

## QUESTIONS IN DISCOURSE

### Lecture 2: Focus and Topic: Attending to Relevant Alternatives

There are many respects in which the conventional content of an utterance reflects speaker assumptions about the context of utterance and the relation between that context and the intended interpretation of the utterance. Taken together, these constitute what Vallduví (1992,1993) called the **Information Packaging** of the utterance, aka its *Information Structure*. Two central aspects of this Information Packaging which were prominent in classical pragmatics: **Topic** and **Focus**. Here I want to briefly suggest how these notions are related to the QUD, and to the intentional structure of discourse more generally. This can only be a brief sketch. See extended discussions from the QUD perspective of (a) prosodic Focus in Roberts (1996/2012; 1998; 2011) and in Kadmon (2001), and (b) Topic in Büring (2003) and in Roberts (2012).

#### I. Prosodic Focus

*Prosody* generally refers to the tune which accompanies a vocal utterance. It involves a variety of factors: pitch and pitch modulation, pitch range, rhythm, stress, phrasing, etc. Different languages use different features of the tune in conventional ways to convey a variety of aspects of meaning. In so-called *tone languages*, like Chinese, tune in the form of tonal (pitch modulation) patterns is morphological, differentiating words which are otherwise phonologically identical. Thus, in those languages tune bears on the proffered content of an uttered constituent—its truth conditional content. But in languages like English, tonal patterns are used in another, essentially pragmatic fashion, to highlight some constituents and background others. Call this function **Focus**. In such languages, tune is essentially part of the information structure of the language. Different aspects of tune can be used to this purpose in different languages. For example, Japanese is a so-called pitch accent language, where (if I understand properly) two words may be differentiated not so much by the *choice* of tonal contour, as by how that contour is aligned with different syllables of the word. So in Japanese, tonal patterns are not available for Focus. So instead, Japanese marks Focused constituents with a combination of phrasing and pitch range expansion (Pierrehumbert & Beckman 1988).

Linguistic Focus pertains to the way in which certain kinds of prosodic prominence bear on the interpretation of the utterances in which they occur. The claim that Focus is generally a prosodic phenomenon is controversial cross-linguistically, and it may be that in some languages a mechanism other than prosody is used to make some constituents more prominent than others. But in earlier work (Roberts 1998), I argued that for many languages where alternative mechanisms have been evoked—syntactic movement or morphological marking, e.g.—there are also prosodic mechanisms involved, a claim illustrated with a detailed analysis of Hungarian

Focus.<sup>1</sup> This doesn't preclude the concurrent use of other mechanism—as in Hungarian, where there is a distinguished pre-verbal position to which some Focused constituents can be moved. But even when such movement occurs, there are prosodic reflexes of Focus.

Here I want to sketch a view of Focus in English, where it clearly does involve **accentuation**, the alignment of tune with the lexico-syntactic text of the utterance. English Focus may also be reflected constructionally, as in Focus-Preposing (a species of Topicalization) or clefting. But in each spoken English utterance, Focus is reflected in the way in its tune and accentuation.

What I want to emphasize here about Focus:

1. It's the first aspect of a language to be learned by infants, arguably beginning in the womb. In the languages where it has been studied, tune is generated by a very simple context-free grammar, easy to learn and very flexible.
2. Focus is omnipresent, both (a) cross-linguistically and (b) in each spoken (and probably signed) utterance of a language like English. In fact, it seems to be a (near-) universal feature of human languages. This suggests that it must play an important role in the central task of an utterance, conveying meaning.
3. Yet according to the current consensus view, Focus plays no direct role in the determination of the truth conditional content of the utterance, i.e. it isn't **proffered** (part of what is asserted/asked/suggested). This highlights how conventional, grammatically generated content needn't be proffered content.

I'll argue that Focus is part of the connective tissue of discourse, designed to track essential features of its intentional structure.

Following the seminal work of Rooth (1985,1992), I'll assume that the Focal structure of an utterance (a) presupposes one or more salient sets of alternatives, and (b) for a given alternative set, serves to highlight the proffered member of that set. Consider a simple example:

- (1) A: What did Ralph have for breakfast?  
B: He ate a BAGEL.  
          H\* LL%

The prosody in (1B) serves to highlight the direct object, *bagel*, aligning the sole pitch accent *H\** with its lexically accented first syllable. So *bagel* is the prosodic Focus of (1B). Abstracting on that Focused constituent, we get a set of propositions of the form *Ralph ate x*, varying in the value of *x*. The focal structure presupposes some sub-set of that set is salient. But in (1), of course, that is the case: A poses a question whose answers are all of the form: *Ralph ate x for breakfast*, *x* presumably some sort of food. So the focal presupposition is satisfied.

