

Lecture 10: Focus and Information Structure: Semantics and Pragmatics

1. Focus, and some key semantic and pragmatic phenomena to be explained.....	1
1.1. Background	1
1.2. Focus phenomena	2
2. Two theories of focus-sensitivity; open questions about semantics/pragmatics	5
2.1. The structured meaning approach	5
2.2. Alternative semantics	5
2.3. Alternative semantics with presupposed alternative sets and a focus interpretation operator	6
2.4. Alternatives vs. Existential Presupposition	8
3. Roberts' perspective: the role of focus in regulating discourse coherence	8
4. Kadmon's proposal for settling a debate about focus-associated presuppositions: a weak semantic presupposition plus pragmatic strengthening.....	11
5. Beaver and Clark: A new proposal for dividing semantic focus-sensitivity from pragmatic focus-sensitivity: <i>only</i> vs. <i>always</i>	12
References	12

Main Readings: (all on your CD)

- (Rooth 1996) A good survey article covering the main focus-related phenomena and the main semantic and pragmatic accounts of “association with focus”; read Sections 1-4 (pp. 1-17 in your copy)
- (Roberts 1996) Good perspective on focus and information structure and their role in regulating discourse coherence; also the interpretation of focus prosody in English. Read Section 1 (the overall theoretical view) and Section 2.1 (The presuppositions of prosodic focus in English); pp 1-27.
- (Kadmon 2001) (her book has many chapters on focus – read the last one, Chapter 21, pp 402-413. Very interesting proposal on p. 405, building on Roberts' work, about the interaction between conventional and conversational implicature in determining the presuppositions associated with focus.

Additional readings: (all on your CD)

- (Rooth 1992) – Rooth's classic theory of “alternative semantics” for focus, and a pragmatic account of association with focus.
- (Partee 1991) – interactions of focus and quantification
- (Krifka 1993) – focus and presupposition in dynamic semantics; good discussion of anaphora and presupposition in relation to focus. Some parts quite technical.
- (Beaver and Clark 2003) – an interesting argument in favor of semantic association with focus for only and pragmatic association with focus for always.

1. Focus, and some key semantic and pragmatic phenomena to be explained

1.1. Background

Information structure – the structure represented by such concepts as topic and comment, theme and rheme, focus and background, etc. – has long been recognized as important, but it did not receive very much attention in English-language-centered linguistics until relatively recently. There was classic work in the Prague school going back at least to Mathesius; another classic work is (Paul 1880). There is a well-established tradition of work on information structure (*aktuanl'noe chlenenie rechi*) in Russian linguistics, including works by Apresjan, Paduceva (Paduceva 1979), Yanko, and others, and in generative grammar about Russian,(Dahl 1969). In the English-speaking world, Halliday (1967) was among the first to pay special attention to information structure and its role in pragmatics.

Within generative grammar, one of the earliest works that included serious attention to focus and presupposition was (Jackendoff 1972); Chomsky also paid attention to focus and its syntactic representation in (Chomsky 1971). Typological interest arose with the idea of “subject-oriented languages” vs. “topic-oriented languages” (Li 1976, Li and Thompson 1976). Within formal semantics, the classic works include (Rooth 1985, 1992, von Stechow 1982, 1985/1989). Other

important contributors and contributions to the field include Vallduví, Jacobs, (Lambrecht 1994), (Erteschik-Shir 1997, Gundel 1988a, Gundel 1988b, Prince 1981) and within formal semantics also Büring, Kadmon, Roberts, Krifka, and Beaver. See also (Partee 1991) Katalin É. Kiss brought topic-focus structure in Hungarian to the attention of generative grammarians with her influential works (É. Kiss 1981, 1995). For a comparison and attempted synthesis between a formal semantic approach and the Prague School approach, see (Hajičová et al. 1998), and see also (Peregrin 1994).

Today we will focus on focus, principally because of all the notions connected with information structure, that one has been the most systematically and successfully studied within formal semantics and formal pragmatics. There is also an increasing amount of formal work on the equally important notion of “topic” (see especially (Büring 1997, 1999, Reinhart 1982, 1995).

1.2. Focus phenomena

Focus is centrally connected with a number of important phenomena in semantics and pragmatics – enough so that it is hard to get very far on many topics without having a helpful theory of how focus works. And a good understanding of focus phenomena can often lead to new insights in difficult problem areas. Here we list several well-known domains, drawing heavily on Rooth (1996); more are discussed in the suggested readings.

1.2.1 Question-answer congruence

Consider the following two questions and the following two answers (Rooth 1995), and which answer can felicitously answer which question.

- (1) Q1: Does Ede want tea or coffee? (pronounced as an alternative question, not yes-no)
Q2: Who wants coffee?
- (2) A1: Ede wants [coffee]_F. (“pronunciation” representation: Ede wants COFFEE.)
A2: [Ede]_F wants coffee. (EDE wants coffee.)

Answers A1 and A2 are identical except for focus. But they are not interchangeable in discourse. A1 can be felicitously used to answer Q1, and A2 for Q2, but not vice versa. As Rooth (1996) puts it, “The position of focus in an answer correlates with the questioned position in *wh*-questions and the position of disjoined alternatives in alternative questions.

