Focus Alternatives and Discourse Parallelism

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Jane only has some apples. 
(things to eat for breakfast)
Jane only has some apples.
(kinds of fruit to put in a pie)
Jane only has some apples.
(kinds of fruit to put in a pie)

In general, what factors determine this set?
The idea is to (temporarily) restrict the domain of evaluation for the whole sentence or even the whole discourse. The pragmatics will help in choosing a suitable universe for the evaluation of a particular sentence, but the semantics can just operate abstracting away from any such choice of a universe.

von Fintel (1998)
A question for experimental pragmatics

How do comprehenders construct relevant contexts for interpreting context-dependent meanings?

Focus operators like *only*:
How do comprehenders appropriately restrict focus alternatives on the basis of contextual information?
Mark has some *candy* and some *apples*.

Jane only has some $[\text{apples}]_F$.

\[
\{\text{candy, cupcakes, apples, sandwiches, pears, dry-erase markers, refrigerators, pickup trucks…} \}
\]
Same Kind mention

*Mark has some* pears *and some oranges.*

*Jane only has some* \([\text{apples}]_F\).
Lexical differences

Mark has some candy and some apples.
Jane also has some \([\text{pears}]_F\).

\{candy, cupcakes, apples, sandwiches, pears, dry-erase markers, refrigerators, pickup trucks…\}
Mark and Jane have a stand at the farmer’s market. In the morning, Mark sold out of pears and apples. That afternoon, Jane only sold out of [oranges]_F.

{pears, apples, oranges, eggs, celery, tomatoes…}
Restricting focus alternatives for *Only*

How do we measure preference for one alternative interpretation over another?

Visual World paradigm (Tanenhaus, et al 1995): ‘preferences’ are revealed by how much you look at a particular referent relative to others in a visual scene.
Using the Visual World paradigm to investigate reference resolution for definite descriptions

• Tanenhaus, Spivey-Knowlton, Eberhard & Sedivy (1995):
  Uniqueness presupposition guides reference resolution in an ambiguous visual context

• Sedivy, Tanenhaus, Chambers & Carlson (1999):
  In the context of a definite, scalar adjectives are interpreted to satisfy uniqueness in a visual context

• Chambers, Magnuson & Tanenhaus (2004):
  Knowledge about the world constrains what is considered a possible referent (i.e. restricts the referential domain)
Mark has some candy and some pears.

Jane only has some apples.

target

cohort competitor
Mark has some candy and some apples.  
Jane only has some apples.

<table>
<thead>
<tr>
<th>target</th>
<th>cohort competitor</th>
</tr>
</thead>
<tbody>
<tr>
<td><img src="image" alt="Apples" /></td>
<td><img src="image" alt="Candles" /></td>
</tr>
<tr>
<td><img src="image" alt="Ax" /></td>
<td><img src="image" alt="Feet" /></td>
</tr>
</tbody>
</table>
Outline

- Background
- Experiments 1-2: Previous mention
- Experiment 3: Lexical differences in focus processing
- Experiment 4: Embedding focus processing in discourse processing
- Conclusions
Previous mention

Is the set of alternatives you consider in a sentence like

‘Jane only has some apples’

constrained by the set of things just mentioned in the discourse?
## Experimental conditions: Experiment 1

<table>
<thead>
<tr>
<th></th>
<th>Explicit Mention</th>
<th>Same Kind Mention</th>
<th>No Mention</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mark has some</td>
<td>Mark has some oranges and some pears.</td>
<td>Mark has some boots and some slippers.</td>
<td></td>
</tr>
<tr>
<td>apples and some</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>pears.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Only</td>
<td>Jane only has some apples.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>No only</td>
<td>Jane has some apples.</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Explicit mention

No Mention + No Only: late disambiguation, >500 ms.

…has some apples.

[‘Mark has some boots and some candy.’]
‘Jane has some apples.’
Explicit mention

*Mention + No Only: disambiguation ~400 ms.*

...*has some apples.*

[‘Mark has *some apples* and some candy.’]

‘Jane has *some apples*.’
Explicit mention

*Mention + Only*: earliest disambiguation, $\sim 200$ ms.

...only has some apples.

[‘Mark has some apples and some candy.’]

‘Jane only has some apples.’
Explicit mention

*No Mention + Only*: latest disambiguation, >500 ms.

...only has some apples.

[‘Mark has some boots and some candy.’]

‘Jane only has some apples.’
Explicit mention

Average point of disambiguation

- Mention effect
- Mention-Only interaction
Mark has some pears and some apples.
Jane only has some \([\text{oranges}]_F\).