We might say that the prosodic structure of (1B) simultaneously backgrounds that portion of the utterance which it has in common with all the potential answers to the question—there are no accents on *he (Ralph) ate*—and highlights that portion which differentiates it—the constituent answer *a bagel*.

---

<sup>1</sup> This analysis was subsequently verified in its broad features by a native speaker, Szendrői (2001), working without knowledge of my paper.

English Prosodic Focus gets much more complicated than this, and in fact it is one of the most complex linguistic phenomena I have studied. One reason is that English also displays **deaccentuation**, wherein some constituents *cannot* felicitously bear accent in a particular context of utterance.

English prosody and accentuation

An **Utterance** is an ordered pair:  $\langle\langle\text{Text}, \text{Tune}, \text{Association}\rangle, \text{Context}\rangle$ , where  
**Text** is some string of words under a hierarchical syntactic analysis,  
**Tune** is a prosodic contour with its own hierarchical structure (see below),  
**Association** maps all elements in the Tune to elements in the Text; and  
**Context** is an organization of information containing (at least):  
the interlocutors' **Common Ground** (CG), and  
an ordered set of **Questions under Discussion** (QUD), where a question is a set of propositions—the possible answers to the question, and  
logical constraints on both the relations between the questions in the QUD and their relations to the CG.

In English, **Tunes** are generated by a simple context-free grammar; see the ToBI transcription system for English prosody (Beckman & Ayers 1994):

**The Grammar of English Tunes:**

Pitch Accent (PA)	$\in$	$\{H^*, L^*, H+L^*, L^*+H, L+H^*, !H^*\}$
Intermediate Phrase(ip):		$PA^* T$ where $T \in \{H, L\}$
Intonation Phrase (IP):		$ip^* T\%$ where $T \in \{H, L\}$
Tune:		$IP^*$ <span style="float: right;">*: Kleene star</span>

Accentuation involves the mapping of tunes to texts, each characterized as a linguistic structure generated by a grammar. The independently generated Tune and Text of an utterance are aligned to create a more complex structure, the **Text+Tune**, which includes the Text, the Tune and a specification of how the constituents of the Tune are aligned with those of the Text.<sup>2</sup> This alignment must obey something like the following set of constraints:

**English Tune-to-Text Alignment**

- (a) Align ips, IPs to constituents.<sup>3</sup> See Steedman (2000).
- (b) ACCENTUATION: Freely align pitch accents (within an ip) with words (within the corresponding syntactic constituent).
- (c) PROSODIC PROMINENCE CONSTRAINT: The rightmost pitch accent in an IP (*nuclear accent*) must receive the strongest stress in that prosodic constituent. This will be perceived as the prosodic peak of prominence in the IP.

---

<sup>2</sup> This is something like Selkirk's (1984) Intonated Surface Structure. However, here I make no assumptions about a level of syntactic representation at which such alignment is captured. Note that the Text+Tune is not an utterance, but only part of its first element, the second being a context.

<sup>3</sup> See Pierrehumbert (1980), Selkirk (1984), Beckman & Ayers (1994), and Beckman (1996) for additional mapping constraints and details about how the tones associated with ips (phrase accents) and IPs (boundary tones) are realized phonetically.

**Accentuation** is the alignment of pitch accents in a Tune with words in a Text. Even with the same pair of Text and Tune, different alignments are possible, as illustrated in the structures below (12), illustrating three different alignments:

- (12) A<sub>1</sub>: She PRAISED him.  
 A<sub>2</sub>: She praised HIM.
- a) She praised him.                  She praised him.                  She praised him..  
           H\*    LL%                                  H\* LL%                                  L\* HH%

Benchmarks for a theory of Focus and accentuation, illustrated with English

In English, a broad variety of types of examples illustrate the effects of such prosodic prominence on interpretation. Here are three central kinds of phenomena:

- Association with Focus:

Perhaps the most vivid effect, because it has truth conditional consequences, is association with focus, illustrated in (1), with CAPITALS used to mark the location of the last (or *nuclear*) pitch accent in the string:

- (1) A<sub>1</sub>: John only introduced Sue to BILL.  
 A<sub>2</sub>: John only introduced SUE to Bill.

Here, A<sub>1</sub> might be true but A<sub>2</sub> false, and *vice versa*, despite the fact that they contain the same string under the same syntactic analysis. And the two strings may be associated with the same prosodic contour, e.g. (in ToBI transcription):

L+H\* L L%

The only difference is that the pitch accent *L+H\** is aligned with different words in the two answers, with *Bill* in A<sub>1</sub>, but with *Sue* in A<sub>2</sub>. We will say that such a minimal difference is a question of **accentuation**.