One issue that arises right away: Do we consider A1 and A2 the same sentence? It’s probably better not to. Most generative linguists consider it best to mark focus in syntax, and then have phonological rules to interpret it phonologically, and semantico-pragmatic rules to interpret it semantically/pragmatically. That also goes better with the fact that focus may be expressed in various languages by putting focused elements in a syntactically marked position or by making other morpho-syntactic changes; here we will mostly use examples in English in which focus is marked by intonation. (Kadmon’s chapters have very rich discussion of intonational focus-marking.)

Another issue: the two notations in A1 and A2 are not really equivalent, because intonational prominence on COFFEE is compatible both with focus on just ‘coffee’ and focus on ‘wants coffee’. Kadmon summarizes the work on focus projection done by Selkirk and others. But we will mostly deal with simple examples where the COFFEE notation would be OK.

1.2.2 Focusing adverbs: *only*, *even*, *also*

Horn (1969) wrote a classic early paper on the division between presupposition and assertion in *only* and *even*-sentences. He argued that a sentence like (3) below presupposes that John

introduced Bill to Sue (compare the negation *John didn't introduce only Bill to Sue*) and asserts that John introduced no one other than Bill to Sue. He also analyzed sentences with *even*, and others have done similar work on *also*.

(3) John introduced only Bill to Sue.

In sentence (3), *only* is adjoined to *Bill*, so it is easy to determine compositionally that the assertion concerns “no one other than Bill”. But it is also possible in English to put *only*, *even*, or *also* in pre-verbal position and indicate the targeted constituent via focus, as in (4a-b). (Since focus is usually indicated by intonation and is not usually represented orthographically, written sentences with pre-verbal *only*, *even*, *also* are often ambiguous.)

(4) a. John only introduced [Bill]_F to Sue.
b. John only introduced Bill to [Sue]_F.

Sentences (4a-b), which were studied in (Rooth 1985) have different truth conditions; it's easy to construct a scenario in which one is true and the other is false. When the adverb is *even* or *too*, it's the presuppositions that differ depending on what's focused: in (5a), it's presupposed that John introduced someone other than Bill to Sue.

(5) a. John also introduced [Bill]_F to Sue.
b. John also introduced Bill to [Sue]_F.

So in these examples, focus plays a crucial role in determining truth-conditions and/or presuppositions: it appears to be directly involved in compositional semantics. The question-answer felicity conditions in 1.2.1, on the other hand, looked more like a matter of pragmatics.

1.2.3 Adverbs of quantification and modals

Let me quote directly from Rooth (1996, p.272):

“A bank clerk escorting a ballerina (in the Saint Petersburg of the relevant period) runs counter to the first generalization below, but not the second.

(6) a. In Saint Petersburg, [officers]_F always escorted ballerinas.
b. In Saint Petersburg, officers always escorted [ballerinas]_F.

A similar contrast can be seen with modals.

(7) a. [Officers]_F must escort ballerinas.
b. Officers must escort [ballerinas]_F.

And Halliday (1967) had noted much earlier the focus-dependent difference between two different regulations that might be posted in the London underground. There is no visible linguistic difference between them; reader of such signs are expected to use world knowledge to disambiguate them.

(8) a. Shoes must be worn.
b. Dogs must be carried.

1.2.4 Reasons and counterfactual conditionals

The role of focus in interpreting sentences about reasons, and counterfactual conditionals, was first noted by (Dretske 1972). The scenarios that make one sentence true and another false are somewhat complex, but the intuition that focus affects truth conditions in (9a-b), and either truth-conditions or perhaps something weaker like “misleadingness” in (10a-b) is pretty clear.

(9) a. The reason Clyde [married]_F Bertha was to qualify for the inheritance.
b. The reason Clyde married [Bertha]_F was to qualify for the inheritance.

- (10) a. If Clyde hadn't [married]_F Bertha, he wouldn't have qualified for the inheritance.
b. If Clyde hadn't married [Bertha]_F, he wouldn't have qualified for the inheritance.

1.2.5 Conversational implicature

You have just gotten the results of an exam that you and two friends A and B took. Another friend asks how it went. You reply:

- (11) a. Well, I [passed]_F.
b. Well, [I]_F passed.

The first reply carries a (cancellable) conversational implicature (a scalar implicature) that you didn't do any better than just passing. The second reply carries a (cancellable) conversational implicature that your friends A and B didn't pass (assuming you know all the results).

Rooth (1996) discusses the claim that has sometimes been made in the literature that **negation** is focus-sensitive in a way similar to *only*, *even*, *also*. Jackendoff (1972) treated negation as a focus-sensitive operator. Speaking in an informal way, the suggestion is that if I say (), I am not denying the whole proposition, but only the *car* part.

- (12) a. I didn't take your [car]_F.

But given the standard semantics for negation, it doesn't make sense to say that only a noun is negated – it must be a proposition that gets negated. But one can make sense of the intuitive claim by making the semantics for *not* similar to the semantics for *also*.

When combined with the clause “I took your [car]_F”, *not* yields the assertion that the proposition expressed by “I took your car” is false, and the further assertion or presupposition that something of the form “I took your X” is true.

