This version corrected and annotated
after class on April 29
Formal Semantics, Lecture 11
Barbara H. Partee, RGGU April 29, 2004

Lecture 11. Semantic Typology of Indefinites II[1]

May Schedule: ***No class May 13, no class May 20!***

May 6: Lecture 12. Semantic Typology and Theories of NPIs and Negative Indefinites.
We will continue discussion of the topics in Lectures 8 -11, starting with an expanded version of the second half of the Lecture 11 handout, emphasizing the issues barely mentioned in this handout's Section 4, and extending the discussion to include open questions about the relation between the distribution of Accusative or Nominative vs. Genitive in Russian under negation ("Genitive of Negation), and possible connections between the Gen Neg construction and NPI phenomena.

Readings for May 6: (i) Haspelmath, Chapters 5 and 8, (ii) Adam Werle (2002) A typology of negative indefinites. *CLS 38 Parasession on Negation and Polarity*. (iii) Adam Werle (2001) (Both Werle papers are available on the course website.)

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[1] Annotations added after class on April 29, mostly in footnotes. My thanks for discussion of Russian examples to today's class participants: Elena Osipenko, Marina Xoruženko, Julia Morozova, and Ivan Zakharyaschev, and class visitors Yakov Testelets, Yura Lander, and Elena Rudnitskaya, who also sent further comments after class. (Diana Forker was there today too, but, like me, was a consumer rather than a producer of judgments and insights about Russian examples.)

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May 27: Last class. Topic: a joint presentation with Vladimir Borschev of the work on Genitive of Negation that we will present at the conference "Semantics and Linguistic Theory" (SALT 14) at Northwestern University, Evanston, Illinois, May 14-16.

All kursovye raboty due, all late assignments due. Bring zachetky or whatever papers are needed in order for me to give you a grade or a zachet or some certificate of participation if you want one. (MGU students: find or invent something I can sign.)

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Today in Lecture 11 we will continue discussion of the topics in Lectures 8 -10, considering some of the semantic properties and principles that may help to explain the typological generalizations described by Haspelmath.

Readings:
(i) Haspelmath (Haspelmath 1997) , Chapter 5,
(ii) Kratzer, Angelika, and Shimoyama, Junko. 2002. Indeterminate pronouns: the view from Japanese. (You already have the first. If you don't have the second, you can download it from the course website.)

Additional useful references:

From the typological perspective, (Haspelmath 1997, Tatevosov 2002)

Semantic accounts of **specific** indefinites, including Choice Function accounts: (Abusch 1994, Enç 1991, Fodor and Sag 1982, Kratzer 1998, Kratzer 2003a, Matthewson 1999, Reinhart 1997, Winter 1997)

Semantic accounts of quantificational indefinites and "polarity indefinites", including free-choice *any* and other free choice indefinites: (Carlson 1980, Carlson 1981, Dayal 1995, Dayal 1998, Giannakidou 1995, Giannakidou 1998, Giannakidou 1999, Giannakidou 2000, Horn 1999a, Horn 1999b, Kadmon and Landman 1990, Kadmon and Landman 1993, Kratzer and Shimoyama 2002, Ladusaw 1979, Ladusaw 1996, Paducheva 1989, van der Wouden 1997, Werle 2001, Werle to appear)

Semantic accounts of typological generalizations and variation: (Giannakidou 1998, Kratzer and Shimoyama 2002, Kratzer 2003b, Werle 2001, Werle to appear)

Work that relates directly to Russian: (Fitzgibbons and Verbuk 2003, Haspelmath 1997, Paduceva 1974, Paduceva 1985, Pereltsvaig 2000, Seliverstova 1964, Tatevosov 2002, Werle 2001, Werle to appear)

1. Introduction

Recall from Lectures 9 and 10 and your reading, Haspelmath's proposed semantic map of the different kinds of indefinites:

p. 4, Fig 1.1: *An implicational map for functions of indefiniteness pronoun series*
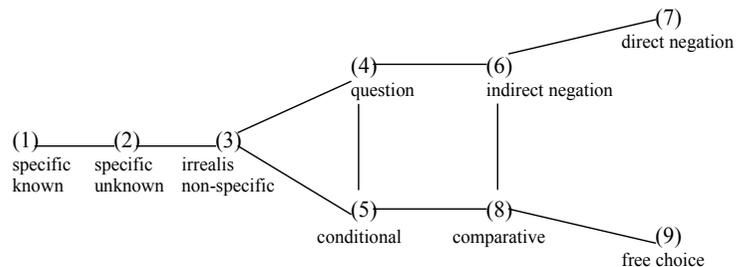
Preview of today's lecture:
In discussing the semantic properties and semantic issues that seem to be most important in this area, we will concentrate on three main families of issues.

Section 2. The nature of "specific" indefinites.
    a. Specific indefinites are indefinite, but in some ways "referential".
    b. Specific indefinites can "escape from scope islands": we can use that to argue that they are NOT quantificational expressions: they don't have ∃ as part of their meaning.
    c. In some languages, including Russian, we find evidence of "relativized specific indefinites", specific not for the speaker, but for the subject of a verb of thinking or saying.
    d. Specific indefinites can occur in any context; they do not need to be "licensed". (But in some kinds of questions or imperatives they would be pragmatically anomalous.)
    e. We will briefly mention several proposed analyses of specific indefinites; the main aim of these analyses is to capture the properties just listed.

3. The nature of "non-specific" indefinites. (*only partly done April 29*)
    a. One of the main properties of non-specific indefinites, of all different subsorts, is that they cannot freely occur in simple past tense declarative sentences. Something has to "license" them.
    b. Non-specific indefinites can easily have "narrowest scope". They may sometimes participate in scope ambiguity. But they always have to be "under" or "within" the scope of the operator that licenses their occurrence.
    c. A language may have one or several different non-specific indefinite series, dividing up the space of different kinds of "licensing operators" in different ways. Non-veridicality (Giannakidou 1998) or "снятая утвердительность" (Paduceva 1985) is a semantic property commonly associated with the licensing of non-specific indefinites.
    d. Analyses of non-specific indefinites. Classical analyses in terms of scope of ∃. Kratzer and Shimoyama's use of a Hamblin-style theory of alternatives in interaction with the semantics of various operators, based on observed patterns of Japanese indefinites.
    e. The properties "specific" and "non-specific" may be vague properties that represent prototypes characterized by 'families of properties.'