- Question/Answer Congruence:

Even when a truth conditional meaning cannot be determined, accent placement makes a significant difference to interpretation, though it's not easy to pin down what that is and how it arises. It is most often reflected in differences in felicity in different contexts. For example, the interpretive difference between the members of the prosodic minimal pair in (2) is reflected in the fact that they can felicitously serve as direct answers to very different kinds of questions, as illustrated by their differing felicity in (3) and (4).

- (2) A<sub>1</sub>: She ate the PASTA.  
 A<sub>2</sub>: She ATE the pasta.
- (3) What did Karen eat?  
 A<sub>1</sub>: She ate the PASTA.  
 A<sub>2</sub>: #She ATE the pasta.
- (4) What did Karen do with the pasta?

A<sub>1</sub>: #She ate the PASTA.  
 A<sub>2</sub>: She ATE the pasta.

These phenomena reflect a requirement that an answer be prosodically congruent to its question. It turns out that Q/A congruence is not entirely unrelated to association with focus. In (5), we see that (1A<sub>1</sub>) would be an odd answer to the question posed, while (A<sub>2</sub>) would be quite natural:

(5) Who did John introduce to Bill?  
 A<sub>1</sub>: #John only introduced Sue to BILL.  
 A<sub>2</sub>: John only introduced SUE to Bill.

- Deaccentuation:

Consider the contrast between (18a) and (18b), where even though the nuclear accent is the same in each case, associated with the same string, we have two alternative contours, or Tunes:

(18) *Mary wrote a book about bats.* (Selkirk 1996)  
 a) H\* LL%  
 b) H\* !H\* !H\* LL%

Selkirk's (1984,1996) focus projection algorithm predicts that (18a) should be as good as (18b) to indicate focus on the whole direct object, the VP, or even the entire clause. *bats* is an argument of the head of the DP, *book*, so it licenses F-marking on that head, which can then project to the entire DP. The DP is an argument of *wrote*, so the same F-marking rules license F-marking *wrote* and the whole VP, etc. But the kinds of contexts in which (18a) would be felicitous are far more restricted than those admitting (18b). E.g., (18b) would be felicitous in either of the following contexts, while (18a) would not:

(18') a) A: What happened last year?  
 B: Everyone was very busy. Steve finished two paintings, Gregory opened a restaurant, and (18b)./\*(18a).  
 b) A: What did Mary do last year?  
 B: (18b)<sup>4</sup>/\*(18a)

An adequate theory of accentuation would address such differences, as well as the location of nuclear accents. See Schwarzschild (1999) for a theory of deaccentuation; Féry & Samek-Lodovici for detailed consideration of how to combine Schwarzschild's insights with Rooth's theory; and Roberts (2011) for a slightly different take, with critical comments on all.

### Question/Answer Congruence: Alternative Pragmatics

Rooth (1985, 1992) develops an account of the interpretive effects of prosodic focus, and especially of how Association with Focus takes place. Here I will present a slightly different version (Roberts 2011), but much in the same spirit:

(28) a **Focus** of an utterance *u*: the linkage via Association<sub>*u*</sub> of a sub-constituent of Text<sub>*u*</sub>, the **Focused constituent**, with the prosodic peak of prominence within the associated ip in

---

<sup>4</sup> While it is perhaps most natural to directly reply to A's question in (19b) with an unaccented pronoun as subject of (18b) instead of accented *Mary*, I believe the latter is possible, as well.

Tune<sub>u</sub>. This involves associating a lexical element within the Focused Constituent with the associated ip's nuclear accent.

Focus here is not a syntactic feature (though we mark it with the feature *F* for convenience), but an aspect of the association of Text with Tune. The Focused constituent corresponds roughly with Rooth's maximal F-marked constituent, and is often itself called *the Focus*, following the more usual convention.<sup>5</sup> This is very reminiscent of theories like Selkirk's, but unlike Selkirk/Rooth/Schwarzschild, and as in the theory of Féry & Samek-Lodovici (2006), Focus here need not involve associating the nuclear accent with the head of the Focused constituent or with one of its arguments. Certainly, those will be the default locations in out-of-the-blue utterance, i.e. in the absence of deaccentuation. But deaccentuation of the head and any of its arguments, as a function of context, not infrequently leads to the prosodic prominence being located on a modifier or adjunct, as we've seen above.

I define another useful notion in (34):<sup>6</sup>

- (30) The **Focal alternative set** for a constituent  $\kappa$  with Focus *F*, **FAlt( $\kappa$ )**, is that set derived by systematically varying the value of *F* in  $\kappa$ , i.e. lambda abstracting on *F* and then giving the resulting function as arguments, one by one, all entities of the same type as *F*.