But Rooth argues that this further part is neither an entailment nor a presupposition, but only a conversational implicature. He argues that one shouldn't have to say anything special about *not* in the way that we must say something special about *only*, *even*, *also*. He suggests that the given implicature can be derived from a combination of (a) the ordinary semantics of negation; (b) a good theory of focus; and (c) a theory of conversational implicatures. Similar conversational implicatures arise not only with negation, but with a large variety of propositional operators, and one would not want to have to posit widespread special focus-sensitive lexical meanings.

1.2.6 Other focus-related phenomena

Kadmon lists and discusses quite a number of additional focus-related phenomena, including superlatives, generic sentences, ellipsis and VP anaphora, and sentence-internal contrasting pairs.

One point worth mentioning to try to avoid confusion: not everything with “intonational prominence” is focus. Büring and others have analyzed sentences that contain both a **contrastive topic** and a focus. An example is the following:

- (13) Q: Where do your sons live?
A: Well, [my oldest son]_{CT} lives in [Massachusetts]_F, [my middle son]_{CT} lives in [Alaska]_F, and [my youngest son]_{CT} lives in [Salt Lake City, Utah]_F.

The *topic* of the answer is ‘my sons’, and the subject of each clause is a *contrastive topic*, because I need to give different answers for different sons. If they all lived in Massachusetts, my answer could begin with ‘My sons live ...’ or ‘They live ...’, using a simple topic phrase with no intonational prominence.

2. Two theories of focus-sensitivity; open questions about semantics/pragmatics

A good theory of focus-sensitivity needs to help explain why we get semantic effects in some cases (as with *only*) and just pragmatic effects in other cases. Rooth (1985), introducing “alternative semantics”, gave a good account of the semantic effects with focusing adverbs like *only* and focus-sensitive adverbs and modals like *always* and *must*, but did not try to account for pragmatic effects of focus in discourse. A competing semantic account involves *structured propositions*. We’ll describe both approaches briefly. Rooth (1992) amended his theory to give a more comprehensive semantic-pragmatic account; we’ll describe that briefly too. You can read more about them in Rooth (1996), in Roberts (1996), and in Kadmon’s book.

2.1. The structured meaning approach

A structured meaning approach was first proposed within generative semantics by Jackendoff (1972), with similarities to the older notion that intonation can divide a sentence into a psychological subject and a psychological predicate (Paul 1880) or a theme and a rheme (Prague school, e.g. (Daneš 1957)). It was developed in more detail in a number of semantically oriented studies, starting with Jacobs (1983) and Von Stechow (1985/9).

Citing Rooth (1996): In the structured meaning approach, focus has the effect of structuring the propositions denoted by sentences: the focus-influenced semantic value of a clause with a single focus is a pair consisting of (i) a property, obtained by lambda-abstraction on the focused position, and (ii) the semantics of the focused phrase. The semantic values of (14a) and (14b) are (15a) and (15b) respectively.

- (14) a. John introduced [Bill]_F to Sue.
b. John introduced Bill to [Sue]_F.
- (15) a. $\langle \lambda x [\text{introduce}(j, x, s)], b \rangle$
b. $\langle \lambda y [\text{introduce}(j, b, y)], s \rangle$

Horn’s semantics for *only*, assuming for simplicity that pre-verbal *only* combines with a structured meaning contributed by the rest of the sentence, can be captured by the following rule (Rooth 1996, p.276, simplified for the case of just one focus per sentence):

- (16) *only* combining with the structured meaning $\langle P, \alpha \rangle$ yields the assertion $\forall x(P(x) \rightarrow x = \alpha)$ together with the presupposition $P(\alpha)$.

The rule can easily be generalized to the case of several focused phrases with a single focusing adverb; Krifka and others have extended the approach to deal with the interactions of multiple focusing constructions within a single sentence.

2.2. Alternative semantics

The basic idea of alternative semantics (Rooth 1985) is that the general function of focus is to evoke alternatives. Each expression will now have two different semantic values: its ordinary semantic value, and its “focus semantic value”, where the focus semantic value will consist of a set of alternatives.

The focus semantic value of (14a) above (built up compositionally; I’m not giving the details of how) will be the set of propositions of the form “John introduced x to Sue”; the focus semantic value of (14b) will be the set of propositions of the form “John introduced Bill to y ”.

We represent the ordinary semantic value of α by $[[\alpha]]^o$ and the focus semantic value of α by $[[\alpha]]^f$.

The semantic rule for *only* can be stated in alternative semantics as follows:

- (17) *only* combining with a clause φ yields the assertion $\forall p[(p \in [[\varphi]]^f \ \& \ \text{True}(p)) \rightarrow p = [[\varphi]]^o]$ and the presupposition φ .

That is, *only* φ presupposes that φ and asserts that φ is the only true member of φ 's alternative set.

