The Distribution of a Discourse Connective Determines its Interpretation
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Questions:
• Does the usage of a connective in natural text predict its effect on discourse coherence?
• Do other differences such as a connective’s position matter?

Hypothesis: a sentence connective biases interpretations towards its most frequent relation sense and this should affect the coherence of the global context.

Background:
Previous work largely limited to comparison of relations / markers that are more different from one another (e.g., Murray 1995, Millis et al. 1995, Drenhaus et al. 2014).

Different accounts of connectives’ semantics:
• A core-meaning approach (Fraser 1999)
• A relevance-based approach (Blakemore 2004)
• A distributional approach (Asr & Demberg 2012, 2013)

Discourse Relations: Contrast vs. Concession
Contrast encodes a parallel contrastive comparison: neither argument describes a situation that is asserted on the basis of the other one.
Concession encodes violation of causality: second argument denotes a fact that triggers a set of potential consequences that the first argument denies.

Experimental Material
Design:
3 (but vs. although vs. sentence-initial although) * 2 (Context) * 2 (Continuation)

(1) After a busy day at the university and attending a lot of courses, Jane came home, made some tea, and started looking for something to eat.
(2a) She took some pizza from the fridge that was left from the day before, but she desired to have something sweet with her drink.
(2b) She took some pizza from the fridge that was left from the day before, although she desired to have something sweet with her drink.
(3a) Although she desired to have something sweet with her drink, she took some pizza from the fridge that was left from the day before.
(3b) Although she desired to have something sweet with her drink, she took some pizza from the fridge that was left from the day before.

Note: Counter-balancing is applied by replacing “pizza” and “sweet” in sentence 2 with “cake” and “salty”, which is the factor Context.
Note: Critical region in sentence 3 (for the eye-tracking study) is bold.

Procedure
Offline coherence judgment task on Amazon Mechanical Turk:
• 48 native English speakers (US American), 24 items
• Likert scale scoring between 1 and 7
• Stories excluding last sentence were matched for coherence (pretested on n=48)

Online reading with Eye-tracking:
• 32 native English speakers in Edinburgh, 24 items
• Stimuli same as above excluding the Although-initial conditions
• Every item: story screen -> key press -> comprehension question -> answer key press
• Eye-link 2000 desktop mount/ 500 sampling rate/ dominant eye

Summary and Conclusions
Evidence from offline coherence judgment & online reading:
• Fine-grained discourse relations that co-occur with a connective, as well as its syntactic arrangement (sentence initial vs. mid args) affect its meaning.
• This information can be collected from natural text corpora.

This finding suggests that similar connectives can have very different effects on interpretations, perhaps by:
• having different influences on the information structure, e.g. the focus or the Question Under Discussion (Roberts 1996)
• manipulating the truth-conditional state of the unsaid but implied meaning (Grice 1975)