4. The nature of "free choice" indefinites and polarity sensitive indefinites. (*not done April 29*)
    a. The ∃/∀ debate about English *any*: one *any* (∃) or two (∃/∀)?
    b. Scalar implicatures as a common feature of free choice indefinites. The connection to "quantifying superlatives" (Fauconnier 1975, Haspelmath 1997).
    c. Kratzer and Shimoyama: "Free choice" is not a separate class of indefinites, but a pragmatic implicature that may arise in a variety of ways.
    d. Paducheva 1989 on "free choice" universals and 'potential' domains.

5. Regions that neighbor Haspelmath's semantic map.
    Specific definites and their neighbors the definites; free-choice indefinites and their neighbors the universals; negative indefinites and their neighbors the negative quantifiers.

2. Specific indefinites.

2.1 Properties:

1) Specific indefinites are still indefinites.

They are *indefinite, not definite*. What this rules out depends on one's theory of definites. Basically:
- Not presupposed to have a unique value shared for speaker and hearer. (May be known or unknown to the speaker.)
- Indefinites in general are not anaphoric.

2) Specific indefinites tend to have "widest scope".
They very often have "widest scope", and may be insensitive to various operators in the sentence. Their range of potential values is usually limited to the "actual world" of the sentence. They can "escape islands" (if we were to think of them as 'moving'.) (See Appendix 1 on Scope Islands and the behavior of specific indefinites.) This "widest scope" effect also means that the choice of description is most often the responsibility of the speaker, as in the example below, on the specific interpretation of the indefinite *a good linguist*[2].

(1)   Mary wants to marry a good linguist.

In Russian, the *koe-* series should unambiguously give a 'specific, known' reading, and the *-nibud'* series would unambiguously give the non-specific reading. What about *–to*? also unambiguously specific? The charts we have seen (Haspelmath, Tatevosov, Testelets and Bylinina) suggest that it should allow both possibilities, since it reportedly can be either specific or irrealis non-specific. And what about no article at all, an alternative not discussed explicitly in Haspelmath, since ∅ is not one of the "series" of indefinites?

(2)   a. *Maša xočet vyjti zamuž za koe-kakogo xorošogo lingvista.* (But VBB says[3] that this is ungrammatical, and one would have to use *za odnogo lingvista* for 'specific known'.)

        a'. *Masha xočet koe-čto tebe podarit'.*[4]

        b. *Maša xočet vyjti zamuž za kakogo-nibud' xorošogo lingvista.* (non-specific only)

        c. *Maša xočet vyjti zamuž za kakogo-to xorošogo lingvista.* (preferred reading seems to be specific unknown, according to VBB)[5]

        d. *Maša xočet vyjti zamuž za xorošogo lingvista.* (ambiguous, I think)[6]

3) Possible "intermediate scope" specific indefinites.
When a language has a kind of specific indefinite that implies "known to the speaker", then it seems that that kind must be limited to maximal scope. Such an indefinite (e.g. Russian *koe-*

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[2] Discussion during class brought out the fact that this 'speaker-responsibility' is more evident when a pejorative description is chosen. When I tried to test for 'speaker's description' in (2c) below by asking whether it could be followed by (the Russian equivalent of) "but she considers him a not-very-good linguist", people judged that to be a bad continuation, but then noticed that it would be ok if the sentence contained a pejorative description like "an idiot" and it was followed by "but she considers him a genius." Someone noted that when the description is *kakogo-to idiota*, it's specific <u>unknown</u>, but the description is still the speaker's. So the speaker may have accumulated a certain amount of information about who Mary is hoping to marry, enough to categorize him as an idiot but not enough to know who it is.
[3] Note added after class. Everyone in class agreed that (2a) is impossible and that *odnogo xorošogo linguista* would be the way to express 'specific known'. It was noted that this use of *odnogo* is not 'cardinal number 1', since it is not in any way in contrast with a possibility of marrying more than one good linguist. And it was noted that if you DO intend the meaning 'cardinal number 1' for *odnogo*, it loses its "specific" reading.
[4] Thanks to Elena Rudnitskaya for sending me this example after the class discussion. According to Elena, *koe-čto* here has the specific-known reading. The speaker knows the thing Masha wants to give, but doesn't want to tell the hearer what it is.
[5] Note added after class. Everyone in class agreed that (2c) has only the 'specific unknown' reading. But Yakov Testelets observed that if you make it future perfective, with *zaxočet* in place of *xočet*, then it's ambiguous.
[6] Yakov Testelets observed that it is in fact three ways ambiguous: specific for speaker, specific for Maša, and fully non-specific.

kto) presumably could not be used in the way *some book he had recommended* is used in sentence (3) below.

And Fodor and Sag, in their classic work on referential vs. quantificational indefinites (Section 2.2.1), claimed that indefinites which can escape from 'scope islands' (Appendix 1), always get maximal scope, never intermediate scope.

But some specific indefinites may sometimes be able to get "intermediate scope", and may be specific relative to some "attitude-holder" or some quantified NP mentioned in the sentence but not specific relative to the speaker. Example:

(3)   Every professor rewarded every student who read *some book he had recommended.* (Kratzer 1998, p. 164, citing example from Abusch 1994).

Example (3) has a possible reading in which for each professor, there is a specific book such that that professor rewards every student who reads that book. *Some* could be replaced with *a certain*, making that reading even more salient. (With *a* in place of *some* or *a certain*, it is harder to get anything other than narrowest scope; *a* CAN get a specific reading, but not so easily when it's embedded unless the noun phrase itself has content that strongly favors a specific reading.)

The terminology for 'intermediate scope' readings is not standardized; we might call them "intermediate scope readings" or "relatively specific" readings – these names suggest different hypotheses about how to analyze them, and it's possible that different instances should have different analyses.

4) Debate over ambiguity in simple sentences.

(4)   Mary married a linguist.