In the case of (4a), *John only introduced [Bill]_F to Sue*, φ is (14a), *John introduced [Bill]_F to Sue*. Its ordinary semantic value, which is the presupposition of (4a), is the proposition that John introduced Bill to Sue. Its focus semantic value is the set of all (“alternative”) propositions of the form “John introduced x to Sue” (including the proposition that John introduced Bill to Sue). According to the rule for *only* stated above, what’s presupposed by (4a) is that John introduced Bill to Sue, and what’s asserted by (4a) is that there is no other true proposition of the form “John introduced x to Sue” other than (4a) itself, i.e. the one where x is Bill.

2.3. Alternative semantics with presupposed alternative sets and a focus interpretation operator

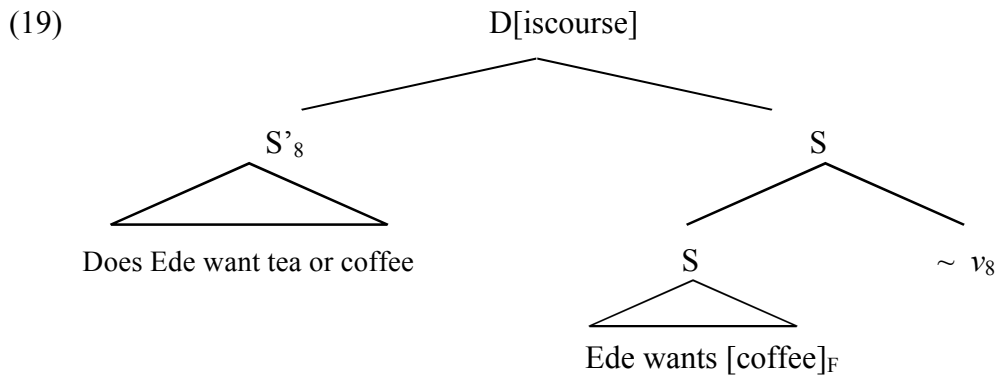
Rooth (1992) pointed out that both of those two approaches to focus semantics are missing some “explanatory” level. They handle a range of focus-sensitive constructions all right, with specific rules, but they don’t say what it is that all focus-sensitive constructions have in common, or “explain” what kinds of semantic and pragmatic functions we should expect to find focus serving in natural languages. Why couldn’t there be a language, for instance, just like English except that focus played no role at all in question-answer congruence?

Rooth (1992, 1996) uses the question-answer congruence property as a guide to what might be missing in the purely semantic theories. (And Roberts takes this line even farther; see Section 3 below.) In the case of questions and answers (which we will study next week), the relevant alternative set has its basis in the semantics of questions: questions determine sets of possible answers. “Focus seems to evoke this alternative set in a presuppositional way, indicating that it is present for independent reasons. ... The interface between focus-sensitive constructions and the focus feature is handled [in Rooth (1992)] by a single operator which introduces a presupposed alternative set.” (Rooth 1996, p.278)

- (18) Where φ is a syntactic phrase and C is a syntactically covert semantic variable, $\varphi \sim C$ introduces the presupposition that C is a subset of $[[\varphi]]^f$ containing $[[\varphi]]^o$ and at least one other element. (Rooth 1996, p. 279)

The operator “ \sim ” defined above is the focus interpretation operator. It doesn’t determine the interpretation of the variable C uniquely, but it does constrain it. It basically says that whenever you have a sentence with something focused in it, it’s presupposed that there is some relevant set of alternatives in the context – they should be there for some independent reason.

In the question-answer paradigm, for instance, this focus interpretation operator takes scope over the answer (which always contains a focused element.) Here’s the discourse tree structure from Rooth (1996, p. 279):



The variable C in principle (18), instantiated as the variable v_8 in the representation in (19), takes as its value an alternative set. In this example, the ordinary semantic value of the question, on the analysis of (Hamblin 1973), is already a set of alternatives, $\{\text{Ede wants tea, Ede wants coffee}\}$. So that set is already salient in the context, and it's natural to take the variable v_8 as anaphoric to it. The presupposition, namely that the set denoted by v_8 is a set of propositions of the form "Ede wants x " which contains "Ede wants coffee" and at least one more proposition, is satisfied.

What if one tried to answer that question with the wrongly focused answer "[Ede]_F wants coffee"? Then the presupposition wouldn't be satisfied, because the presupposition would be that the set of alternatives given in the context consists of propositions all of the form "y wants coffee" – and the proposition "Ede wants tea" isn't of that form.

What's different and nicer about this analysis is that we haven't had to write any separate rule or constraint about question-answer congruence. We don't have to explicitly say that the focused item in the answer should correspond to the *wh*-word (or the alternatives, in the case of an alternative question like the one above) in the question. "Rather, focus interpretation introduces a variable which, like other free variables, needs to find an antecedent or be given a pragmatically constructed value. Identifying the variable with the semantic value of the question is simply a matter of anaphora resolution." (p. 279)

For focusing adverbs, we restate their lexical semantics in a way that does not refer directly to focus semantic values. We keep the idea that *only* quantifies over propositions, but now we can assume that the domain of quantification is an implicit free variable, whose reference should be fixed by context. (Compare the implicit domain restriction in *Everyone is asleep*.) Rooth writes this variable over sets of propositions as C , and uses the notation $only(C)$ to indicate that *only* takes C as its domain argument, as in a Heimian tripartite structure. So sentence (4a) would be represented as follows:

$$(20) \quad [{}_S \text{ only}(C) [{}_S [{}_S \text{ John introduced [Bill]}_F \text{ to Sue }] \sim C]]$$