When properly implemented, this gives us an alternative set for each constituent; a singleton set for constituents which do not contain a Focused constituent, a non-singleton set for those which do, much as in a Hamblin Semantics.

(31) gives us the conventional content of Focus; it is a version of Rooth's Focus Interpretation Principle:

- (31) **The Focal Presupposition:** Focus is anaphoric, presupposing an antecedent. Given a constituent  $\kappa$  with Focused sub-constituent *F*, we impose the following constraints on the presupposed antecedent *A* (following Rooth 1992):
- a) *A* is a non-singleton subset of the Focal alternative set of  $\kappa$ , FAlt( $\kappa$ ); and
  - b) the denotation of  $\kappa$  is an element of *A*.

N.B.: Since the presupposition is anaphoric, and Retrievability is a general condition on anaphora resolution, this entails that the salient alternative set must be contextually Retrievable. I.e., Retrievability follows without stipulation. And Retrievability, in turn, guarantees that this will be the unique maximally salient set of the type of the containing constituent  $\kappa$ .

---

<sup>5</sup> To some extent the definition of *Focus* given here is misleading. We can read a text without any associated prosody, hence without any prosodically marked Foci in this sense, and still generally figure out the intended Foci. But then we still are inferring which constituent is to vary in the calculation of an alternative set, so still grasping the Focus intended by the writer.

<sup>6</sup> See Rooth (1992) for a proper recursive definition of the focal alternative set corresponding to a constituent. For simplicity here, I'm ignoring Rooth's  $\sim$ , which marks the scope of Focus ( $\kappa$  in this definition), and the way that compositionality plays into determination of the FAlt for a given constituent. (30) should also be generalized to permit multiple foci.

In this framework, consider how we can guarantee question/answer congruence:

- (3) [She ate [pasta]<sub>F</sub>]  
 FAlt([She ate [pasta]<sub>F</sub>]) = {p | there is a foodstuff x and p = 'Karen ate x' }

As we saw above, (3) cannot answer just any question:

- (3) What did Karen eat?  
 A<sub>1</sub>: She ate the PASTA.  
 A<sub>2</sub>: #She ATE the pasta.
- (4) What did Karen do with the pasta?  
 A<sub>1</sub>: #She ate the PASTA.  
 A<sub>2</sub>: She ATE the pasta.

In Roberts (1996/2012) I captured this requirement with a constraint on focal interpretation. Take the Q-alternatives corresponding to an interrogative sentence to be the question posed (the set of all possible answers to the question). Then:

- (5) Move  $\beta$  is **congruent** to a question  $?a$  iff its focal alternatives FAlt( $\beta$ ) are the Q-alternatives determined by  $?a$ , i.e. iff FAlt( $\beta$ ) = Q-alt( $a$ ).
- (6) **Presupposition of prosodic focus in an utterance  $\beta$ :**  
 $\beta$  with is congruent to the question under discussion at the time of utterance.

Out of the blue, we predict that (3A<sub>1</sub>) is felicitous, (3A<sub>2</sub>) infelicitous after the question in (3):

- (3) What did Karen eat?  
 A<sub>1</sub>: FAlt(She ate the PASTA<sub>F</sub>) = QAlt(*What did Karen eat?*), which is Retrievable  
 A<sub>2</sub>: FAlt(She ATE<sub>F</sub> the pasta) = QAlt(*What did Karen do with the pasta?*), not Retrievable

Consider a difference between the theory just roughly sketched and Rooth's (1992). He includes a Closure condition on focus interpretation. Basically, when the focal alternatives of a constituent are used for, say, association of a higher functor with the Focus of its complement (as illustrated in (1) above, the first benchmark), the focal alternative set of the resulting constituent (after application of the functor to that complement) is just a singleton set; thus the alternatives triggered by the Focus in the complement are no longer visible.<sup>7</sup> So in *John only introduced BILL to Sue*, after the set of properties of the form *introduce x to Sue* restricts the domain of *only*, the focal alternative set of the modified VP is the singleton {*only introduced Bill to Sue*}. This incorrectly predicts that there are no further pragmatic effects of the focus. As von Stechow (1994) puts it, "In analogy with the difference between bound and free variables, it is claimed that bound focus [i.e., focus bound by ~] is not dependent on the context. This prediction is wrong." He points out that examples like (35) can't be uttered out of the blue:

<sup>7</sup> Here is Rooth's Closure Condition on focus interpretation:  $\|\phi \sim v\|^f = \{\|\phi\|^0\}$ , with  $v$  a variable anaphoric to a salient set of alternatives, the presupposed antecedent of the Focus,  $\|c\|^f$  the focus semantics of  $c$ ,  $\|c\|^0$  its ordinary semantics.  $\sim$  is an operator marking the constituent at which the focus is "bound", as for Association with Focus; see his paper for details.

