a singleton extension, relative to each relevant assignment of values to any bound variables in the restrictor. The indefinites discussed in the previous section are still singleton indefinites but now there are more cases to consider.

Under this revised definition neutralization of the scope of a singleton indefinite extends at least up to the quantifier that binds variables in the restrictor. In (13), there are no other quantifiers besides the indefinite and the quantifier binding variables inside it, so there is nothing relative to which its scope could be neutralized. In order to see this effect we need an example like (14) below, which has the intervening quantifier, every adult. Note its truth conditional equivalence with (15), under the assumptions made concerning (13):

(14) Every boy$_2$ smiled at every adult who voted for a movie that his$_2$ mother$_1$ said was her$_1$ favourite.

(15) Every boy was such that there was a movie that his mother said was her favourite and he smiled at every adult who voted for it.

Similarly, under the assumption that everyone has one and only one favourite movie, (16) is truth conditionally equivalent to (17), and (18) is truth conditionally equivalent to (19):

(16) Everyone had read most of the reviews that were written about a movie that happened to be his favourite.

(17) For each person, there was a movie that was his favourite and he had read most of the reviews that were written about it.

(18) No boy was happy if he saw a movie that was his mother’s favourite.
(19) There was no boy, such that there was a movie that was his mother's favourite and he was happy if he saw that movie.

To say that these pairs are truth conditionally equivalent is, of course, just to say that the truth conditions are unaffected by whether or not the indefinite takes scope above the intermediate quantifier or out of the antecedent of the conditional. It is not to say that the indefinites in (16) and (18) have been subjected to a scope-assigning mechanism, syntactic or otherwise, that fixes their scope above the preceding quantifier. The thesis then is that apparent unexpected scope-taking by indefinites is just due to their being singleton and hence having their scope neutralized.

Again, as in the previous section, life is not as simple as I have presented it so far. The really compelling cases, the ones that actually appear in the literature, involve indefinites that do not on the face of it appear to be singleton indefinites. Reinhart (1997: 346)'s example (21), based on Ruys (1992), is one such case:

(20) Most linguists have looked at every analysis that solves some problem.

As Reinhart claims, (20) has a reading in which some problem takes scope above every analysis but below most linguists. In other words, for most linguists I, there is some problem p, presumably I's pet problem, and I knows every analysis that solves that problem. For this indefinite to take intermediate scope, it would have to have scope out of a relative clause, which is generally forbidden. But this indefinite does not at first sight seem to fall neatly under the generalization that if an indefinite seems to take exceptional intermediate scope, it is just a singleton indefinite containing a bound variable.

In a recent paper devoted to quantifier domain restriction, Stanley and Gendler-Szabó remind us that the implicit restriction on a quantifier may contain a bound variable. The following examples illustrate this phenomenon:

(21) In most of John's classes, he fails exactly three Frenchmen. (Stanley & Gendler-Szabó 2000: (24)).

(22) Every farmer remembers at least one year when every crop failed.

(23) Many an overzealous linguist has at one time or another mistakenly believed that every outstanding problem could be solved by the correct application of the latest technical innovation.

---

(21) has a reading in which the set of Frenchmen quantified over varies with the choice of class. In (22), the set of crops all of which are said to fail, can be understood to depend on the choice of farmer. In (23), the particular problems thought to be solvable will depend on the linguist. An innovation in phonology is believed to solve all outstanding phonology problems while a new technique for doing syntax is taken to be the cure-all for problems in syntax.

Following the logic of the previous section, it is entirely possible that the indefinite in (20) has an implicit quantified restriction. Were we to spell out the implicit restriction, we might get something like the following:

(24) Most linguists have looked at every analysis that solves some problem *that they have worked on most extensively*.

What we have now done is to make apparent the bound variable in the restrictor of the indefinite. In so doing, we have revealed another singleton indefinite.