A point of debate: is there a further distinction to be made in a simple past perfective single-episode sentence like (4) between an interpretation with 'scope over the assertion operator' and an interpretation with scope that is wider than any semantic operators but narrower than the 'assertion operator'. Authors disagree on this point. (Partee 1972) thought the answer was 'yes', in parallel with Donnellan's distinction between *referential* and *attributive* definites (Donnellan 1966), but now I am not so sure. Now I would prefer to say that the English sentence is semantically unambiguous, although there may be further pragmatic distinctions relating to (a) "speaker-known" vs. "speaker-unknown" and (b) the speaker's communicative intent: is the mentioned property ('linguist') relevant to the content of the proposition, or only to the (partial) identification of the 'referent'? But it may be different in different languages; see section 2.3.4.

2.2 Analyses:

2.2.1 Fodor and Sag (1982): Referential and quantificational indefinites

Fodor and Sag (1982) distinguish between referential and quantificational indefinites. Quantificational indefinites have an existential quantifier as part of their meaning and obey normal scope constraints. Referential indefinites are widest scope only and are insensitive to islands; they get their value directly from the context. (That value may or may not be presumed to be known to the speaker, it is definitely not presupposed to be shared knowledge with the hearer.) Fodor and Sag deny the possibility of "intermediate scope readings" when the indefinite is inside a scope island, as in (5). This judgment is widely agreed on.

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

See **Appendix 1** for more details.

2.2.2 Reinhart and others: Choice functions for Specific Indefinites

Reinhart, Winter, Kratzer, Matthewson: **Choice functions.** (Part of the background to the choice function analysis is the Kamp/Heim analysis of indefinites as variables bound by unselective, possibly implicit, quantifiers, which we discussed briefly in Lecture 9, section 2. References: (Heim 1982, Heim 1983, Kamp 1981).)

Definition of choice function from Reinhart (1997, p.372, cited in Matthewson 1999, p. 82):

(6) **Choice function**

A function f is a choice function (CH(f)) if it applies to any non-empty set and yields a member of that set.

On Reinhart's analysis, an indefinite determiner may introduce a variable over choice functions; such a variable may be bound by an existential quantifier which may appear at any level. Since the existential quantifier may appear at any level, Reinhart's analysis predicts that an indefinite such as *some woman* may have narrow, intermediate, or wide scope, (as many possibilities as the sentence has positions where an existential quantifier could appear), with no sensitivity to scope islands.

A good example of insensitivity to scope islands is (7) below, which correctly gets two readings on Reinhart's analysis.

(7) If some woman comes to the party, John will be glad.   (Matthewson p. 83)

a. ∃f (CH(f) & **(**come-to-party (f(woman)) → glad (John)**))**

b. **(** ∃f (CH(f) & come-to-party (f(woman)))**)** → glad (John)

On reading (7a), the wide-scope reading, there is a specific woman such that if she comes to the party, John will be glad. This is captured by saying that there is a choice function such that if the woman picked by that choice function comes to the party, John will be glad. Reading (7b), the narrow-scope reading, says that if there is a choice function such that the woman it picks comes to the party, i.e. if there is a woman who comes to the party, John will be glad. (So reading (7b) is non-specific. It's actually a little odd to use *some* for that reading. A non-specific indefinite would be more natural there.)

Winter (1997) has an approach similar to Reinhart's, but Reinhart distinguishes between quantificational indefinites and choice-function indefinites, whereas Winter has just choice-function indefinites.

Kratzer (1998) proposes a different choice function analysis. Her analysis is similar in some ways to Fodor and Sag's: where they had a referential interpretation for specific indefinites, she has a choice function. Like them, and like Reinhart, she also allows for quantificational indefinites. What is different about Kratzer's choice functions is that she does not posit existential quantifiers to bind them. They are interpreted as free variables, with values to be provided by the context. So they always act as if "maximal scope", with apparent exceptions accounted for without the notion of scope.

Because there are no existential quantifiers introduced to bind the free choice-function variables, Kratzer does not generate intermediate readings, at least not freely in the way Reinhart does. But she shows how a notion of "pseudo-scope" may give a result very similar to intermediate scope readings, arising when there are bound variables inside the indefinite phrase. Compare (8a-b), from (Ruys 1992).

(8) a. Every professor will rejoice if a student of mine cheats on the exam.

　　b. Every professor will rejoice if a student of his cheats on the exam.

In (8a), it's difficult or impossible to get an intermediate reading; in (8b), it's easy. (Reinhart would predict no difference.) The reason, on Kratzer's account, is that in (8b), the choice function which picks out one student from a set of a professor's students will be picking from a different set in the case of each professor. How this is done in Kratzer's system involves the notion of **parameterized choice functions.** This notion is worth looking at in part because it is related to the difference between a specific indefinite like *a certain* or *some* and a more 'neutral' indefinite like *a* or a polarity/free choice indefinite like *any*.

Parameterized choice functions. Kratzer draws on the analysis of *a certain* by Hintikka (Hintikka 1986) and work on different kinds of context-dependent interpretation in (Mitchell 1986) and (Partee 1989). Here is Kratzer's analysis of an example of Hintikka's:

(9) a. Each husband had forgotten a certain date – his wife's birthday.

　　b. $\forall x(husband(x) \to had\ forgotten\ (x, f_x(date)))$　　(Kratzer 1998, p.168)

The indefinite *a certain* is unambiguously specific: it gets only a choice function interpretation, not a quantificational interpretation. But its choice function can be a parameterized one, and allows a bound variable as its parameter. In the more typical uses of *a certain*, the parameter will be the speaker of the sentence and the NP receives a referential interpretation.

From this much, we can predict that an indefinite characterized as "Specific, Known to Speaker" would be represented in a Kratzer analysis as a choice function whose only possible parameter is the speaker. The "known" part may have to be added as a conventional implicature, if there are also specific indefinites which are widest-scope only but which don't imply "speaker-known".

On Kratzer's 1998 analysis, narrowest-scope readings are in general a sign that an indefinite permits a quantificational reading (the nature of this reading is revised in Kratzer's more recent work, which we will discuss in connection with non-specific and free choice indefinites). So an indefinite that allows both narrowest-scope readings and island-escaping wide-scope readings must be ambiguous between a quantificational reading and a choice-function reading. But apparent instances of intermediate readings can come from a number of different sources, so they are not good superficial indicators of what analysis should be posited.