(35) John only saw [MARC]<sub>F</sub>

Instead, it requires a context in which it is already under discussion who John saw. I.e., "the topic of discussion is the set of people John saw, or the set of propositions of the form 'John saw x'." von Stechow strengthens this observation with the following:

(36) A: Who did John see at the conference?

B<sub>1</sub>: He saw [MARC]<sub>F</sub> at the conference and in fact, he didn't see anyone else there.

B<sub>2</sub>: He saw [MARC]<sub>F</sub> at the conference and that was the first and only time he ever saw Marc.

B<sub>3</sub>: He only saw [MARC]<sub>F</sub> at the conference.

B<sub>4</sub>: He only saw Marc [at the CONference]<sub>F</sub>.

"The crucial fact is that the answer in B<sub>4</sub> is anomalous and it is the focus that causes this since the semantically equivalent answer in B<sub>2</sub> is fine. The reason is that the focus anaphor evoked by B<sub>4</sub> is not licensed in the discourse. The fact that *only* associates with this focus seems to have no effect on the pragmatic force of the focus."

So whatever else Focus does (and I would not reduce it to the reflection of the QUD), it *does* arguably always reflect the QUD, via congruence.

Concluding remarks about Focus:

- Prosody in English is complex, with both a highlighting function and a backgrounding function.
- Both these functions serve to draw the attention of the interlocutor to those aspects of an utterance which address the QUD, backgrounding those which do not. This recapitulates in iconic form the relationship between the intentions represented by the QUD and the way in which interlocutors' attention is directed.
- The role of Focus in domain restriction argues that it is the alternatives that are made salient by the QUD that are most salient, and that we use that salience for implicit restriction. This maximal salience of the QUD-alt makes implicit domain restriction Retrievable.
- The congruence requirement can be seen as a reflection of this attentional role of Focus and the corresponding attentional role of the QUD: In order for the discourse to proceed in a reasonable fashion, these attentional requirements must be congruous.
- Hypothesis: Prosody is gestural, not something about whose form or function native speakers have conscious access to. There is some fascinating work by Cassell, DeCarlo, Stone and their colleagues (e.g. see Cassell et al. 2000; DeCarlo et al. 2002) on the kinds of gesture that accompany speech, arguing that it displays some of the same features as tone—for phrasing and emphasis, for example—and so can also be used to mark Focus.

The potential of Focal structure to reflect both the immediate QUD and more complex strategies of inquiry, plus the pervasiveness of prosodic Focus both across languages and within languages



argue that the QUD and strategies themselves are something that interlocutors regularly track in discourse. They are the central connective tissue that holds discourse together.

## II. Complex contours and strategies of inquiry: Contrastive Topic

[This material is cribbed from Roberts 2012. I recommend that if interested you just read that short paper, rather than these sketchy notes.]

A typical dictionary definition for *topic* cites two rather different notions: that of the subject-matter of a discussion, and that of the subject of a text (e.g., of a sentence uttered). This is reflected in two uses of the term in the linguistic literature, which, albeit closely related, are different in important respects, leading to some confusion and conflation of the two notions.

The first notion corresponds to the QUD. The other notion of *topic* is embodied by a sentential constituent that plays the special pragmatic role in the discourse context sketched informally in the first paragraph, in some sense indicating what the sentence uttered is about. Vallduví gives examples like the following, with the Topical constituent here (and below) marked with boldface:

- (2) a. What about Mary? What did she give to Harry?  
          **Mary** gave [a shirt]<sub>Rheme</sub> to Harry.  
      b. What about Harry? What did Mary give to him?  
          **To Harry** Mary gave [a shirt]<sub>Rheme</sub>.

In (2a) and (b) we have the same Rheme [portion of the utterance which answers the immediate QUD], expressed by *a shirt*, and hence the same Theme, the remainder of the sentence: *Mary gave...to Harry* (in some order). (Note that Vallduví did not use the term *Rheme* in his original examples (2) and (6) below, but marked the NP *a shirt* (in (2)) or the VP (in 6b) as Focus.)

Here is something else to note about the Topic in examples like (2a) and (2b): The first, *what about X?* question implies a contrast between the mentioned entity *X* and the other members of some implicit set of relevant entities. The second question is, then, about that individual, implying that the comparison is to be made via the property queried in this question. The answer given by the indicative then continues to be about the same individual, contrasted there with the other members of the implicit set with respect to the answer to the second question, the QUD. The denotation of the topical constituent in such a contrastive context (and often, by extension, the constituent itself) is called a **Contrastive Topic**.