Here are the main points of the argument. Indefinites express existential quantification. The restrictor of a natural language quantifier consists of overt and sometimes implicit material. In some cases, either the overt or the covert part contains bound variables.8 The extension of this restrictor could be arbitrarily small relative to values of the bound variables. The limiting case is the singleton indefinite.9 It follows then that in principle any indefinite could be a singleton indefinite, hence we should expect to find apparent unexpected scope-taking by indefinites. If no bound variable is involved, the indefinite will be appear to take widest scope, if a bound variable is involved, it's scope will appear to reach up to and possibly beyond the quantifier binding the variable in question. The indefinite’s scope will appear to reach beyond the quantifier binding into it when the indefinite not only has a singleton extension relative to all relevant values for the bound variable, but where that extension is the same in every case. Cresti (1995: 66, 198) demonstrated this with the following examples:

(25) If every Italian in this room (could manage to) watch a certain program about his country *(that will be aired tonight on PBS)*, we might have an interesting discussion tomorrow.

---

8 The phrase ‘contain bound variables’ should be taken loosely. It is quite possible that there are actual variables there, as in the Stanley and Gendler-Szabó account, or it might be that there are just meanings that could be spelled out with bound variables.

9 I am ignoring the possibility that the restrictor could have a null extension (see Cresti 1995, and references therein).
No doctor believed the claim that a (certain) member of his profession had been arrested.

4 WIDE SCOPE DOES NOT REPLACE DOMAIN RESTRICTION

What I have offered in the preceding two sections is a positive account of why indefinites would appear in certain contexts to have unusually wide-scope. The account was pragmatic in its appeal to implicit domain restrictions in crucial cases. It might seem then that this is one of the dividing lines between this account and those that maintain that indefinites exhibit actual scope constellations not available to other quantifiers. What I would like to show is that merely supposing that indefinites are exceptional scope takers is not enough. Some appeal to implicit domain restrictions is still necessary.

Many of the recent papers devoted to this issue take as their starting point the discussion in Heim (1982). Within the context of a theory in which the contribution of an indefinite to logical form is a variable and a predicate with the quantificational force coming from elsewhere, Heim considers something like (28) as a logical form for (27) on a reading where the indefinite has sentence level scope:

(27) If a cat likes a friend of mine, I always give it to him.

(28) $\exists y \text{[always][if a cat likes a f.o.m][I give it to him]}$

(29) $\exists x [\forall y (\text{cat}(y) \& \text{f.o.m}(x) \& \text{like}(x, y)) \rightarrow \text{[give}(I, y, x))]$

Heim rejects this analysis because the truth conditions it captures are too weak. Like (29), (28) is made true by the existence of anything which is not a friend of mine. In place of (28), Heim proposes (30), which differs from (28) in the leftward movement of the indefinite to the ‘topmost text’ level, yielding truth conditions like those of (31):

(30) $\exists_a \text{ a f.o.m} [\text{always}_1 [\text{if a cat likes } x_2 [\text{I give it to him}_2]]$

(31) $\exists x \text{ f.o.m.}(x) \& \forall y ((\text{cat}(y) \& \text{like}(x, y)) \rightarrow \text{[give}(I, y, x))]$

While Heim does not see in the ‘wide-scope reading’ of (27) an existential quantifier quantifying over a singleton domain, she does perceive the domain of her existential in (28) to be too inclusive and she rejects it on that basis. In (30), the problem is ameliorated, but it is not solved. If we take the domain of the quantifier in (30) to include all of my friends, then it is still too inclusive, though the results are admittedly
less dramatic than in (28). With no further restrictions, (30) like (31) would be made true by any friend of mine who happens not to arouse interest in cats, perhaps because he simply never encounters them. But this does not capture the intuition that (27) on the intended reading is about that special friend who gets from me whatever cat likes her. The point is not as potent as it might be, given certain properties of this example. To overcome this, we will look at a number of examples from the literature that followed Heim where the facts are a little clearer. In doing so, it will be important to keep in mind the claim that is being made about Heim’s example. If the domain of quantification for the existential over friends in (27) includes all of my friends, then the truth conditions come out wrong. At least some contextual narrowing of the domain of the existential must be admitted.

Reinhart and Winter discuss the following example from Ruys (1992).

(32) If three relatives of mine die, I will inherit a house.

(32) ‘can be construed as talking about three specific relatives of mine’ (Reinhart 1997: 367). As Winter (1997: 415–16) suggests, it may be used to talk about three uncles who jointly own a house and who all must die for the house to be passed on. I take it that similar statements could be made about the following variant of (32):

(33) If three relatives of mine died this year, I will inherit a house.