Kratzer (1998, pp. 170-171) discusses some variation among English indefinite expressions.

(10)　a. Every professor rewarded every student who read *some book he had recommended.*

　　b. Every professor rewarded every student who read *a book he had recommended.*

　　c. Every professor rewarded every student who read *books he had recommended.*

　　d. Every professor rewarded every student who read *at least one book he had recommended.*

Intermediate scope possibility: (10a): easy. (10b): disputed; some speakers say ok, some say difficult or impossible. May depend on the rest of the content of the NP. (10c): very difficult or impossible. (10d): very difficult or impossible. This suggests that indefinite NPs formed with bare plurals do not have choice function interpretations and are **never specific**, and the same for NPs with modified numerals like *at least one*.

So for Kratzer, **specific NPs are interpreted with (parameterized) choice functions, non-specific NPs are not.** So for example (7), Kratzer would use a choice function for reading (7a) and would use her treatment of non-specific indefinites (Section 3.2.3) for reading (7b).

Matthewson (1999) shows how two series of indefinite determiners in the Northern Interior Salish language St̓át̓imcets (= Lillooet) give good support to a choice function analysis like Kratzer's, and help to provide clear empirical evidence distinguishing Kratzer's analysis from Reinhart's.

Salish has a series of specific indefinite determiners within which a distinction is made among present/absent/remote (all speaker-relative), and which always show 'maximal scope', and are insensitive to islands. There is another indefinite, *ku*, which behaves much more like a polarity sensitive indefinite, appearing under the scope of a range of different sorts of operators (negation, question, modals). What makes this language interesting is that one set of indefinites is obligatorily wide scope, the other indefinite obligatorily narrow scope.

Matthewson goes through a number of arguments against possible alternative hypotheses, and concludes in favor of an analysis with the following properties (Matthewson 1999, p. 109):

- All non-polarity indefinite determiners are obligatorily interpreted as variables which range over choice functions.

- The polarity determiner is not interpreted as a variable ranging over a choice function.

- The choice-function variables are always existentially closed at the highest level.

This last point, top-level existential closure, is motivated by some inconclusive arguments to which Kratzer responds in (Kratzer 2003a) (unpublished but available for download from the Semantics Archive, http://semanticsarchive.net .) In Kratzer's terms, I believe the Lillooet non-polarity indefinites would be characterized as variables over choice functions whose parameter is necessarily fixed as the speaker. (It seems to me that this is supported by the fact that the different indefinites have context-dependent conventional implicatures characterized in terms of distance from the speaker.)

In (Kratzer 2003a) there is a nice example to show that "knowing a choice function" does not require knowing its value.

Background context: In Angelika's home town of Mindelheim, after every funeral, when the mourners are gathered around the still-open grave, they say a prayer that starts with the words, "And now let us pray for the person among us who will die next."

"Suppose an anthropologist attended one or more funerals in Mindelheim, and reports on what she found out in a lecture using (11), or the more general (12):

(11)　After the funeral, the mourners prayed for **some** (particular) person among them.

(12)　After every funeral in Mindelheim, the mourners pray for **some** (particular) person among them."

(Kratzer 2003, p.1)

The anthropologist (like the mourners themselves), knows what the choice function is, though neither she nor the mourners know what value it picks out. (This reinforces the appropriateness of saying that choice functions correspond to **in**definites.) And Kratzer notes that the students who hear the anthropologist's lecture may not even learn what the choice function is; but they can pass on what they learned using the same sentences, just as we can pass on uses of a proper name we have learned from someone without ourselves having learned how to identify the bearer of the name.

Very often in discussions of specificity, linguists have said that "the speaker has a particular referent in mind". This is an interesting argument against that view: it may be appropriate for some specific indefinites ("speaker-known" in Haspelmath's discussion), but this shows that it needn't be intrinsic to the notion of specificity in general.

Question about Russian[7]: In translating (11), is it possible to use *koe-kto*? Or would that require actually knowing the identity of the person who was going to die next? I.e. does the *koe*-series require knowing the actual referent, or just knowing the choice function?

2.3. How the analyses captures the properties.

2.3.1. Specific indefinites are indefinite.

Reinhart, Kratzer, Matthewson and others show how specific indefinites on the choice function analysis are still indefinite. One can think of a choice function as a function whose value is not presupposed to be known. The speaker may or may not know what function is picked out in the given context, and need not know the value even if she knows the function; the hearer is not presupposed to know even the function.

2.3.2. Specific indefinites tend to have widest scope.

This was captured by Fodor and Sag by making them referential. It is captured by Kratzer by analyzing them as free variables over choice functions, getting their value from the context. (The context is always "wider scope" than any sentence-internal operator.) It makes no difference whether they are in an island or not on any of these analyses; that was a problem only for analyses on which they are like quantifiers and would have to syntactically move to get wide scope. Matthewson forces wide scope for the Lillooet specific indefinites by treating them as variables over choice functions and saying they can only be bound by a sentence-

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[7] In class 4/29, the class confirmed VBB's judgment that *koe-kogo* would require that the anthropologist could identify the specific person, not just the choice-function (in this case the function that picks out whoever dies next). About the possibility of using *nekij* or *nekotoryj* there were mixed and uncertain opinions: Ivan Zaxar'jaščev thinks that maybe with *nekij* it is possible to just know the choice function. Yura Lander thinks that in that case the best thing to use would be the adjective *opredelennyj*. Yakov Testelets noted that with none of the options is it possible to follow the sentence with a phrase *imenno* .... But Yura Lander thought you could follow the sentence, at least in the case of using *opredelennyj,* with *a imenno* ... .

   Elena Rudnitskaya adds the following notes:
   I think "koe-kto" requires an actual referent rather than a set of possible candidates (that's how I understand the "choice function", but that may be incorrect), the referent is known to the speaker, but the speaker doesn't want to say to the hearer who it is. For instance, example (i) is used to remind the hearer to do something the hearer knows.

   (i) Tebe sleduet koe-chto sdelat' (it is implied that the hearer knows what)

   In (11), "koe-kto" is possible in a specific context: if (as the speaker thinks) the hearer knows the person for whom they prayed, but the speaker doesn't want to name this person for some reason. Cf. (ii).