The lexical semantics for *only* is then as follows. Rooth here has combined assertion and presupposition in order to sidestep some technical issues.

$$(21) \quad \textit{only}: \lambda C \lambda p \forall q [(q \in C \ \& \ \text{True}(q)) \leftrightarrow q = p]$$

So what happens when we use both (21) and (18) in interpreting (20)? C is a free variable in (20); its value is supposed to be fixed pragmatically, subject to the constraint that it should pick out some subset of the focus value of the given sentence, i.e. some set of propositions of the form "John introduced y to Sue" which includes "John introduced Bill to Sue" and at least one more proposition. On the pure semantic approach, we quantified over *all* propositions of that form. But the newer approach makes more room for pragmatics, and indeed sometimes the context may provide a smaller and more specific domain of propositions of that form, as in

Rooth's example (22) (p.280).

(22) John brought Tom, Bill, and Harry to the party but he only introduced [Bill]_F to Sue.
Rooth (1996) shows how the structured meanings approach could also be modified in a similar way.

Note: as in all cases of presupposition, accommodation may play a large role. The role of focus in question-answer pairs is one of the few cases where we almost never need accommodation, since the question itself denotes a set of alternatives. But in other cases, there may not be a salient set of alternatives *already* in the context; it may be the focus itself that causes the hearer to search for a suitable set of alternatives to accommodate into the context.

And see Section 5 below: Beaver has found evidence that with some operators, this pragmatic approach is right, but with some it may really be purely semantic, as in Rooth's earlier theory.

2.4. Alternatives vs. Existential Presupposition

(See Rooth 1996, section 5, pp 291-3.) In early work on focus such as Jackendoff's, it was common to speak of "focus and presupposition", and to assume that for a sentence like (14a) *John introduced [Bill]_F to Sue*, there was always an existential presupposition such as " $\exists x$ (John introduced x to Sue)". (Try out the S-family test: such a presupposition seems to be there.) But even Jackendoff noticed that this "presupposition" could quite easily be cancelled. Discourses like the following are normal:

(23) Well, I don't know whether John introduced anyone to Sue or not, but he definitely didn't introduce [Bill]_F to Sue.

The first part of the sentence is incompatible with a presupposition that John introduced someone to Sue, but the sentence is perfectly felicitous; so there can't really be such a presupposition connected with the focus in the second half.

A weaker alternative, which Jackendoff himself acknowledges may sometimes be the right way to think of it, is that what is presupposed is that the question of who (if anyone) is an x such that John introduced x to Sue should be "under consideration" or "in the air". Since there was no standard theory under which presuppositions might be questions, this couldn't so easily be called a presupposition.

Rooth's theory captures that 'weaker presupposition' nicely: what is presupposed is that there is a suitable "set of alternatives" in the context. And that "set of alternatives" is indeed the same thing as the meaning of a *wh*-question, so indeed it is presupposed that there is a certain *question* in the context. (But as we will see next week, the semantics of the question is just the set of alternatives; the pragmatics of *asking* adds something more to that semantics. So it isn't presupposed in the theory of focus that anyone is *asking* a question.) This connection between focus and the existence of a question in the context is even more central for Roberts.

3. Roberts' perspective: the role of focus in regulating discourse coherence

Roberts (1996) gives focus a central role in regulating "discourse coherence". She builds on Stalnaker's pioneering insights (Stalnaker 1978), which were at the foundation of dynamic semantics: the context of discourse at any moment includes the "common ground": the set of propositions assumed by the speaker to be shared knowledge among the participants in the conversation. Part of the main purpose of ('standard') conversation is to try to narrow down the common ground – trying to add new propositions to the common ground, and thereby reduce the set of possible worlds that are "live candidates" for being the actual world.

Roberts builds even more directly on the extension of Stalnaker's work by (Carlson 1983). "One of Carlson's (1983) central insights is that dialogues are functionally organized by

question/answer relations, though the questions are often only implicit, inferred on the basis of other cues.” (Roberts 1996, p.6) Note that “inferring a question on the basis of other cues” is the same kind of process as accommodating a presupposition. If focus presupposes that a certain question is in the context, and there is no reason to challenge that, the hearer may accommodate the question using focus itself as the main cue, just as the hearer accommodates the information that I have a son the moment I use the expression “my son”. Roberts’s idea, building on Carlson’s, is that dialogue proceeds by a series of questions and answers, according to identifiable strategies. As she notes, sometimes some of the answers are also only implicit, and are also added to the common ground by accommodation.

“Hence, the notion of a move in a discourse game is essentially semantic. A question is not necessarily realized by a speech act, but is only a question-denotation in the technical sense that it proffers a set of relevant alternatives which the interlocutors commit themselves to addressing: It tells you what the discourse is “about” at that point in the discourse, and further, if we look at the strategy of questions in which it participates, it tells us where the discourse is going.” (p.6)

Roberts discusses the semantics of questions (Section 1.1), to which we will return next week (Section 1 of her paper is also excellent background reading for next week!); for now it is enough to understand the semantic interpretation of a question as a set of alternatives. For a yes-no question, the alternatives are the proposition and its negation. For *wh*-questions, the alternatives are all the different propositions you get with different individuals in place of the *wh*-word.