The specific-relatives construals of (32) and (33) are not, I claim, the work of a wide-scope existential indiscriminately quantifying over my relatives. (33) on the specific reading could very well be false (if the uncles’ will is invalid, for example), but it would be nearly impossible for the wide-scope paraphrase to be false:

(34) I have three relatives such that if they all died this year, I will inherit a house.

Remember we are assuming that the indefinite quantifies indiscriminately over groups of three relatives of mine. Unless I have very recently inadvertently ticked off a fast-working genocidal maniac, I think I am safe in assuming that I have three relatives who did not die this year. Their existence makes (34) true.

The same reasoning applies to another type of paraphrase entertained by Winter:

(35) I have three relatives such that for each of them, if he died this year, I will inherit a house.
Winter rejects this kind of paraphrase because, he says, unlike (33), (35) would be false if two of the uncles died and the court failed to award the house. But of course (35) would not be false in this situation for the same reason that (34) would not be, just consider three living relatives.

Reinhart and Winter assume a material conditional interpretation in order to make their argument and so I have followed them in that assumption. My purpose is not to decide the truth conditions for conditionals or any of the other constructions discussed here, but rather to show that in general, wide-scope paraphrases may sound better at first, but they, all alone, will not do the trick.

Having said that, it might still be interesting to know how things stand if one assumes a closest worlds semantics for conditionals. In fact, the territory looks much the same. One still might be tempted to argue that indefinites can take scope outside the antecedent of a conditional. Consider the following case. Ricky has a prize cat, who he vows never to part with, despite the daily requests from his neighbour Peschi. One day Ricky falls in love with Rona. At that point I conclude:

(i) If a certain person asked for Ricky's prize cat, he would give it to her.

If the indefinite is interpreted as a narrow scope existential, so one might argue, we get the wrong truth conditions. For the closest world to ours where someone asks for Ricky's cat, is a world where Peschi asks (Rona is a dog-person), and we know Ricky would never give it to Peschi. So (i) is false on this interpretation, even though we judge it intuitively true. The solution, the widest scopalist maintains, is to give the indefinite scope outside the conditional, as in the following paraphrase:

(ii) There is a person such that if she asked for Ricky's prize cat, he would give it to her.

Given Ricky's love for Rona, the sentence comes out true. But now think for a moment about the domain of quantification for 'a person'. If the domain is totally unrestricted, it will include all kinds of irrelevant characters such as Madonna or the most vicious criminal in the Western Hemisphere. Surely, these individuals would make (ii) true, no matter how Ricky felt about Rona. So by moving the indefinite out and leaving its domain unrestricted we have moved from truth conditions

\(^{10}\) Winter was aware of the problem of 'vacuous readings' but he takes it as obvious that 'this problem is independent of the problem of the scope of indefinites' (footnote 2, p. 402). See also Szabolcsi (2001: footnote 8).
that were too strong (Peschi made them false when he should not have) to truth conditions that are too weak (the vicious criminal makes them true when he should not). On the other hand, if we just assume to begin with that ‘a certain person’ quantifies over the singleton set including Rona we get what we intended, with narrow scope with respect to the conditional.

Moving away from conditionals, we turn to an example from Farkas (1981):

(36) John gave an A to every student who recited a difficult poem by Pindar.

(36) has a reading in which there is a particular poem whose recital yields a perfect score. But this reading is not captured by simply scoping the indefinite outside of the relative clause:

(37) \( \exists x [ \text{diff-Pindar-poem}(x) \land \forall y ((\text{student}(y) \land y \text{read } x) \rightarrow \text{John gave } y \text{ an } A) ] \)

(37) would be true in the likely circumstance that there is some difficult Pindar poem that no student recited, regardless of what grades John assigned. But that would not be enough to make (36) true on the intended reading.

Cresti (1995: 130–32[96]) considers the example in (38) below and assigns it the interpretation in (39), consonant with her method for achieving wide-scope without movement:

(38) Nobody believes that I have seen a certain Buñuel movie. [96, p. 130]

(39) There is an entity \( x_3 \) such that: it is presupposed that \( x_3 \) is a Buñuel movie in the utterance world, and it is asserted that nobody believes that I have seen \( x_3 \) [and \( x_3 \) is a Buñuel movie in the utterance world].

