Distinguishing contrastive, new and given information

Angelika Kratzer & Elisabeth Selkirk

Georgetown Round Table
February, 2010
Bolinger versus Chafe

An old debate that is not yet resolved
No less troublesome than our inability to find a uniquely contrastive pitch, however, is our failure to define what is meant by ‘contrastive’. ...

In *I found a bóok*. Whóse book? Jóhn's book. Not Jóe's? there is no difference between *whose*, John's, and Joe's as far as accent or reasons for accent are concerned, but we are likely to limit the term ‘contrastive’ to the word *Joe’s* in the last sentence of the series. In a broad sense every semantic peak is contrastive.
I favor, on the contrary, the view that contrastive sentences are qualitatively different from those which simply supply new information from an unlimited set of possibilities.
No distinction between contrastiveness & newness

Distinction between contrastiveness & newness

Distinguishing newness and contrastiveness

Katz & Selkirk examples: semantics
Contrastive versus New

Gary is an art dealer. Lately he’s been very picky about which museum he deals with; he doesn’t do business with the Metropolitan or the Guggenheim.

So he would only offer that Modigliani to MoMA.
Gary is an art dealer. Lately he’s been very picky about which museum he deals with; he doesn’t do business with the Metropolitan or the Guggenheim.

• So he would only offer that Modigliani to MoMA.

He wouldn’t offer that Modigliani to the Metropolitan
He wouldn’t offer that Modigliani to the Guggenheim
The problem

• He would only offer that \([\text{Modigliani}]_F\) to \([\text{MoMA}]_F\).

• If both \textit{Modigliani} and \textit{MoMA} were simply marked for focus (F-marked), we would get the wrong alternative set, assuming standard accounts like Rooth (1992), for example.
Wrong alternative set

He would offer that ______ to ______

Modigliani
Cezanne
Picasso
etc.

MoMA
Metropolitan
Guggenheim
etc.

\{p: \exists x \exists y [\text{painter}(x) \& \text{museum}(y) \& p = \lambda w \text{offer}(x)(y)(\text{Gary})(w)]\}
Conclusion

• The semantics needs a distinction between focus of contrast and discourse-new.
Distinguishing newness and contrastiveness

Katz & Selkirk examples: phonology
Gary is a really bad art dealer. He gets attached to the paintings he buys. He acquired a few Picassos and fell in love with them. The same thing happened with a Cezanne painting. **So he would only offer that** $[\text{Modigliani}]_{\text{FOC}}$ **to** $[\text{MoMA}]_{\text{New}}$. I bet the Picassos would have fetched a much higher price
Condition B: New - FoC

Gary is an art dealer. Lately he’s been very picky about which museum he deals with; he doesn’t do business with the Metropolitan or the Guggenheim. He would only offer that [Modigliani]_{New} to [MoMA]_{FOC}. He says that’s the only place with a good enough space to hang it in.
Gary was a successful art dealer, and could afford to be pretty demanding with his clients. He would never make a deal unless the price was right and he respected the buyer. **He will probably offer that [Modigliani]_{New} to [MoMA]_{New}.** But only for a six figure sum.
Duration: main finding

• The duration of a contrastive focus constituent is greater than the duration of a new constituent in the same sentential position.
Pitch: main finding

• The patterns of relative pitch prominence between the two complements differed significantly between the three conditions.

• Results:
  FoC - New > New - New > New - FoC
Interim summary

Both the semantics and the phonology/phonetics require that a distinction be made between the syntactic representation of focus of contrast and discourse-new.
Architecture questions

• How can we capture the relation between phonetic prominence and semantic interpretation?

• Hypothesis: the syntax mediates, via its interfaces with semantics and phonology.
Representing the three-way distinction in the syntax
Representation of a 3-way distinction

Chafe 1976

<table>
<thead>
<tr>
<th>focus of contrast</th>
<th>new</th>
<th>given</th>
</tr>
</thead>
</table>
Only two possibilities need to be represented

| FoC-marking | N-marking | G-marking |

Our hypothesis

| FoC-marking | N-marking | G-marking |
Just default prosody

• The prosodic properties that would have to be associated with N-marking are the result of default prosody.
Typological considerations

• Whether FoC-marking or G-marking are expressed in sentence prosody varies from one language to the next. Some languages do not mark givenness prosodically. Others mark neither givenness nor FoCus.

• All languages display a default prosody associated with ‘unmarked’, ‘neutral’, all-new sentences.
Triggers of movement

• If movement is driven by features, we predict that givenness or contrastiveness, but not newness, can drive movement of a constituent.