Contrastive Topics are generally realized by prosodically focused constituents (in English and German, at least; Jackendoff 1972, Roberts 1996, Büring 2003, Rooth 2005). They typically carry a special type of prosodic contour, the so-called *B-accent* of Jackendoff (1972); in ToBI transcription (Beckman & Ayers 1994), this is the contour L+H\* LH%. This illustrates why it would not be desirable in general to conflate the notion of Topic(al constituent) with that of the Focal Ground: It is not generally the case that a Topical constituent is in that portion of the uttered sentence which contains no prosodic focus. To underline this, Vallduví also gives

minimal pairs with the same Contrastive Topical NP but two different Rhemes, both Focused constituents:

- (6) a. What about Mary? What did she give to Harry?  
           **Mary** gave [a shirt]<sub>Rheme</sub> to Harry  
 b. What about Mary? What did she do?  
           **Mary** [gave a shirt to Harry]<sub>Rheme</sub>

Examples with Contrastive Topics, like those in (6), illustrate a relationship between the two notions of topic in certain contexts, one which has been argued for in detail by Büring (2003). In such contexts, an entire section of a discourse reflects a strategy of inquiry (Roberts 1996) wherein the speaker singles out first one, then another member of some relevant set of entities, considering in turn which relevant property each of these entities has. Consider (7):

- (7) [after a trip to the zoo] What about the African animals? Who saw which animal?  
 a. **The zebra**, [Mary]<sub>Rheme</sub> saw  
 b. **The elephant** was seen by [Harry]<sub>Rheme</sub>  
 c. and [Zach]<sub>Rheme</sub> saw **the giraffe**.

In (7a), *the zebra* is Contrastive Topic, marked both by the B-accent typical of Contrastive Topics and by Topicalization—the English construction wherein the Topical NP occurs sentence-initial, serving as the filler for a gap in the matrix clause—here in the direct object position following the verb. In (7b) the Contrastive Topic is *the elephant*, made utterance-initial by passivization and bearing B-accent. And in (7c) *the giraffe* is marked as Contrastive Topic by bearing B accent, even though it remains *in situ*. The speaker is effectively answering one sub-question of the explicit QUD at a time: *who saw the zebra?*, *who saw the elephant?*, *who saw the giraffe?*, one question for each (relevant) African animal. This illustrates how the overt question being replied to (*Who saw which animal?*) needn't be the QUD implicitly assumed by the speaker of an utterance, as reflected in the utterance's Theme. The possibility of an implicit QUD is even clearer in the following:

- (8) (No prior discourse, at least on a related subject)  
 A: [When are you going to China]<sub>F</sub>?  
 B: Well, I'm going to **China** in [April]<sub>Rheme</sub>. (Roberts 1996)

Here, B answers A's question, with A-accent on the Rheme *April*, but also uses B-accent on *China* to mark it as a Contrastive Topic, presupposing that there is a larger set of relevant entities (countries) for which one might pose the question of when B is going to visit them, and implicitly inviting A to inquire about those as well.

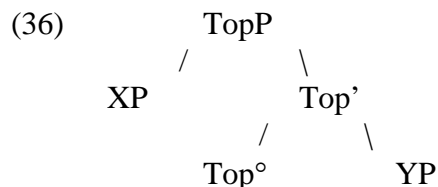
Büring offers an account of Contrastive Topics in which they arise in discourses which have a particular QUD-structure, with a particular type of strategy of inquiry, of the sort made explicit in (7): A complex question (*Who saw which animal?*) is broken down into parallel sub-questions, each pertaining to one of the potential entities in the contextually given domain for the *wh*-element *which animals*. He gives a formal characterization of these strategies in terms of the framework of Roberts (1996), representing them as trees with utterances as their nodes. Because a Contrastive Topic corresponds to one of the Foci in the root question, and because it belongs to

the alternative set for that *wh*-element, it is Focused. When we find Focus, especially with the B-accent, without an explicit over-arching question, as in (8), the speaker is taken to presuppose such a question, leading to the implication that there are other Relevant values for the instantiated *wh*-element—in (8), other destinations.

Not all Topics are contrastive, but even non-contrastive Topics do often trigger implications which play a role in interpretation. See Roberts (2012) for an overview of the literature and issues.