This analysis correctly captures the fact that (38) does not report general disbelief in my having seen any Buñuel movie. But surely there is some obscure Buñuel movie that no one has seen and that nobody believes that anyone else has seen (if not, change the example). This movie will verify the truth conditions in (39), but intuitively has nothing to do with the intended reading of (38).

\[11\] Cresti’s idea is that the indefinites in question have existence presuppositions which get projected as (39) illustrates.
Cresti chose this example because it has no conditional and no universal quantifier. This helps to alleviate the suspicion aroused by earlier examples that what is at stake is vacuous truth, which one might be tempted to rule out by other means (but see Abusch 1993–4: section 12.1 and Cresti 1995: 75ff before succumbing to this temptation).

Next we turn to examples in which indefinites were supposed to have unusually wide, but yet not widest scope. Recall that such examples were essential for motivating a scopal theory as opposed to one in which indefinites were said to have referential interpretations.

According to Abusch (1993–4: 94), on the most plausible reading of

(40) Every gambler will be surprised if one horse wins.

‘there might be a specific horse for each gambler that he has bet on, and the gambler would be surprised if his horse wins’. To arrive at this reading, Abusch first considers a logical form as in (41), again under the assumption that indefinites contribute a variable and a predicate to logical form:

(41) Every gambler $x \exists y \text{horse}(y) \& \text{will} [\text{if } y \text{ wins}] [x \text{ be surprised}].$

The truth conditions for (41) are described and rejected as follows:

for every gambler $x$, there is a $y$ such that for every accessible future world $w$ such that [$y$ is a horse in $w$ and $y$ wins in $w$], [$x$ is surprised in $w$]. The first bracketed clause is the restrictor for the world quantifier and the second is the nuclear scope. The first conjunct in the restrictor can be made false, and the formula as a whole made vacuously true, by choosing a $y$ which is not a horse in $w$. For instance, if George Bush is not a horse in any of the worlds $w$ that the quantification expressed by $\text{will}$ ranges over, the implication is vacuously true. (p. 100).

Following the Heim paradigm, the proposed alternative looks something like this:

(42) Every gambler $x \exists y \text{horse}(y) \& \text{will} [\text{if } y \text{ wins}] [x \text{ be surprised}].$

But surely there must be some horse which is not a winner in any of the worlds $w$ that the quantification expressed by $\text{will}$ ranges over. Candidate horses would include those that have not entered the race, dead horses and maimed horses. Any one of these will make the implication vacuously true for any and all values of $x$. 
Much the same can be said for an example like the one discussed in section 3 above:

(43) Most linguists have looked at every analysis that has been proposed for some problem.

The idea here is that most linguists have a pet problem and they have looked at every analysis proposed for that problem. To try to analyse this reading as the result of purely scopal mechanisms would be to quantify freely over all problems and assume an analysis captured by the following paraphrase:

(44) For most linguists I, there is some problem \( p \), I has looked at every analysis that has been proposed for \( p \).

It is hard to imagine that there is not some problem that no one has yet discovered. Call one of these undiscovered problems \( \alpha \). Since \( \alpha \) has not yet been discovered, no analyses have been proposed for it, hence for any linguist I, it is vacuously true that:

(45) I has looked at every analysis that has been proposed for \( \alpha \).

And so (44) is true just in case there are undiscovered problems, but the same cannot be said for (43) on the intended reading.

The moral of all of these examples is the same: merely assigning wide-scope does not get us all the way to the intended reading. In each case, we need to further assume that the existential in question quantifies over a domain that is contextually restricted. In the case of (43) for example, it is this contextual restriction which allows us to ignore undiscovered problems.

Consider now how an argument that indefinites are exceptional-scope takers must go. In sections 2 and 3, we saw examples where the overt restrictor to an indefinite, all by itself, had a singleton extension. So singleton indefinites are in principle possible. In this section we have seen that regardless of one’s theory of exceptional-scope, the existential quantification associated with indefinites must be contextually restrictable. Therefore, to argue that indefinites can take exceptional-scope on the basis of examples like those in (27)–(43), one needs a theory that allows for contextual domain restriction, but which stops short somewhere before singleton status is achieved. Does such a theory exist?