   (ii) Posle sluzhby ja koe za kogo pomolilsja (most probably, for the hearer, this sounds ironic, and used in case if the hearer has done something bad, so that speaker had to pray for him)

level ∃ quantifier. Reinhart would allow them to have any scope, and has to appeal to pragmatic principles to try to account for the normal wide-scope preference of specific indefinites.

2.3.3. Some specific indefinites can have "intermediate scope".

Kratzer seems to have the best account of this property by making the choice functions parameterized; and looking at her work and Matthewson's, we can see that this can be a point on which different indefinites could differ lexically. For Lillooet, the specific indefinites must have the speaker as their parameter. For English *a certain* and *some*, the parameter can be the speaker or it can be any higher subject or wider scope quantificational NP.

2.3.4. Are simple sentences with indefinites ambiguous?

It seems to me that these analyses are suggesting that it actually depends on the particular lexical indefinites in each language. If an English indefinite like *a linguist* is ambiguous between a choice function reading and a quantificational (or other non-choice function) reading, then we predict that a simple sentence like (4) is ambiguous, although the two readings may be truth-functionally equivalent in all contexts. But possibly no Lillooet sentence is ambiguous in that way, since the two sets of Lillooet indefinites apparently have non-overlapping interpretations.

If these analyses make some but not all simple sentences with indefinites ambiguous, and make it an ambiguity with no truth-conditional impact, that would accord well with the long and uncertain debates there have been and puzzling intuitions about some hard-to-pin-down ambiguities in this area that many of us have had.

2.3.5. Specific indefinites can differ in various ways.

Not all of these analyses are very explicit about how exactly to represent the lexical content of indefinite determiners.

But this relates to 2.3.4. above. We could predict, for instance, that an indefinite specified as "specific, speaker-known" could not be used in any of the other functions in Haspelmath's map, because in order to add the specification "known", that indefinite must necessarily be specified as a choice-function (or "referential") indefinite getting its value exclusively from the context of utterance.

An indefinite not specified as known or unknown, on the other hand, could potentially be unspecified also as to whether it has to get its value from the context of utterance or could get its value in other ways as well: at this point we have to ask how many different 'spaces' in the implicational map that include 1 and/or 2 (the two kinds of "specific") are actually attested. (Actually, looking at the maps on pp 68-75, there seems to be a dauntingly large number of attested connected spaces including at least #2, the specific unknown. I'm not ready to try any "explanation" yet. Haspelmath's own explanations in chapter 5 make a start, but I'd like to be able to connect them with theoretical constructs I can understand.)

Analogy: pronouns, definites, demonstratives that have to be specified as to whether they can get their value only from the context of utterance ('today'), or either from context of utterance or a linguistic antecedent of a certain kind ('this', 'here'), or from both of those plus the possibility of functioning as a bound variable ('that', 'he'); or whether they can ONLY be a bound variable ('himself' in some dialects; in some dialects it can also get its value from a referential antecedent in its clause), etc. (Partee 1989) is partly about that kind of problem, and (Kratzer 1998) is partly extending and further formalizing that line of thinking.

One interesting point of variation illustrated in Russian, discussed by Haspelmath, Fitzgibbons and Verbuk, and Pereltsvaig: The "specificity" of indefinites under the scope of verbs of saying and believing[8]:

(13) *Ona uverena, čto slišala* (kakoj-to) (*kakoj-nibud') (*kakoj-libo) (*luboj) *šum.*
     she believes that heard-3.sg.f (what-to) (what-nibud') (what-libo) (luboj) noise
     'She believes that she heard some noise.'

The similar English sentence (14), with *some* or *a*, is normally judged to be ambiguous, and the two readings are considered specific (14a) and non-specific (14b).

(14)   Mary believes that some man has been following her.

   a. ∃x (man(x) & Mary believes (x has been following her)) (specific)
      Mary might have said: Ivan has been following me.

   b. Mary believes (∃x (man(x) & x has been following her)) (non-specific? or
      "specific relative to Mary"?)
      Mary might have said: Some man has been following me.

From a typological perspective, one might say, as Haspelmath does, that *kakoj-to* can express a non-specific reading, as in the reading of (13) that corresponds to (14b). From a Russian-internal perspective (Elena Paducheva, p.c.), it is apparently more natural to consider both of the readings (14a,b) to be specific, since both are expressed with *kakoj-to*, and to adjust the interpretation of specificity so as to allow what we might call "agent-relative specificity": *kakoj-to* in (13) may be specific relative either to the speaker (the usual case for specifics) or to the subject of a verb of thinking or saying (in this case, *ona*.)

These verbs of saying and believing evidently count as less "irrealis" than verbs of wanting, hoping, fearing, and other kinds of verbs that license the non-specific indefinites discussed in Section 3.

3. Non-specific indefinites.
3.1. Properties
1) Non-specific indefinites are indefinites. For non-specifics, this is not controversial; it is only for specific indefinites that questions arise about how to distinguish them from definites. So we will not discuss this for non-specifics.

2) Non-specific indefinites tend to have narrowest scope.

Non-specific indefinites always *can* have narrowest scope, and for the 'weakest' ones (like English bare plurals) it is often difficult or even impossible to interpret them with anything other than narrowest scope. (See examples (10c,d) above.)

3) Unambiguously non-specific indefinites have to be "licensed" by some explicit or implicit (normally c-commanding) operator. English doesn't seem to have any unambiguously non-specific indefinites, but the Russian *–nibud'* series seems to be a good example: it must be non-specific, so it cannot occur in a simple declarative past tense perfective sentence that

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[8] There were several remarks about this example, none of them contradicting Haspelmath's main point, but all illustrating the need for care with these examples. (i) Some preferred making the verb perfective: uslyšala. (ii) Yura Lander noted that *kakoj-nibud* is actually possible if the sentence is used on a "perfective of experience" reading. (Is that only if we make the verb *uslyšala*?) (iii) Several suggested that the mass noun *šum* should be replaced by some more clearly concrete count noun, to avoid the "some *kind of* noise" reading. (iv) Someone noted that judgments may depend in part, for a number of these examples, on where focus is placed. (Related issues are discussed by Haspelmath near the end of Chapter 5.)

describes a single episodic event. (It might be able to occur in a sentence of that form if the sentence could be interpreted as involving some covert epistemic or other modal of the sort that could normally license *–nibud'*.)