Informally:

(24) [[Did John leave?]] = {John left, John didn’t leave}

(25) [[Who solved the problem?]] = {John solved the problem, Mary solved the problem, ...}

(26) Does Ede want coffee or tea? = {Ede wants coffee, Ede wants tea}

And as we will see next week, a question can *entail* another question if a complete answer to the first necessarily provides an answer to the second. E.g. “Who solved the problem?” entails “Did John solve the problem?”.

In Section 1.2, she discusses discourse strategies involving a “stack” of “Questions Under Discussion” (QUD) and answers to them: She keeps track of requirements that questions and assertions place on the common ground, and how the common ground is updated – not only by answers to questions, but by the accommodation of presuppositions, by presuppositions about what questions are under discussion, and by other additions that come from the context.

One important strategy is to attack a question by considering its “subquestions”. This is illustrated in one (excessively explicit!) discourse D_0 , considered in a model containing just two individuals, Hilary and Robin, and two kinds of food, bagels and tofu.

(D₀) 1. Who ate what? Roberts 1996, p. 12

- a. What did Hilary eat?
 - ai. Did Hilary eat bagels?
Ans(ai) Yes.
 - iii. Did Hilary eat tofu?
Ans(aii) Yes.
- b. What did Robin eat?.
 - bi. Did Robin eat bagels?
Ans(bi) No.
 - bii. Did Robin eat tofu?
Ans(bii) Yes.

Question 1 entails questions a, ai, aii, b, bi, bii. Question a entails ai, aii; Question b entails bi, bii. The discourse strategy she outlines, which I will not repeat in detail, involves identifying what subquestions need to be answered in order to answer the primary question under discussion. It also involves notions of whether successive conversational moves are “accepted” or “rejected” by the participants, and updating the common ground as one goes along.

She notes that of course things do not always proceed in such simple directions. Consider the following sequence:

(27) $CG(A) \supseteq \{\text{one won't eat anything one is allergic to, one will eat something unless one has some reason not to}\}$

A: What kinds of seafood will John eat?

B: Isn't John allergic to clams? (Roberts 1996, p. 14)

A “yes” answer to B’s question will entail, given the common ground, a partial answer to A’s question; but a “no” answer to B’s question won’t, since not being allergic to clams doesn’t entail that John *will* eat clams – e.g., he might keep kosher. What makes B’s conversational move appropriate is that it suggests the question “What reason might John have to not eat clams?”, which itself can help lead to a partial answer to A’s question, given the assumption that one will eat anything unless one has a reason not to.

Central to Roberts’ picture of the strategy of coherent discourse is that all of the assertions in a discourse should provide partial answers to questions currently under discussion, “and that in fact each is a (partial) answer to the question under discussion at the time of utterance.” (p.15) She uses these ideas to formalize Grice’s notion of Relevance.

(28) A move m is **Relevant** to the question under discussion q , i.e. to $last(QUD(m))$, iff m either introduces a partial answer to q (m is an assertion) or is part of a strategy to answer q (m is a question). (p.16)

In section 1.3, she discusses the pragmatics of answerhood (read that too for next week!) and how it relates to Stalnaker’s original ideas about updating the Common Ground. Then in Section 2, she connects these general ideas, proposed as universal, with the (non-universal) analysis of the presuppositions of prosodic focus in English.

“Skillful interlocutors in discourse expend a good deal of effort making sure that at any given point all the participants are clear about what the common ground is like, including what they are talking about (the question under discussion), and how what they're talking about relates to the rest of the information in the common ground (the strategy of inquiry they're following and its general relationship to the information structure of the discourse).” (Roberts 1996, p.20)

She argues that “intonational focus in English is presuppositional, giving information about the type of information structure in which the utterance associated with it occurs and its role in that structure.” (p.20)

This agrees with Rooth’s account, and helps to ground it in a broader theory of discourse coherence and discourse strategies. Although she concentrates, like Rooth, primarily on the presuppositions connected with the choice of focused constituent, she notes that that is not the only pragmatically relevant aspect of focusing.

“All of the following prosodic factors are probably pragmatically (and hence potentially, semantically) significant:

(29) Pragmatically Significant Prosodic Factors:

- (a) the choice of intonation phrase constituent(s) (which I tentatively assume are always correlated with syntactic constituents); and

- (b) within the intonation phrase,
 - (i) the choice of focused constituent,
 - (ii) the placement of pitch accent(s),
 - (iii) the choice of pitch accent(s), and of phrase accent and boundary tone.
- (c) the relative prominence of different intonation phrases, both within an utterance and across utterances.” (Roberts, p.22)

A conversational move β is defined as **congruent** to a question $? \alpha$ if the set of focal alternatives to β is identical to the set of Q-alternatives that constitutes the semantics of $? \alpha$. (p.24). With this definition in hand, she gives a preliminary statement of the presupposition of prosodic focus in English (p.24):

(30) **Presupposition of prosodic focus in an assertion β :**

β is a congruent answer to the question under discussion at the time of its utterance.