• In languages with free word order, merely ‘new’ constituents tend to stay put, rather than move to the left periphery, for example.
Default prosody, givenness, contrastiveness
Basic fact

• In Standard British and American English every new phrase must contain a pitch accented word.
Pitch accents in all-new sentences

(3) Why do [children] avoid [végetables]?

(4) [Wíttgenstein] handed [Ánscombe] [a glàss of [shérry]]
Why do [children] [avoid [végetables]]?

- Default assignment of prosodic phrasing and phrase stress.
- H* pitch accents associate to syllables with phrase stress.
The prosody of givenness

- In Standard British & American English a *given* phrase fails to show necessary pitch accent; in some contexts within the sentence a given constituent is necessarily “deaccented”, while in others it is only optionally accented.
‘Deaccenting’ of given phrases

• [Ánscombe] has been fèuding with [her côlleagues]. But [Wíttgenstein] bròught [some shérry] over to [Anscombe]_{Given}. (They must have made up.)
Avoid Given Stress

• Avoid Given Stress
  A G-marked constituent does not contain major phrase stress.
Avoid Given Stress

\[ \begin{align*}
( & ) & \text{intonational phrase} \\
... & ( ( x ) ) & \text{phonological phrase} \\
... & ( x ) ( x ) & \text{prosodic word} \\
... & \text{[some shérry]} & \text{[to [Anscombe]$_G$]} \\
H^* & & \\
\end{align*} \]

- Avoid Given Stress results in ‘deaccenting’.
Maximize FoCus Stress

- Maximize FoCus Stress
  A FoC-marked constituent bears maximal stress within any prosodic domain that contains it.

- A stress is maximal in some prosodic domain if it is greater than any other stress within the same prosodic domain.
All-given sentences

• Guess what, Amanda read the newspaper!

If [Amànda read the néwspaper]$_G$, there must be a cartoon in it.
Any sentence consists of at least one intonational phrase & one phonological phrase. Avoid Given Stress is lower ranked than other constraints, including those requiring phonological phrases to carry rightmost main phrase stress.
Conclusion

• The prosodic properties that would have to be associated with N-marking follow from independently motivated interface and phonological principles.

• Interface constraints target G-marking and FoC-marking.
Interim checklist

- The ‘default’ status of the phonology of ‘Newness’
- A simple phonology of G-marking
- A straightforward semantics of G-marking
- A simple phonology of FoC-marking
- A straightforward semantics of FoC-marking
The interface with the semantics

The interpretation and distribution of G-marking
# G-marking

<table>
<thead>
<tr>
<th>Syntactic feature</th>
<th>G-marking</th>
</tr>
</thead>
<tbody>
<tr>
<td>Syntactic constraints for the distribution of the feature</td>
<td>Functional vocabulary is not G-marked.</td>
</tr>
<tr>
<td>Semantics/pragmatics interface constraint</td>
<td>An eligible constituent is G-marked iff it matches a constituent in the active preceding discourse.</td>
</tr>
<tr>
<td>Phonology interface constraint</td>
<td>A G-marked constituent does not contain major phrase stress.</td>
</tr>
</tbody>
</table>
G-marking interface constraint

• An eligible constituent is G-marked iff it matches a constituent in the active preceding discourse.

• Recall the ‘deaccenting’ examples ....
Matching (Schwarzschild 1999)

• A constituent $\beta$ matches a constituent $\alpha$ in a context $c$ iff $[[\alpha]]^{c,O}$ entails $[[\beta]]^{c,O}$.

• Needs to allow for a cross-categorial notion of entailment.

• Needs to allow for a context-dependent notion of entailment.
Cross-categorial entailment

For any $a, b$ of any type, $\Rightarrow$ is the smallest relation satisfying the following conditions:

(a) If $a = b$, then $a \Rightarrow b$.

(b) If $a, b \in D_t$, then $a \Rightarrow b$ if $a = 0$ or $b = 1$.

(c) If $a, b \in D_{<\tau, t}$ for some type $\tau$, then $a \Rightarrow b$ if for all $c, c \in D_\tau$, $a(c) \Rightarrow b(c)$. 
Examples

• Jason’s being a cat entails Jason’s being an animal.

• Being a cat entails being an animal.

• In some contexts: being Schubert entails being the composer.
The interface with the semantics

The interpretation and distribution of FoC-marking
Alternative Semantics (Rooth 1992)

- FoC-marking of a constituent $\alpha$ makes available sets of alternatives for $\alpha$ that can be used by the semantics/pragmatics in various ways.