Topic and Universal Grammar:

The prevalence cross-linguistically of dedicated structural positions and/or morphological or prosodic indications of something like Topicality has led many to argue, or simply to assume that Universal Grammar (in Chomsky’s sense) contains a functional category Topic, heading a Topic Phrase in the phrase structural characterization of any given language. For example, Rizzi (1997) argues for the existence of a number of phrases between the root node of a syntactic tree, the CP (“Complementizer Phrase”) and the IP (the constituent in which are located tense, aspect, etc.); one of these is a Topic Phrase, headed by a functional head Topic, with the Topical constituent located in the Spec(ifier) of this functional head, and the remainder of the sentence (its **Comment**) as its complement:



- Top°: a functional head belonging to the complementizer system
- Spec(TopP) = XP: the topic
- YP: the comment

But I argue (Roberts 2012) that this conclusion is premature. A quick review of so-called Topics in a variety of languages argues that the functional requirements on Topicality differ in significant ways across different languages, even, e.g., between such pragmatically similar languages as Japanese and Korean, where heretofore *-wa* and *-nun* (respectively) had been taken to function in parallel fashion as “Topic-markers” in the two languages. And in the work on Topicality in most languages fails to (a) establish clear necessary and sufficient criteria for considering an element Topical, and (b) apply those criteria to the examples considered *in sufficiently detailed contexts of utterance to control for the relevant contextual factors*.

The diversity observed in the languages reviewed argues that while the phrase structure in (36) may be appropriate to Italian, and perhaps for some other closely related Romance languages as well (though possibly not French), it is unlikely as a syntactic universal. Both structurally and in terms of function, those elements of the surveyed languages which are utilized to reflect Topicality include morphological and prosodic markers, as well as functionally distinguished syntactic positions (both with and without long distance dependencies) and scrambling, thus

constituting a set of very different structural devices. Moreover, we often find multiple means utilized within a single language, even within a single discourse, as we saw in English (7) above.

I am reminded of a theme from Chomsky (1982:7ff,120f). Talking about notions like *passive* and *relativization*, he points out that in early work in generative grammar, there were said to be universal syntactic rules, realized in all languages, that corresponded to those notions. Some of us can remember when people debated about the character of the presumed universal Passive transformation. But Chomsky argues:

The notions “passive,” “relativization”, etc., can be reconstructed as processes of a more general nature, with a functional role in grammar, but they are not “rules of grammar”.

We need not expect, in general, to find a close correlation between the functional role of such general processes and their formal properties, though there will naturally be some correlation. Languages may select from among the devices [available to them] to provide for such general processes as those that were considered to be specific rules in earlier work. At the same time, phenomena that appear to be related may prove to arise from the interaction of several components, some shared, accounting for the similarity. The full range of properties of some construction may often result from interaction of several components, its apparent complexity reducible to simple principles of separate subsystems.

Similarly, I would argue that Topic is not a structural universal that we expect to find in the *grammar* of all human languages. Instead, what we have is a loose functional universal, Topicality, so useful in human discourse that we tend to find specialized means of indicating it across a broad variety of languages. This may be the kind of thing that Jacobs (2001) has in mind in talking about *prototypical Topics*. It is useful because it helps lend coherence to discourse to talk about a single entity, often over an extended set of utterances, and to indicate when we have switched what we’re talking about. But even in languages as similar in many respects as Japanese and Korean, the realization of Topicality differs in subtle but interesting ways, depending in the brief data-set considered above on a difference in the presuppositions associated with the enclitics used *inter alia* to mark Topicality: whether they conventionally presuppose familiarity.

To resolve these questions requires careful, detailed work on a broader variety of languages, adopting a carefully defined terminology in order to facilitate comparison of results across those languages. It requires the development and refinement of tests which permit us to ferret out distinctions like those sketched so briefly above for English, so that for a given construction we have evidence of the functional role of any purported marker of Topicality. And in making claims about any essentially contextual function like this one, we must examine sentences not in isolation, but embedded in enough context to permit us to grasp the discourse dynamic in which the Topicality plays a part: The Topicality of a given constituent can only be assessed in context.

### III. Association with Focus and Domain Restriction: The case of *only*

In utterance tokens involving *only*, we typically gather clues about the domain intended by the speaker from the prosodic contour of the utterance. Hence the different domains for *only* in utterances like the following, leading to truth-conditionally distinct exclusive implications:

(3) John *only* introduced Sue to Bill

*John only introduced SUE to Bill.*

‘John doesn’t have any property of the form *introduced x to Bill* other than that of introducing Sue to Bill’

*John only introduced Sue to BILL*

‘John doesn’t have any property of the form *introduced Sue to x* other than that of introducing Sue to Bill’

This phenomenon is called *association with focus* (Jackendoff 1972). The puzzle about the exclusive implication pertains to the source of this restriction: Is the conventional meaning of *only* explicitly sensitive to the prosodic focal structure of its complement constituent (Jackendoff 1972; Rooth 1986; Beaver & Clark 2008), or is the relationship indirect (Rooth 1992; Roberts 1996/98)?

My own most recent views about how *only* works—both in Association with Focus and with respect to the status of its prejacent—is *John introduced Sue to Bill* in (3) presupposed, conversationally implicated, or proffered?—see Roberts (2011).

