Crowd-Sourcing Concurrent Relations

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Signalling discourse relations

- **Conjunctions**

  "We've started trying just about anything to keep sales moving in the stores," says Kim Renk, a Swank vice president. But there are limits." [WSJ]

- **Adverbials**

  They both called it a "welcome home" gathering. Nevertheless, an ANC rally by any other name is still an ANC rally. [WSJ]

This talk: Cases in which more than one relation can hold
Concurrent relations

In school he was assigned regular essays to write, but instead he wrote poetry. [NYTimes 2002]

Mentioning the word sex on daytime television was taboo at the time, she recalled, so instead she simply held up the book cover to the camera. [NYT 2001]

So many people have come that Jeff LeDuff, the police chief here, has said that city officials will no longer be able to transport and place evacuees within the city and instead they will be sent to adjacent regions. [NYT 2005]

Humans have lost some stereotypic calls because instead they can shout Danger or Leopard or Watch out, much more efficiently than calls [Bouchard, 2013]

→ Conjunction and adverbial can signal distinct relations
Motivations

- A lexically-based system like PDTB calls attention to the existence of multiple DRDs (see also Webber et al., 1999)
- These cases do not involve relations at different levels.
- Existing DRD theories do not predict such cases
- A better understanding of concurrent relations is relevant to
  - Corpus annotation
  - Psycholinguistics
  - Language technologies
How to assess concurrent relations?

- Google Ngrams
  - Frequency of discourse adverbials
  - Frequency of adverbials accompanied by conjunction
  - Possibility of same adverbial with different conjunctions
- Annotator judgments, collected via a web interface [pilot results]
All adverbials occur most frequently alone.

But with conjunctions, many have clear preferences.

Whereas others have a broader distribution
What about bare adverbials?

Mentioning the word sex on daytime television was taboo at the time, she recalled, _________ instead she simply held up the book cover to the camera.

- Jiang 2013: 4 adverbials
  - 80 passages, each viewed by 52 judges
  - Task: select a conjunction to fill a blank
- Jiang results: Adverbials differ from each other.
  - "After all" has an overall preference for "because"
  - "Instead" varies passage-by-passage
- No adverbial favored no conjunction.
- Shows that even without an explicit conjunction, two separate senses can be concurrently conveyed.
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**Goal:** Establish which discourse adverbials can co-occur with conjunctions and which conjunctions each adverbial licenses and favors

**Pilot study:** 20 adverbials, 3 judges, 895 unique passages from the NYTimes Annotated Corpus (Sandhaus, 2008) and COCA (Davies, 2008)
Traditionally, men do not do such work; instead they stand around idly, waiting for something to fetch their attention away from the melancholia.
Results: Explicits

- Dataset = 1507; Agreement with author: 19% ~ 100%
- Cases of strong agreement on single conjunction

![Graphs showing percentage of passages for different conjunctions with explicit choices.]

EXPLICIT: specifically

EXPLICIT: nonetheless
Explicit

Strong agreement on different conjunctions

EXPLICIT: in general

Strong disagreement with author

EXPLICIT: in other words
'Ms. Morissette went through bouts of depression as the tour stretched on. "Schedule-wise, my health and my peace of mind wasn't a priority," she said. "There had been this dissonance in the midst of all the external success _______ on the one hand, I was expected to be overjoyed by it, and at the same time I was disillusioned by it." [NYTimes 1998]

[original: “because”]
[judges: “because”, “and”, “so”]
Results: Implicits

- Dataset=780 judgments
- Agreement across 3 judges: 64% ~ 90%

Some software automatically moves the pointer to the default button on a pop-up window _____ otherwise the user must move the pointer to that button or hit Enter (using the left hand or letting go of the mouse).

[original: none]
[judges: “but”, “because”, “none”]
Sources of judgment variation

- Interpretation of instructions (sense vs style)
  "Your job is to make explicit the meaning that links the adjacent text spans. You must make a choice even if the insertion leads to an awkward or lengthy sentence, as long as you think the word brings out the meaning that links the two spans."

- Reduced context as basis for judgment

- Specificity of conjunctions (and/so)

- Idiosyncrasies (or otherwise/because otherwise)

You got to be nice to them _____ otherwise, they’re not going to be nice to you. [COCA 1991]

[original: “or”]
[judges: “because”, “because”, “because”]
In contrast to models of DRD usage that assume that each pair of clauses = one relationship, discourse adverbials:

- Do not always act alone (*because after all*)
- Need not license only one additional relation (*but/so/and/because instead*)
- Differ in the way they combine with possible conjunctions (single preference vs context-driven flexibility)

Categories of discourse adverbials?

Crowdsourcing as discovery tool?

Other languages?
Thanks!