- $[[\alpha]]^{c,O}$ Ordinary denotations

- $[[\alpha]]^{c,FoC}$ FoCus denotations
Alternative sets

$$[[\text{Ann}\_{\text{FoC}} \text{ praised } \text{Sue}\_{\text{FoC}}]]_{c,\text{FoC}} =$$

$$\{\text{Ann praised Sue, Sue praised Ann, Ann praised Ann, Sue praised Sue, John praised Sue, Sue praised John, John praised Ann, Ann praised John, John praised John, etc.} \}$$
Licensing of FoC-marking
Optional FoCus of contrast

• Guess what, Amanda read the newspaper!

If [Amánda]_{FoC} read the newspaper, there must be cartoons in it.

If [Amànda read the néwspaper]_{G}, there must be cartoons in it.
Optional FoCus of contrast

Clyde ended up marrying Bertha since he knew very well that

a. if [he hadn’t married [Bértha]_{FoC}\ G, he wouldn’t have qualified for the inheritance.

b. if [he hadn’t [márried]_{FoC} Bertha]_{G, wouldn’t have qualified for the inheritance.

Dretske 1972
But ....

• There are also cases of obligatory FoC-marking.

• ‘Recycling’ cases of Schwarzschild 1999.
Obligatory FoCus of contrast

- Mary did John’s homework.

No, $[\text{Jóhn}]_G \text{FoC} [\text{did John’s homework}]_G$

# No, $[\text{John}]_G [\text{did John’s hómework}]_G$
Obligatory FoCus of contrast

• John’s mother gave Mary a book.

No, $[\text{John’s mother}]_G \ [\text{gave}]_G \ [\text{Jóhn}]_{\text{FoC}} \ [a \text{ book}]_G$.

# No, $[\text{John’s mother}]_G \ [\text{gave}]_G \ [\text{John}]_G \ [a \text{ bóok}]_G$. 
And ....

• Sometimes, you just can’t FoC-mark!

• Analogues of Schwarzschild’s Avoid F.
No overFoCusing!

• Sue invited Mary.
  No, [John]_{FoC} invited Mary.
#  No, [John]_{FoC} invited [Mary]_{FoC}.

• Büring 2005, Krifka 2007, building on Schwarzschild’s 1999 Avoid F.
Accounting for the licensing of FoC-marking
Matching FoC-meanings with preceding discourse

(a) (Mary) invited Sue.
(b) (She also) invited [Fred]_{FoC}.

• The ordinary denotation of the VP in (a) is a member of the FoC-denotation of the VP of (b): the VP of (b) FoC-represents the VP of (a).
FoC-representation

• A phrase $\beta$ **FoC-represents** a phrase $\alpha$ iff $[[\alpha]]^{c,O} \neq [[\beta]]^{c,O}$ and $[[\alpha]]^{c,O} \in [[\beta]]^{c,\text{FoC}}$. 
FoC-interface constraint: first try

• You must FoC-represent constituents from the active preceding context whenever you can.

• A phrase $\beta$ FoC-represents a phrase $\alpha$ iff $[[\alpha]]^{c,O} \neq [[\beta]]^{c,O}$ and $[[\alpha]]^{c,O} \in [[\beta]]^{c,FoC}$. 
Issue: Trivial FoC-representations

(a) (Sue) [cooked dinner]
(b) (She) [invited Fred]_{FoC}

- The ordinary denotations of the VP of (a) is in the FoC-denotation of the VP of (b). This FoC-representation is trivial, though, since the FoC-denotation of (b) is identical to the set of all VP-denotations.
Trivial FoC-representation

• If $\alpha$ and $\beta$ are of semantic type $\tau$, then $\beta$ is a trivial FoC-representation of $\alpha$ iff $[[\beta]]^{\text{FoC}} = D_\tau$. 
FoC-interface constraint: 2nd try

• Unless the result is a trivial FoC-representation, you must FoC-represent constituents from the active preceding discourse whenever you can.

• A phrase $\beta$ FoC-represents a phrase $\alpha$ iff $[[\alpha]]_{c,O} \neq [[[\beta]]_{c,O}$ and $[[\alpha]]_{c,O} \in [[[\beta]]_{c,FoC}$. 
Obligatory FoCus of contrast

a. John’s mother gave Mary a book.

b. No, [John’s mother]_G [gave]_G [ [Jóhn]_G ]_FoC [a book]_G.

b’. # No, [John’s mother]_G [gave]_G [John]_G [a bóok]_G.
Obligatory FoCus of contrast

• Mary did John’s homework.