(15)   *Ivan včera kupil kakuju-nibud' knigu.*

4)   Intermediate scope behavior possible.

If a sentence has more than one appropriate licensor, and there are no scope islands involved, then in principle a non-specific indefinite could be interpreted as 'licensed' in more than one possible way. So for non-specific indefinites, intermediate scope is quite normal.

(16)   *Možet byt', Maša xočet kupit' kakuju-nibud' knigu.*

   a. Narrowest scope: POSS (WANT (Maša, ∃x (book(x) & buy(Maša, x))))

   b. Intermed. scope: POSS (∃x (book(x) & WANT (Maša, buy(Maša, x))))

   c. *Wide scope: ∃x (book(x) & POSS (WANT (Maša, buy(Maša, x))))

5)   Different non-specific indefinites can be sensitive to different operators (see Haspelmath's book.)

3.2. Analyses

3.2.1. Classical quantificational analysis.
Indefinites as existentially quantified NPs.
   Montague style: [[*a man*]] = λP(∃x (man(x) & P(x)))
      a man walks: λP(∃x (man(x) & P(x))) (walk)
                = ∃x (man(x) & walk(x))

Problems: See discussions especially in Kamp and Heim's work, as well as some problems raised by Haspelmath. (But Haspelmath goes back to earlier work using predicate logic, where there wasn't even a way to treat 'a man' as a semantic constituent in argument positions of sentences. So some of Haspelmath's critiques of 'logical approaches' are irrelevant to much of the work of the last 30 years.

Variation among different interpretations on the classical analysis was almost always cast as differences in scope. The terminology persists – see above about 'wide scope', 'narrow scope', 'intermediate scope' indefinites, even though such analyses have been partly replaced.

For instance, classic treatment of the ambiguity of (17), described in Haspelmath (95-96):

(17) Bob wants to marry a linguist.

   a. (specific)   **(∃x: linguist x) (Bob wants (Bob to marry x)**
      or: ∃x (linguist x & Bob wants (Bob to marry x)
      or Montague style:
         λP(∃x (linguist(x) & P(x)))(λy (Bob wants (Bob to marry y))

   b. (non-specific)   **Bob wants (∃x: linguist x)(Bob to marry x)**
      or Montague style:
         Bob wants (λP(∃x (linguist(x) & P(x)))(λy (Bob to marry y))
      equivalent to:
         Bob wants (∃x (linguist x & Bob to marry x))

Common identification (can be argued, but a reasonable first approximation): maximal scope = specific, non-maximal scope = non-specific.

Dahl's generalization about Russian (Haspelmath p. 96): A variable bound by a maximal-scope existential quantifier in a declarative sentence will be realized as a *to*-pronoun. (Dahl 1970). This principle simultaneously licenses *to*-pronouns in certain sentences under certain interpretations, but blocks *nibud', -libo*, etc., in those same interpretations of those sentences. And for a simple sentence with no other operator that could come first, it blocks any kind of indefinite other than a *–to* pronoun.

This generalization should be expressible in other theoretical frameworks as well. It will require that *koe-* pronouns are not interpreted as existentially bound variables at all: that will be good it they are interpreted as referential, or as choice functions.

A potential problem (among various): if *to*-pronouns can occur within scope islands, this account will have problems, because it presupposes (semantic) movement to 'wide-scope' position. And I suppose *to*- pronouns can indeed occur in scope islands and get specific readings[9].

Test sentences[10]: (should be translations or adaptations of examples (5, 7 above). Judgments?

(18) a. Každyj prepodavatel' uslyšal slux/ novosti, čto (koe-kto iz nix) (kto-to iz nix) budet' uvolen čerez mesjac.

   b. Esli kakaja-to ženščina pribudet na večerinku, Ivan obraduetsja.

   c. Raznessja slux, čto (nekij student) (odin moj student) (odin student) (kakoj-to moj student) (kto-to iz moix studentov)(*kto-nibud' iz moix studentov) byl vyzvan k dekanu.

If such *–to* forms can get specific readings (wide-scope, anchored to utterance situation) even when they occur inside such islands, then on the specific reading, they may have to be treated

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[9] But it seems that I was wrong: they cannot! See notes from class in next footnote.

[10] Besides some corrections of errors in my Russian (which I have simply fixed in this version) the class on 4/29 made a number of very interesting comments about examples (18a-c).

   In the case of (18a), *koe-kto* would have to mean one specific professor; but *kto-to* here is non-specific only. (I.e. *kto-to* indeed cannot escape the island.)

   In the case of (18b), the class thinks that *kakaja-to* is bad altogether in that *if*-clause, although they think it may sometimes occur colloquially. They say that for the specific reading, *odna* would be used (and would be unambiguously specific), and for the non-specific reading it would be *kakaja-nibud'*. Yura Lander came up with a variant of (18b) in which *kakaja-to ženščina* is ok, and is unambiguously non-specific:
(18b') *Esli kakaja-to ženščina i pridet na večerinku, to Ivan i to ne obraduetsja.*
But although he finds *kakaja-to* possible in that case, *kakaja-nibud'* would be better.

   In the case of (18c), *nekij student* (good without *moj*, not so good with it) means a specific student. *Odin moj student* would also be specific to a specific student. But just *odin student* could be specific or not. The forms with -*to* are unambiguously non-specific, i.e. here, too, the *–to* cannot escape from an island.

   Ivan Zakharyaschev thought it could be possible to get a 'specific unknown' reading for the *–nibud'* form, which might not be impossible after all, but others thought it couldn't.

   We discovered that it is hard to test for 'specific unknown'. Discourse anaphora seems to fail, for that example, but that could be because of incompatibility with the 'unknown' part. It occurred to me after class that perhaps something like discourse anaphora should work with specific unknown if what follows is not a follow-up assertion about the referent, but a a question or an expression of curiosity about who it could be. For instance, what would happen if (18c) with *–nibud'* was followed by (Russian translation of) something like 'I couldn't guess who it was they were talking about.' (I'm looking for a follow-up that presupposes that the rumor was indeed about one particular student, while indicating that I the speaker don't know who it is.)