This last point is reminiscent of one made in section V of ‘Demonstratives’. Kaplan uses example (46) to illustrate ‘how rigidly the indexicals cling to the referent determined in the context of use:

\[
(46) I \text{ is John.}
\]
(46) It is possible that in Pakistan, in five years, only those who are actually here now are envied.

The point of (46) is that the circumstances, place and time referred to by the indexicals actually, here, and now are the circumstances, place and time of the context, not a circumstance, place and time determined by the modal, locational, and temporal operators within whose scope the indexicals lie.

Kaplan continues by entertaining the possibility that ‘this only shows that indexicals always take primary scope’. In other words, we are to understand (46) as (47):

\[(47) \exists w \exists p \exists t \left[ w = \text{actual circumstance} \& \ p = \text{here} \& \ t = \text{now} \& \Box (\text{In Pakistan In five years} \forall x (x \text{ is envied} \rightarrow x \text{ is located at } p \text{ during } t \text{ in } w)) \right]\]

Kaplan’s reply to this objection is that it does not provide an alternative to the idea that indexicals are directly referential, ‘since we may still ask of an utterance of (47) in context \(c\), when evaluating it with respect to an arbitrary circumstance to what do the indexicals actual, here and now refer. The answer, as always, is: the relevant features of the context \(c\).’

5 OTHER QUANTIFIERS. WHAT IS SPECIAL ABOUT INDEFINITES?

Regardless of what one says about indefinites, the remarks in sections 2 and 3 lead us to wonder about the availability of apparently exceptionally scoped quantifiers in general. Various quantifiers will achieve the same degree of scope neutralization as the corresponding existential, when they are singleton in the sense defined above. This may sometimes go unnoticed because a use of a non-indefinite implicates that it is not singleton. Consider what happens when we replace the indefinite with a universal in one of the examples discussed earlier:

(48) Someone at the party voted to watch every movie that Phil said was his favourite.

Unlike in the original example, an utterance of (48) seems to implicate that there were several movies that Phil said was his favourite. If in fact there was just one such movie, then the scope of the quantifier object of ‘watch’ would be as neutralized relative to someone at the party as the scope of its indefinite counterpart was.
I have called the inference of non-singletonness that every gives rise to in (48) an implicature, for several reasons. To begin with, such an inference is cancellable, as in the following case:

(49) Everyone in the Italian department is happy with Cipriano’s proposal since there is just one person in the Italian department and that is Cipriano.

The non-singletonness implicature can be flouted for dramatic effect, as in I do not know about you, but everyone I voted for in the last Presidential election was white. One can also see that the non-singletonness implicature arises, like all conversational implicatures, through a calculation which makes reference to information available to the speaker. Suppose I say, pointing to a boat on the water, that everyone on that boat has gone below the deck. If you have reason to believe that I am acquainted with the inhabitants of the boat, you are likely to infer that there is not just one. On the other hand, if I do not possess any information about those persons or person who are on the boat and it turns out that there is just one, then I have not misspoken. Finally, implicatures are usually calculated in terms of speaker information while considering a space of roughly comparable alternative utterances available to the speaker. The following example illustrates this for the non-singletonness implicature:

(50) Every instructor noticed that every student of his who had a disability had taken the exam anyway.

Observe first that (50) would be an odd thing to say if one happened to know that the instructors had just one student each with a disability. In this case, it would be preferable to replace every student with a student or the student. However, (50) is not odd in situation where most instructors have a number of disabled students, even if some of them have just one. In this case, there is no obvious alternative of comparable simplicity. An account in which non-singletonness was a pragmatic presupposition or part of the truth conditions would likely make different predictions here.