No, $[[\text{Jóhn}]_{G}]_{\text{Foc}}$ $[\text{did John’s homework}]_{G}$

# No, $[[\text{John}]_{G} [\text{did John’s hómework}]_{G}$
Optional FoCus of contrast

• Guess what, Amanda read the newspaper!

If [Amánda]_{FoC} read the newspaper]_G, there must be cartoons.

If [Amànda read the néwspaper]_G, there must be cartoons.
Issue: No OverFoCusing!

a. Sue invited Mary.

b. No, \([\text{John}]_{\text{FoC}}\) invited Mary.

b’.# No, \([\text{John}]_{\text{FoC}}\) invited \([\text{Mary}]_{\text{FoC}}\).

• Both (b) and and (b’) FoC-represent (a).
Compare the alternative sets

b. {John invited Mary, Sue invited Mary, Francis invited Mary, Rose invited Mary, ...}

b’. {John invited Mary, Sue invited Mary, Francis invited Mary, Rose invited Mary, ..., Sue invited Jane, Sue invited Francis, ..., Rose invited John, Rose invited Tim, ...}
Smaller alternative sets are better

- If phrases $\beta$ and $\beta'$ both FoC-represent a phrase $\alpha$, then $\beta$ is a better FoC-representation of $\alpha$ than $\beta'$ iff $[[\beta]]_{c,FoC} \subset [[\beta']]_{c,FoC}$. 
FoC-Interface constraint

• Unless the result is a trivial FoC-representation, you **must** FoC-represent constituents from the active preceding discourse whenever you can.

• Pick optimal FoC-representations.
A nice prediction
Predicting disjoint reference

(i) Bill blamed Amanda’s father, and then
  \([ \text{[Amánda]}_{G} ]_{\text{FoC}} [\text{blamed}]_{G} [\text{hím}]_{G} ]_{\text{FoC}}.

- Fact: *him* can’t refer to Amanda’s father.
- Explanation: If *him* referred to Amanda’s father, (i) would be overFoCused.
If *him* refers to Amanda’s father
...

a. Bill blamed Amanda’s father, and then

b. \([ [\text{Amánda}]_G ]_{\text{FoC}} [\text{blamed}]_G [\text{him}]_G.\)

b’.*\([ [\text{Amánda}]_G ]_{\text{FoC}} [\text{blamed}]_G [ [\text{hím}]_G ]_{\text{FoC}}.\)

Both (b) and (b’) FoC-represent (a); (b) must be chosen over (b’) since it has the smaller alternatives set.
If *him* refers to Bill ...

a. Bill blamed Amanda’s father, (and then...)

b.*  [ [Amánda]_G ]_{FoC} [blamed]_G [him]_G.

b’.  [ [Amánda]_G ]_{FoC} [blamed]_G [ [hím]_G ]_{FoC}.

If *him* refers to Bill, only (b’) FoC-represents (a).
Good result

- Bill blamed Amanda’s father, and then \([ \text{[Amánda]}_G \text{[blamed]}_G \text{[hím]}_G ]_{\text{FoC}}\).

- When \textit{him} refers to Bill, \textit{him} must be FoC-marked and thus get stress and accent.
<table>
<thead>
<tr>
<th>Syntactic feature</th>
<th>FoC-marking</th>
</tr>
</thead>
<tbody>
<tr>
<td>Syntactic constraints for the distribution of the feature</td>
<td>None</td>
</tr>
<tr>
<td>Semantics/pragmatics interface constraint</td>
<td>FoC-marking introduces alternative sets. FoC-marking must produce an optimal FoC-representation of preceding discourse.</td>
</tr>
<tr>
<td>Phonology interface constraint</td>
<td>If a constituent is FoC-marked, it bears maximal stress within any prosodic domain that contains it.</td>
</tr>
</tbody>
</table>
Wrapping up
Representing preceding discourse

• We have argued that languages like Standard British or American English employ two distinct devices for representing matches with preceding discourse: G-marking and FoC-marking.

• For Rooth 1992, Schwarzschild 1999, and many others, there is just one such device: F-marking.
The ‘default’ status of the phonology of New
A simple phonology of G-marking
A straightforward semantics of G-marking, plus a theory of licensing of G-marking in discourse
A simple phonology of FoC-marking
A straightforward semantics of FoC-marking, plus a theory of licensing of FoC-marking in discourse