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via choice functions or the like, and not (or at least not exclusively) as existentially quantified variables[11]. Probably *nekij* is unambiguously a choice-function variable of some sort[12].

3.2.2. Kamp-Heim discourse reference analysis.

See Handout from Lecture 9, section 2. References: (Heim 1982, Heim 1983, Kamp 1981)

Main idea: indefinites introduce "discourse referents" ('new' free variables), which may get bound indirectly, either by a 'top-level' unselective existential quantifier, or by quantificational binders included in the semantics of a range of operators, including modals, negation, the question operator, a generic operator, and probably others. If the lexical semantics of the particular indefinite form permits it, it may also be left free and get its value from the context (speaker's 'intended referent' for a 'specific indefinite').

3.2.3. The Kratzer-Shimoyama "Hamblin semantics".

(Kratzer and Shimoyama 2002), comparing Japanese and German, argue for the general applicability to indefinite semantics of an approach to denotations employed by Hamblin in the analysis of the semantics of questions (Hamblin 1973). (And this is related to the use of 'alternative sets' in Rooth's treatment of focus (Rooth 1985, Rooth 1992, Rooth 1995).)

On Hamblin's treatment, a *wh* word introduces a *set of alternatives* of an appropriate logical type, and these alternatives propagate up through the phrases until they reach a question operator. The Hamblin treatment of *wh*-words looks promising for solving a long-standing problem for the interpretation of Japanese 'indeterminates': those same *wh*-words receive a wide range of interpretations – many if not all of Haspelmath's functions of indefinite pronouns, in fact – when there are various operators 'above' them in the structure.

(19) a.. {{**Dono hon**-o   yonda } kodomo } –**mo** yoku nemutta.
        which book-ACC read   child   -- MO well   slept
        'For every book x, the child who read x slept well.'

   b. Taro-wa {{**dare**-ga   katta} mochi)-o   tabemasita **ka**?
      Taro- TOP who-NOM bought rice cake-ACC ate   Q
      'Who is the x such that Taro ate the rice cakes that x bought?'

What is going on in these examples? It is as if a Japanese *wh*-word could be interpreted like any of the Russian indefinites *kto, kto-to, kto-nibud', kto-libo, nikto, kto-ugodno*, etc., and which interpretation it gets is determined by which operator it finds 'above' it in the structure.

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[11] But since the data show that *–to*-forms inside scope islands cannot get specific readings, this is instead support for a view like Dahl's, treating *–to*-forms however we treat "quantificational indefinites".

[12] A note from Elena Rudnitskaja about *nekij*:
   Regarding "nekij", I think the referent may be known to the speaker. The speaker uses "nekij" to introduce a new person, previously unknown to him. But the speaker doesn't know the referent very well. For instance, in the following example the speaker didn't meet Ivan before Ivan called him.

   (i) Vchera mne pozvonil nekij Ivan. Etot Ivan rabotaet v odnom izdatel'stve i predlozhil mne opublikovat' knigu rasskazov.

   (ii) *? Vchera mne pozvonil nekij sotrudnik izdatel'skogo doma "Kniga".

   In (ii), "nekij" doesn't go well with th more detailed description of the person called.

When the nearest c-commanding operator is the universal operator –**mo**, then the result is like *vse*, or perhaps like *ljuboj* (I don't have clear intuitions; it is normally translated with English *every*). When the operator is the question operator **ka**, the result is the interrogative *kto*.

Kratzer and Shimoyama accept Haspelmath's claim that various kinds of indeterminates cross-linguistically form 'families' that should be given a relatively unified treatment if possible. And in this paper they choose to look at German "selective" indeterminates 'as if' they worked like Japanese ones, analyzed using Hamblin alternative sets. The result is a new theoretical approach to the kind of typology studied by Haspelmath, and offering an interesting possible way to look comparatively at languages like Russian or Latvian (with many series of indeterminates) languages like German or English (with fewer), and languages like Japanese (with just one, and different overt operators controlling its interpretation 'at a distance'.)

Basic idea, oversimplified: An indeterminate introduces a set of alternatives. For a plain indeterminate, it's a set of alternatives chosen from some contextually salient domain. For a free-choice indefinite, the domain is 'widened'. This is something that should be specified in the lexical semantics of the indeterminate. (K&Sh use the term 'indeterminate', following Kuroda, where Haspelmath uses 'indefinite'.)

The alternatives 'propagate' up the tree, resulting in a set of alternative propositions (or constituents of other sizes in some cases).

Eventually one reaches a "suitable operator" that operates on the set of alternatives and provides quantificational, modal, interrogative, or other force, closing off the set of alternatives by operating on it in some way.

Different indefinites may have lexical specifications for the kinds of operators they are "looking for". The Japanese *wh*-words are maximally tolerant – the same forms occur with all sorts of operators. The Russian forms are much more highly specified: *nikakoj* is looking for a clausemate negative operator; *kakoj-nibud'* is looking for an irrealis operator, etc. (Details to be verified.)

There is an interesting and rather complex story about **free-choice** effects in the K&Sh paper: a mixture of semantics and Gricean implicature is said to be responsible for the appearance of something like a 'universal' reading, an implicature that disappears under certain operators in explainable ways. See the discussion on pp 11-22 of the free choice effects and the relation with modality, starting with the discussion of the German sentence ().

(20) Mary muss **irgendeinen** Arzt heiraten.
      Mary has to irgend-a-ACC doctor marry
      'Mary has to marry a doctor, any doctor is a permitted option.'

(More to be said here; we will discuss free-choice issues more next week.)

3.2.4. Mixed approaches.

A number of authors, including later Heim, have proposed that even within a given language, and sometimes even for one and the same lexical item, both the Kamp-Heim unselective binding analysis and the traditional 'quantificational indefinites' analysis may be correct. And we have already seen above that some but not all advocates of choice function indefinites believe that different analyses may be correct for different cases. Some criteria have been proposed, although I don't believe we have a complete set of diagnostics. For instance, behavior in scope islands is one important diagnostic: quantificational indefinites should be

confined within scope islands, choice function indefinites and perhaps Kamp-Heim indefinites should not be.