The non-singletonness implicature arises not only with universals. As a general rule, a use of ‘at least n’ (at least 9 planets) implies that the speaker does not know the cardinality of the restrictor to be n. Roughly the same applies to other numeral NPs.12

12 And not surprisingly such noun phrases have been claimed to resist exceptional wide scope (Liu 1997; see also Beghelli 1993; Kratzer 1998 and Szabolcsi 1995, 1997).
What I have claimed so far is that the non-singletonness implicature is triggered with many quantifiers but not with indefinites. Does this difference provide us with an argument in favour of the view that indefinites really do in the end take exceptional scope? I do not think so. I have given evidence that there is a calculation that leads to the non-singletonness implicature, but I have not said exactly how that calculation goes. I have not said which alternative utterances are considered and what maxims are employed. In the absence of these details, it is hard to see how an argument could be made. At the moment, either side has a story to tell about the difference between indefinites and other quantifiers. Those favouring a scopal account maintain that indefinites are endowed with the ability to take exceptional-scope. Other quantifiers are not so endowed and since they are not singleton in most discourse situations, they will not even appear to take exceptional-scope. According to the view laid out in sections II and III above, indefinites appear to take wide-scope, because they can be singleton. Other quantifiers are not singleton in most discourse situations, so they will not appear to take exceptional-scope.

6 SPECIFIC INDEFINITES

The term ‘specific indefinite’ is used in various and often conflicting ways (see Farkas 2002, von Heusinger 2002). The phenomenon I am interested in is one in which an indefinite is understood to concern a specific individual even if the hearer may not know who or what that is (compare section 3.5 of Farkas 2002, von Heusinger 2002). There are various devices available to a speaker to indicate that an indefinite is specific in this sense. In English these devices include the expressions certain, specific and particular as well as deaccented relatives clauses that suggest acquaintance: a student I know, a movie I saw.

While markers of specificity in this sense are widely used to elicit so-called wide-scope readings, I see no way of explaining these intuitions in terms of scope. On the other hand, I hope to show that viewing specific indefinites as a kind of singleton indefinite does hold out the possibility of explaining these intuitions in terms of properties of contextual parameterization in general and quantifier domain restriction in particular.

The following is our original example from Fodor & Sag (1982):

(51) If a friend of mine from Texas had died in the fire, I would have inherited a fortune.
It is easy to hear (51) as being about a particular friend, even if you do not know who that friend is, except that it is the friend that was just talked about or the friend from Texas who if he had died in the fire, the speaker would have inherited a fortune.

Assuming the speaker to have several Texan friends and given the discussion in sections 2 and 3, a friend of mine from Texas comes to be a singleton because it is implicitly restricted in such a way that it holds of just one friend. In that case, the intuition that the listener is somehow less than fully informed translates into the following roughly hewn principle:

(52) Privacy Principle

It is possible for a felicitous utterance to contain an implicitly restricted quantifier even though members of the audience are incapable of delimiting the extension of the implicit restriction without somehow making reference to the utterance itself.

This principle is general. It is not restricted to singleton indefinites or even to indefinites per se. The phrase ‘delimiting the extension’ could probably be improved (see Kasher & Gabbay 1976; Yeom 1997). The principle is meant to be neutral with respect to what we take an implicit restriction to consist of (sets, properties, predicates, etc.), though I am persuaded by Stanley & Gendler-Szabó (2000) to favour the property view, as will become clearer below. In any case, what is important for now is the speaker-listener asymmetry, not the details of what each must know.

In order to appreciate better the claim that (52) makes, we might consider a view of implicit domain restriction that is incompatible with it. Suppose implicit domain restrictions worked like deictic pronouns or indexical now. In a given context, some general rule would determine a set of individuals and that would serve as the implicit restriction when suitably combined with the meaning of the overt restrictor. If we now factor in (52), the analogy with deictic he or with now breaks down. It would be infelicitous to use deictic he in a situation where the audience could not tell who it referred to. Similarly, anyone who knows the definition of the word now could not hear it being uttered without knowing what time it refers to. There are certainly degrees of ‘knowing what the time is’ but I do not believe they include the kind of ignorance that is behind the principle in (52).

I would now like to argue this point more forcefully and persuade you that the indexical/deictic view is wrong and that implicit restrictors have properties from which the Privacy Principle could be seen to follow.
In the course of discussing the contextual determination of the comparison class of a positive adjective, Klein (1980: section 3.1) argued that comparison classes and implicit restrictors on quantifiers depend on context in a way that is different from indexicals. On the advice of Ivan Sag, Klein adduced evidence for his claim from ellipsis contexts. Klein begins his argument with a sentence where an indexical that occurs in the antecedent of an elided VP:

(53) Jude drank some of that, and Leo did too.