She extends this further to account also for focus in questions, and considers many interesting particular issues, but this is enough to illustrate her general strategy of grounding the account of focus in its role in regulating discourse coherence.

4. Kadmon’s proposal for settling a debate about focus-associated presuppositions: a weak semantic presupposition plus pragmatic strengthening

Kadmon’s book (Kadmon 2001) contains a great deal about presuppositions (Chapters 5-11) and about focus (Chapters 12-21). Let’s look at just the very last chapter, where she discusses the need to more fully integrate the study of focus with the study of presuppositions. There she gives a good way to settle the debate described above in section 2.4: does focus bring along an existential presupposition, or just the weaker presupposition that there is a set of alternatives in the context?

Kadmon reviews the fact that while (31a) is normally taken to presuppose (31b), there are clear counterexamples, such as (31c) from Jackendoff (1972) and (31d) from Rooth (1996); Jackendoff concluded that the presupposition was something like (31e).

- (31) a. [Mary]_F likes Bill.
- b. Someone likes Bill.
- c. [Nobody]_F likes Bill.
- d. I doubt that anyone won the departmental lottery this week, because it’s unlikely that [Mary]_F won it, and I know that nobody else did.
- e. The set of individuals who like Bill is under discussion.

She notes that the idea of (31a) presupposing something like (31e) is closely related to the discourse-coherence idea that (31a) is a felicitous answer to the question (32).

- (32) Who likes Bill?

Kadmon agrees with Rooth, Roberts, and others that the semantic (non-cancellable) presupposition of focus is that the corresponding question is under discussion, but seeks to go further and explain how the stronger existential presupposition may arise pragmatically. Her central idea is that the stronger existential presupposition arises when the hearer tries to figure out what must be in the context to make the question (32) relevant to the current state of the discourse.

I omit details; what’s interesting here is that the weaker presupposition follows from the semantics of focus, and the stronger one follows from that plus pragmatics: we need both semantics and pragmatics to understand the full picture.

5. Beaver and Clark: A new proposal for dividing semantic focus-sensitivity from pragmatic focus-sensitivity: *only* vs. *always*

No time left to discuss this very interesting paper – you'll have to go read it!

References

- Beaver, David I., and Clark, Brady. 2003. *Always and Only*: Why not all focus sensitive operators are alike. *Natural Language Semantics* 11:323-362.
<http://semanticsarchive.net/Archive/zQ5YmVIZ/aao.pdf>.
- Büring, Daniel. 1997. *The Meaning of Topic and Focus - The 59th Street Bridge Accent*. London: Routledge.
- Büring, Daniel. 1999. Topic. In *Focus. Linguistic, cognitive and computational perspectives*, eds. Peter Bosch and Rob van der Sandt, 142-165. Cambridge: Cambridge University Press.
- Carlson, Lauri. 1983. *Dialogue Games: An Approach to Discourse Analysis*. Dordrecht: Reidel.
- Chomsky, N. 1971. Deep structure, surface structure, and semantic interpretation. In *Semantics: An interdisciplinary reader in philosophy, linguistics, and psychology*, eds. D. Steinberg and L. Jakobovits. Cambridge: Cambridge University Press.
- Dahl, Östen. 1969. *Topic and Comment: A Study in Russian and General Transformational Grammar*: Acta Universitatis Gothoburgensis, Slavica Gothoburgensia, 4. Stockholm: Almqvist and Wiksell.
- Daneš, F. 1957. *Intonace a veta ve spisovné cestině (Intonation and Sentence in Standard Czech)*. Praha.
- Dretske, F. 1972. Contrastive statements. *Philosophical Review* 81:411-437.
- É. Kiss, Katalin. 1981. Topic and focus: The operators of the Hungarian sentence. *Folia Linguistica* XV:305-330.
- É. Kiss, Katalin ed. 1995. *Discourse-configurational languages*. Oxford: Oxford University Press.
- Erteschik-Shir, Nomi. 1997. *The Dynamics of Focus Structure*: Cambridge Studies in Linguistics 84. Cambridge; New York: Cambridge University Press.
- Gundel, Jeanette. 1988a. *The Role of Topic and Comment in Linguistic Theory*. New York: Garland.
- Gundel, Jeanette K. 1988b. Universals of topic-comment structure. In *Studies in Syntactic Typology*, eds. Michael Hammond, Edith Moravcsik and Jessica Wirth. Philadelphia: John Benjamins.
- Hajičová, Eva, Partee, Barbara, and Sgall, Petr. 1998. *Topic-Focus Articulation, Tripartite Structures, and Semantic Content*. Dordrecht: Kluwer.
- Halliday, M. A. K. 1967. *Intonation and Grammar in British English*. The Hague: Mouton.
- Hamblin, C. L. 1973. Questions in Montague English. *Foundations of Language* 10:41-53. Reprinted in *Montague Grammar*, ed. Barbara H. Partee, 247-259. New York: Academic Press.
- Horn, Larry. 1969. A presuppositional approach to *only* and *even*. In *CLS 5: Papers from the Fifth Meeting of the Chicago Linguistic Society*, ed. Robert Binnick, 98-107. Chicago: Chicago Linguistic Society.
- Jackendoff, Ray. 1972. *Semantic Interpretation in Generative Grammar*. Cambridge, Mass.: MIT Press.
- Jacobs, Joachim. 1983. *Fokus und Skalen: Zur Syntax und Semantik von Gradpartikeln im Deutschen*. Tübingen: Niemeyer.
- Kadmon, Nirit. 2001. *Formal Pragmatics: Semantics, Pragmatics, Presupposition, and Focus*. Oxford: Blackwell Publishers. TOC:
https://udrive.oit.umass.edu/partee/Semantics_Readings/KadmonFormPrag_contents.pdf ; Chapter 1:
https://udrive.oit.umass.edu/partee/Semantics_Readings/Kadmon_ch1_preliminaries.pdf ; Chs 3-4:
https://udrive.oit.umass.edu/partee/Semantics_Readings/Kadmon_ch3-4.pdf.
- Krifka, Manfred. 1993. Focus and presupposition in dynamic interpretation. *Journal of Semantics* 10:269-300. <http://amor.rz.hu-berlin.de/~h2816i3x/Publications/Krifka%201993%20Dynamic%20Interpretation.PDF>.
- Lambrecht, Knud. 1994. *Information Structure and Sentence Form: Topic, Focus and the Mental Representations of Discourse Referents*. Cambridge: Cambridge University Press.
- Li, Charles ed. 1976. *Subject and Topic*. New York: Academic Press.
- Li, Charles, and Thompson, Sandra. 1976. Subject and Topic: A New Typology of Language. In *Subject and Topic*, ed. Charles Li, 457-489. New York: Academic Press.
- Padučeva, E.V. 1979. Topic and focus in Russian bi-nomative sentences. *SMIL, Journal of Linguistic Calculus* 3-4:29-48.
- Partee, Barbara H. 1991. Topic, focus and quantification. In *SALT I: Proceedings of the First Annual*