\{\text{pears, apples, oranges, grapes, strawberries, potatoes, broccoli, cupcakes, jellybeans, \ldots}\}
### Experimental conditions: Experiment 2

<table>
<thead>
<tr>
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<th>No Mention</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mark has some</td>
<td>Mark has some</td>
<td>Mark has some</td>
<td>Mark has</td>
</tr>
<tr>
<td><em>apples</em> and some</td>
<td><em>oranges</em> and</td>
<td>*boots and some</td>
<td></td>
</tr>
<tr>
<td><em>pears.</em></td>
<td><em>pears.</em></td>
<td><em>slippers.</em></td>
<td></td>
</tr>
<tr>
<td>Only</td>
<td>Jane only has</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td><em>some apples.</em></td>
<td></td>
<td></td>
</tr>
<tr>
<td>No only</td>
<td>Jane has <em>some</em></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td><em>apples.</em></td>
<td></td>
<td></td>
</tr>
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</table>
Explicit and Same Kind mention

Average point of disambiguation

**
Explicit and Same Kind mention

Average point of disambiguation
Previous mention: Experiments 1-2

- **Mention effect**: Expectation for explicitly mentioned items in the context of *only*.

- **Conceptual similarity bias**: Same-category items (Same Kind mention) have an advantage over Different-category items (No mention).

- Suggests listeners actively generate candidate alternatives, given the presence of *only* and the material in the preceding discourse.
Outline

• Background

• Experiments 1-2: Previous mention

• Experiment 3: Lexical differences in focus processing

• Experiment 4: Embedding focus processing in discourse processing

• Conclusions
Only

Jane only has some \([\text{apples}]_F\).

Jane has some apples.
Jane doesn’t have anything but apples.
Also

*Jane also has some* \([\text{apples}]_F\).

Jane has some apples.
Jane has something other than apples.
Only v. Also

- Only: expect **subset** of mentioned items
- Also: expect **superset** of mentioned items

Mark has some apples and some oranges.

Jane only has some apples.
**Only v. Also**

- *Only*: expect **subset** of mentioned items
- *Also*: expect **superset** of mentioned items

Mark has some apples and some oranges.

Jane also has some pears.
## Experiment 3 conditions

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<td>Mark has some <em>oranges</em> and some</td>
<td>Mark has some <em>boots</em> and some</td>
</tr>
<tr>
<td></td>
<td><em>pears.</em></td>
<td><em>pears.</em></td>
<td><em>slippers.</em></td>
</tr>
<tr>
<td><strong>Jane only</strong></td>
<td><em>Jane only has</em> <em>some apples.</em></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Also</strong></td>
<td><em>Jane also has</em> <em>some apples.</em></td>
<td></td>
<td></td>
</tr>
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</table>
Only v. Also

- Only: earlier disambiguation for **subset** targets
- Also: earlier disambiguation for **superset** targets
Different sources of expectations

- Lexical contribution: different focus operators give rise to different local expectations.
- General expectations about the coherence of a discourse?
# Experiment 3 conditions

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<td>Also</td>
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</table>

No Mention: same kind mention.

Explicit Mention: specific mention of both kinds.

Same Kind Mention: mention of both kinds, but no specific mention.
Only v. Also

Average point of disambiguation
Conceptual similarity bias
- Expectation for conceptually similar items

Subset-Superset preference
- *Only*: subset/mention bias
- *Also*: superset/novelty bias
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Overlapping events

Neil and Judith went to the farmer’s market this morning. Neil bought tomatoes and eggplants. Judith only bought $\{\text{eggplants}\}_F$.

$\{\text{eggplants, tomatoes, celery, eggs, avocados,}\ldots\}$
Exclusive events

Neil and Judith have a stand at the farmer’s market. During the morning shift, Neil sold out of tomatoes and eggplants.
In the afternoon, Judith only sold out of \( [\text{eggs}]_F \).

\[
\{\text{eggplants, tomatoes, celery, eggs, avocados, \ldots}\}
\]
## Experiment 4 conditions: Discourse type

<table>
<thead>
<tr>
<th>Overlapping</th>
<th>Neil and Judith went to the farmer’s market...</th>
</tr>
</thead>
<tbody>
<tr>
<td>Exclusive</td>
<td>Neil and Judith have a stand at the farmer’s market...</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Explicit Mention</th>
<th>No Mention</th>
</tr>
</thead>
<tbody>
<tr>
<td>Neil...<em>tomatoes</em> and <em>eggplants</em>.</td>
<td>Neil...<em>tomatoes</em> and <em>avodacos</em>.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Only</th>
<th>Judith only...<em>eggplants</em>.</th>
</tr>
</thead>
<tbody>
<tr>
<td>No only</td>
<td>Judith...<em>eggplants</em>.</td>
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</table>
Discourse type

Overlapping events

Exclusive events

ms from target word onset

No Mention  Mention

No Mention  Mention

No Only  Only

No Only  Only
Summary

- Experiments 1-2: Previous mention
  Focus alternatives are constrained by explicit mention, mention of conceptual associates.

- Experiment 3: Lexical differences in focus processing
  *Only* v. *Also*—Different focus operators give rise to different local predictions.

- Experiment 4: Embedding focus processing in discourse processing
  Discourse structure and Mention interact with presence/absence of *Only*.
To understand focus alternatives, domain restriction, we have to understand:

lexical factors
general conceptual knowledge
processing of discourse structure

Methodologically, detect effects of contextual cues by measuring expectations about unfolding language input.
Thanks!

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    Stephanie Huston

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For these slides:
http://www.bcs.rochester.edu/people/ckim/