(53) only allows interpretations in which the second elided that has the same interpretation as the first. Leo drank some of the same stuff Jude drank. Compare this to a sentence where an adjective is elided:

(54) This is comfortable and that is too.

Supposing this is uttered while pointing to a chair and that is uttered while pointing to a sofa, (54) can be used to mean that the chair is comfortable for a chair and the sofa is comfortable for a sofa. The implicit comparison class of the antecedent does not get carried over into the elided VP.

Klein continues by showing that implicit restrictors on quantifiers pattern like comparison classes and not like indexicals. This is illustrated in (55) below:

(55) Leo gave a bridge party at home yesterday and Jude took the kids swimming. Leo thought everyone had a good time, and so did Jude.

(55) seems to have the same interpretation as (56) below, where I have undone the ellipsis and I have made the implicit restrictions explicit:

(56) Leo gave a bridge party at home yesterday and Jude took the kids swimming. Leo thought everyone at the bridge party had a good time, and Jude thought everyone who went swimming had a good time.

From (54), Klein concludes ‘comparison classes can switch across VP deletion, while the reference of indexicals cannot’. Here’s an alternative view, inspired by the discussion in Reimer (1998). Indexicals are directly referential. The meaning that contributes to the first conjunct in (53) is just its referent and it’s that referent that is carried over into the second half. Implicit parameters on the other hand contribute much richer information. In (54), the comparison class may be given by a
parameter that is the same in both conjuncts, but it may be something like the meaning of the phrase ‘things of its kind’. Likewise, in (55), the common restrictor may be something like the meaning of ‘at their event’. In section 3, we noted that implicit restrictors sometime behave like expressions containing bound variables. So in any case, we cannot be satisfied with sets or even simple properties as giving the contribution of implicit restrictors. And the same goes for comparison classes. As Stanley (2000) observes, the sentence:

(57) Most species have members that are small.

has a reading paraphrased as:

(58) Most species $S$ have members that are small relative to other members of $S$.

When we speak of an implicit parameter we speak of a rich content that is determined by context and that can itself be dependent on other elements of the context. Henceforth we should be careful to distinguish between a ‘comparison parameter’ which is fixed by context and a ‘comparison class’ which is the extension of that parameter. Likewise, we distinguish a ‘quantifier domain parameter’ fixed by context and a ‘quantifier domain restriction’ which is the extension of that parameter suitably determined.

As I have just said, implicit parameters are meanings that in some cases are relativized to other elements of the context. What I would like to show now is that a specific case of that is when the parameter is relativized to the bearer of an attitude.

Suppose I inform you that:

(59) The American Cancer Society predicted that in the next decade fewer women would have colon cancer than men.

You might ask me how I know this is true and I would tell you that I got my information from the New York Times. But if you ask me whether (59) is a statement about women in general or just American women, I could not tell you. All I know about the implicit part of the restriction for the quantifier fewer is that it includes what the American Cancer Society intended when they made their prediction.

Similarly, we find comparison classes specified in terms of the thoughts of others. Consider any of the following roughly synonymous examples:

13 This resembles Ludlow (1989)'s account in some respects. Schwarzschild (1992) takes a similar position in connection with the pragmatics of plural predication.
Bill Gates thinks that this book is not expensive, but I think that it is expensive.

I consider this book expensive. Bill Gates would not.

This book is expensive, though Bill Gates would not think it is.

is true even though Bill Gates and I do not disagree on the price of the book. What we disagree on is the comparison class. In other words, in deciding what the extension is for the comparison parameter we need to consider Bill Gates' state of mind in the first half, and mine in the second. Quantified examples offer additional evidence that relativization to other thinkers is part of the content of the comparison parameter:

Only three of the seven people I asked thought this car was expensive.

Again, the relative position of the car within the comparison class is not at issue, what is at issue is the choice of comparison class. The comparison parameter is bound by the main subject quantifier.

Implicit parameters, at least the two we have looked at, can have their extension determined relative to the thoughts of others. This can have rather dramatic effects when combined with the use of a singleton indefinite. Consider the following variation on the Fodor and Sag example:

Nobody believed Ivan’s claim that if a friend of his from Texas had died in the fire, he would have inherited a fortune.