**Next up: What’s At Issue? Does it Matter?** (on presupposition projection and the QUD)

For a map of issues and relevant literature to date, see Appendix A of Roberts (1996/2012) at <http://www.ling.ohio-state.edu/~croberts/QUDBib/>, especially the section on Focus.

#### Cited Work:

- Beaver, David & Brady Clark (2003) “*Always and Only*: Why not all focus-sensitive operators are alike”. *Natural Language Semantics* 11:323-362.
- Beaver, David & Brady Clark (to appear) *Sense and Sensitivity: How focus determines meaning*. In Press, Blackwell, Oxford.
- Büring, Daniel (2003) On D-Trees, Beans, and B-Accents. *Linguistics and Philosophy* 26(5):511-545.
- Cassell, J., M. Stone & H. Yan (2000) Coordination and context-dependence in the generation of embodied conversation. In *First International Conference on Natural Language Generation*, pages 171–178, 2000.
- Chomsky, Noam (1982) *Lectures on Government and Binding*, Foris, Dordrecht.
- DeCarlo, D., C. Revilla, M. Stone & J. Venditti (2002) Making discourse visible: coding and animating conversational facial displays. In *Computer Animation*, pages 11–16.
- Féry, Caroline & Vieri Samek-Lodovici (2006) Focus projection and prosodic prominence in nested foci. *Language* 82(1):131-150.
- Fintel, Kai von (1994) *Restrictions on Quantifier Domains*. Ph.D. dissertation, UMass/Amherst.
- Kadmon, Nirit (2001) *Formal Pragmatics*. Blackwell.

- Pierrehumbert, Janet (1980) *The Phonology and Phonetics of English Intonation*. Ph.D. dissertation, MIT.
- Pierrehumbert, J. B. & Beckman, M. E. (1988) *Japanese Tone Structure (Linguistic Inquiry Monograph Series No. 15)*. MIT Press.
- Rizzi, Luigi (1997) The fine structure of the left periphery. In L. Haegeman (ed.) *Elements of Grammar: Handbook of generative syntax*. Kluwer, Dordrecht, 281-337.
- Roberts, Craige (1996/2012) Information Structure in Discourse: Towards an Integrated Formal Theory of Pragmatics. In Jae Hak Yoon and Andreas Kathol (eds.) *Ohio State University Working Papers in Linguistics* Volume 49. Reprinted in the 1998 version with a new Afterword in *Semantics and Pragmatics*, Volume 5, 2012.
- Roberts, Craige (1998) Focus, the Flow of Information, and Universal Grammar. In Peter Culicover and Louise McNally (eds.) *The Limits of Syntax*, Academic Press, pp.109-160
- Roberts, Craige (2010b) Resolving Focus. Ms. of an invited talk at KogWiss, Potsdam, Germany, October, 2010.
- Roberts, Craige (2011) *only*: A case study in projective meaning. In Partee, Glanzberg & Skilters (eds.) *Formal Semantics and Pragmatics: Discourse, Context, and Models*, The Baltic International Yearbook of Cognition, Logic and Communication, Riga, Latvia. <http://thebalticyearbook.org/journals/baltic/issue/current>
- Roberts, Craige (2012) Topics. In Claudia Maienborn, Klaus von Stechow & Paul Portner (eds.) *Semantics: An International Handbook of Natural Language Meaning*, volume 33.2. Mouton de Gruyter series Handbooks of Linguistics and Communication Science, 1908-1934.
- Rooth, Mats E. (1985) *Association with Focus*. Ph.D. dissertation, UMass/Amherst.
- Rooth, Mats E. (1992) A theory of Focus Interpretation. *Natural Language Semantics* 1:75-16.
- Rooth, Mats E. (1996) Focus. In Shalom Lappin (ed.) *Handbook of Semantics*. Blackwell, London.
- Schwarzschild, Roger (1999) GIVENness, AvoidF and other Constraints on the placement of accent. *Natural Language Semantics* 7.2:141-177.
- Selkirk, Elizabeth O. (1984) *Phonology and Syntax: the relation between sound and structure*. MIT Press.
- Selkirk, Elisabeth O. (1996) Sentence Prosody: Intonation, stress and phrasing. In J. Goldsmith (ed.) *The Handbook of Phonological Theory*, Blackwell, London.
- Steedman, Mark (2000) Information structure and the syntax-phonology interface. *Linguistic Inquiry* 31.4:549-689.
- Szendrői, Kriszta (2001) *Focus and the syntax-phonology interface*. PhD dissertation, University College London
- Vallduví, Enric (1992) *The Informational Component*. Garland Press, New York.
- Vallduví, Enric (1993) *Information packaging: A survey*. Report of the Word Order, Prosody, and Information Structure Initiative, University of Edinburgh.