- Conference on Semantics and Linguistic Theory 1991*, eds. Steven Moore and Adam Zachary Wyner, 159-187. Ithaca, N.Y.: CLC Publications, Department of Linguistics, Cornell University.
<http://semanticsarchive.net/Archive/zM0MjNhO/>
- Paul, H. 1880. *Prinzipien der Sprachgeschichte*. 8th edition, Tübingen: Niemeyer 1970.
- Peregrin, Jaroslav. 1994. Topic-focus articulation as generalized quantification. In *Focus in Natural Language Processing. Volume 2: Semantics*, eds. P. Bosch and R. Van der Sandt, 379-388. Heidelberg: IBM Deutschland.
- Prince, Ellen F. 1981. Topicalization, focus-movement, and Yiddish-movement: a pragmatic differentiation. In *BLS 7: Proceedings of the Seventh Annual Meeting of the Berkeley Linguistics Society*, 249-264. Berkeley, CA: Berkeley Linguistics Society.
- Reinhart, Tanya. 1982. Pragmatics and linguistics: An analysis of sentence topics. *Philosophica* 27:53-94.
- Reinhart, Tanya. 1995. *Interface Strategies*. OTS, Utrecht University.
- Roberts, Craige. 1996. Information Structure: Towards an integrated theory of formal pragmatics. In *OSU Working Papers in Linguistics, Volume 49: Papers in Semantics*, eds. Jae-Hak Yoon and Andreas Kathol, 91-136: The Ohio State University Department of Linguistics.
<http://semanticsarchive.net/Archive/WYzOTRkO/InfoStructure.pdf>.
- Rooth, Mats. 1985. *Association with Focus*, University of Massachusetts: Ph.D. Dissertation.
- Rooth, Mats. 1992. A theory of focus interpretation. *Natural Language Semantics* 1:75-116.
<ftp://ftp.ims.uni-stuttgart.de/pub/papers/mats/focus-interpretation.ps.gz>
- Rooth, Mats. 1995. Focus. In *The Handbook of Contemporary Semantic Theory*, ed. Shalom Lappin, 271-298. Oxford: Blackwell. <ftp://ftp.ims.uni-stuttgart.de/pub/papers/mats/survey.ps.gz>
- Rooth, Mats. 1996. Focus. In *The Handbook of Contemporary Semantic Theory*, ed. Shalom Lappin, 271-298. Oxford: Blackwell. <ftp://ftp.ims.uni-stuttgart.de/pub/papers/mats/survey.ps.gz>
- Stalnaker, Robert. 1978. Assertion. In *Pragmatics*, ed. Peter Cole, 315-332. New York: Academic Press. Reprinted in Portner and Partee, eds., 2002, 147-161 <http://newstar.rinet.ru/~goga/biblio/essential-readings/05-Stalnaker-Assertion.djvu>
- von Stechow, Arnim. 1982. *Structured propositions*: Universität Konstanz. SFB 99.
- von Stechow, Arnim. 1985/1989. *Focusing and backgrounding operators*. Ms., *Technical Report 6, SFB Sprachwissenschaft*. University of Konstanz.