Here neither the speaker nor the hearer can say who is being referred to with a friend of his from Texas. The quantifier domain parameter is relativized to a third party.

We are now only a step away from the Privacy Principle in (52) that we set out to justify. In fact, for the adjectival case, we already encountered the principle. Consider example (62) again, focusing particularly on the main clause:

This book is expensive.

This could very well be uttered in conversation where the price of the book is already established. All that (65) establishes is that the book is significantly higher priced than others in the comparison class. What comparison class? Presumably the one intended by the speaker. The
comparison parameter in (62) above is relativized to believers as well. In the main clause it is bound by the speaker, and in the concessive clause it bound by the subject. For related facts about quantifier domain parameters, we turn to the following tale.

Me and my partner Fleisch went into debt; serious debt and to some not very nice people. I got an idea that I could sell that old fish farm I have back home and maybe raise a few bucks. I call a lawyer and she tells me: ‘You can only sell the farm, if all of your relatives die.’ Since I have not heard about any genocidal maniacs recently, I give up on that idea. Meanwhile, I relate the story to Fleisch who is more desperate than I am. He asks who’s included in ‘all of your relatives’? I say I do not know exactly, but the devilish look in his eyes tells me I better go back to the lawyer to find out.

The lawyer’s use of all is implicitly restricted. I know that. Fleisch knows that. But exactly what the restriction consists of, only the lawyer can tell us. So when I hear the lawyer’s remark and when Fleisch hears mine, we both come under the Privacy Principle in (52). The only way we can say exactly what is being quantified over is to make reference to the lawyer’s utterance: it is the people she had in mind.

It is this kind of circumstance, played out in the context of a singleton indefinite, that leads Fodor and Sag to declare that ‘in the typical case the hearer will not know exactly what the speaker is asserting’. Of course, that is no more true, than in a situation where I say to you the song I was thinking about is from the early 1970s.

7 SUMMARY AND CONCLUSION

One way to think about what I have done here is in terms of the distinction between semantics and pragmatics. Quantifier scope is generally thought of as a matter of content and logical form, in other words, semantics proper. Contextual delimitation of the domain of a quantifier falls, for most people, under the rubric of pragmatics. Now, there is an agreed upon body of data showing that indefinites cannot be analyzed as existential quantifiers that (a) are unrestricted and at the same time (b) take scope within the syntactic boundaries observed by other quantifiers. I have argued for a pragmatic explanation which rejects the first assumption. This route is preferable because:

1. It makes for the more general statement of the constraints syntax imposes on quantifier scope. They apply to indefinites the same as to other quantifiers (sections 2 and 3).
2. It makes for the more general statement of contextual delimitation of the domain of a quantifier. It is in principle indifferent to the cardinality of the extension of the resulting restriction (section 4).

3. It sheds light on the intriguing ‘specificity’ intuitions that have been associated with the data in question (section 6).

This last issue stands on its own. Regardless of what we eventually say about the scope of indefinites, I hope to have demonstrated how they help us to see more clearly the power of implicit parameters. Although this power is felt more acutely with indefinites than in other cases, it is present elsewhere and its consequences should not be underestimated.

Acknowledgements

This paper grew out of discussions with Kai von Fintel and Jason Stanley. It has benefited from lively and generous audiences at Rutgers (Topics in Semantics course, Flood Floyd Formal Semantics Workshop), Stanford (Semantics and Pragmatics Workshop) and the Max Planck Institute in Nijmegen (‘Semantics meets Acquisition’ conference). It has also benefited from discussion with Greg Carlson, Veneeta Dayal, Harold Hodes, Angelika Kratzer, Zoltan Szabó, Philipe Schlenker, Anna Szabolcsi, Yoad Winter, Ede Zimmermann and an anonymous reviewer. I owe special thanks to Jeff King for encouragement and stimulating conversation.

ROGER SCHWARZSCHILD
Linguistics Department
18 Seminary Place
Rutgers University
New Brunswick, NJ 08901 USA
e-mail: sroger@nuccs.rutgers.edu

Received: 31.10.01
Final version received: 26.05.02

REFERENCES