Kratzer continues to advocate a mixed approach; I believe that she would now suggest that indefinites may be any of three kinds: choice function (specifics, island-escapers), quantificational (scope-island-bound, no quantificational variability but yes variable scope, no 'polarity' behavior; these might include examples with numerals), and Hamblin-style (quantificationally variable, possibly polarity sensitive, requiring 'licensing' by suitable operators.)

3.3. How the analyses captures the properties.

(This section still extremely incomplete. These last sections will be expanded in next week's handout.)

3.3.1. Specific indefinites are indefinite.

3.3.2. Non-specific indefinites tend to have narrowest scope.

3.3.3. Non-specific indefinites often have to be "licensed" by some operator.

This is particularly true for unambiguously non-specific indefinites like the Russian –*nibud'* and –*libo* series.

3.3.4. Non-specific indefinites often participate in scope ambiguity.

3.3.5. Non-specific indefinites can differ in various ways.

The classical quantificational theory had relatively little to say about this beyond "wide scope" or "narrow scope" preferences; there was no clear reason why some indefinites needed to be licensed, although there was good work like Ladusaw's on identifying semantic properties of classes of licensers.

3.3.6. Specific and Non-specific may be "prototypes".

Specific and Non-specific may be "prototypes", with a number of different properties typically distinguishing them. Different particular properties within these families of properties may be more or less salient in different languages, so that the very notion of "specific" could vary somewhat from language to language.

4. The nature of "free choice" indefinites and polarity sensitive indefinites.

4.1. The ∀/∃ debate about English any: one any or two?

4.2. Scalar implicatures, quantifying superlatives, and free choice indefinites.

Here we will discuss the ideas of Fauconnier 1975 (and later), their connection to our study of negative polarity and downward monotonic functions as formalized by Ladusaw, and the very good discussion in Chapter 5 of Haspelmath's book.

4.3. Theoretical approaches to free choice indefinites.

The Kratzer and Shimoyama approach to free choice via pragmatic implicatures that can arise in a variety of ways. Their approach offers some hope of unifying a number of competing approaches that can be found in the literature. Free choice and "alternatives" (see also

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Paducheva 1989). Free choice and "domain widening" (Kadmon and Landman). Free choice and modality (Dayal.)

5. The neighbors at the extremes of the semantic map

In order to put Haspelmath's semantic map in a wider context, it would be good to see what the "neighbors" are at various points.

5.1. Specific indefinites vs. definites

'Semi-definites' like a certain use of *this guy*: definite or indefinite? Criteria? Intermediate points on that scale as well. Try to integrate Pаdučeva's work on referential status.

5.2. Free-choice indefinites vs. universal quantifiers

This is one of the neighborhoods that Tatevosov expands.

5.3. Negative indefinites vs. negative quantifiers

And more generally, indefinites vs. quantifiers at various points on the map.

APPENDIX 1: SCOPE ISLANDS

A brief tutorial, to fill in part of the classic Fodor and Sag argument (Fodor and Sag 1982) discussed in Section 2.

Non-scope island: infinitival complement.
Test a true quantifier *every visitor* to see that it can have different scope possibilities:

(21)   Someone has offered to house every visitor.

Yes, this is ambiguous. $\exists > \forall$ (that's shorthand for "$\exists$ has wider scope than $\forall$"
                    $\forall > \exists$
(I.e., "Every visitor" can "scope out of" the infinitive.)

Scope island: *if*-clause.

(22)   If every contestant wins the prize, someone will be happy.
            (*namely that contestant's mother)
Only $\exists > \forall$, no possibility of $\forall > \exists$.

"Every contestant" cannot scope out of the *if*-clause, so the sentence cannot mean that for every contestant, if he wins the prize, then someone will be happy. If it could mean that, then we could say "namely that contestant's mother". The *if*-clause can only be talking about the unlikely situation in which everyone wins.

Other scope islands: The complement of a noun in a definite NP: *the fact that ..., the hypothesis that ...* . Relative clauses are very often scope islands, but not absolutely always. Prepositional phrases that modify nouns in a definite NP are often scope islands, but again not quite always.

Scope island: relative clause (from (Rodman 1976) (p. 168 in Partee 1976)

(23)   a.   #Guinevere has a bone that is in every corner of the house.
        b.   Guinevere has a bone in every corner of the house.

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Sentence (23a) has only the semantically anomalous reading on which one bone is simultaneously in every corner of the house. (Guinevere was Bob Rodman's Old English sheepdog.) In sentence (23b), the universal quantifier has no trouble scoping out of the prepositional phrase to give a normal interpretation (a different bone in every corner).

Indefinites are insensitive to scope islands. If an indefinite is interepreted as some kind of $\exists$, then we have to say that they can "escape" out of scope islands, because of examples like the following. But if the indefinite is interpreted as "referential", by any of the techniques discussed in last week's handout, then it doesn't have to "move", doesn't have to "scope out", to get an interpretation which is like the interpretation a wide-scope $\exists$ would have.

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

That sentence has not only a $\forall > \exists$ interpretation where *a student of mine* stays inside the scope of the scope island (*the rumor that ...*), but also a $\exists > \forall$ interepretation, where there is a single student of mine that we're talking about, and each teacher overheard the (single) rumor about that student.

If the indefinite is just $\exists$, then it has to "escape the island". But if it's "referential", it needn't "move" in order to denote a single individual.

Further comparison: a real quantifier could not escape the scope island in (24):

(25)   a. The rumor that *every teacher* had been arrested was started by *a student*.
        b. *A student* started the rumor that *every teacher* had been arrested.

Only $\exists > \forall$, no matter what word order we use. It cannot mean that for every teacher, a student started the rumor that that teacher had been arrested. There has to be just one student, starting just one rumor, and it's a rumor that said "Every teacher has been arrested." In other words, the scope of *every teacher* is trapped inside the scope island. That's different from what we saw in example (24).

Conclusion: in an example like (24), the indefinite is NOT a quantifier, and should not be analyzed in terms of $\exists$. If it were a quantifier, it wouldn't be able to escape the scope island.

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