"On the one hand" as a Cue to Anticipate Upcoming Discourse Structure

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Predictions of upcoming discourse structure based on “On the one hand”
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Introduction

Prior studies show anticipation of upcoming material within sentences (e.g. Kamide et al., 2003; Levy, 2008; Staub & Clifton, 2006)
Between sentences: discourse creates less constraining structure than syntax
But certain phrases constrain possible structures: On the one hand (OT1H), On the other hand (OTOH)

Manipulation: intervening contrast attaching to OT1H-clause (global, Ex. a) or because-clause (local, Ex. b)

Joseph is pondering whether he should take a job at the zoo. On the one hand, he needs the money that this job will pay, because he should start paying off his student loans.
   a) But he could keep looking for a nicer, better-paying job. [global]
   b) But the loans could be deferred for a few more months. [local]
   c) Also, his car needs to be serviced by the end of the month. [none]

On the other hand, he hates the idea of cleaning out panda cages.

Hypotheses
H1 OT1H cues specific surface form “On the other hand”
H2 OT1H cues a general contrast but structure-insensitively
H3 OT1H cues a contrast with sensitivity to structure

Main question
How do comprehenders build discourse structure? Specifically, how fine-grained are their predictions of upcoming contrast based on OT1H?

Expt. 1: Coherence Judgement Study

Question
Do coherence ratings reflect presence of contrast (OTOH present/absent) and discourse structure? (local/global/none)

▶ 144 participants each rated 10 of 24 items on a 7-point scale
▶ 6 conditions: presence of OTOH-sentence varied

Results:
▶ Absence of OTOH lowers ratings, depending on discourse structure: only for items without global contrast (against H2)

Expt. 2: Story completion study

Question
Are stories in the local condition continued more often with a contrastive sentence than stories in the global condition?

▶ 90 participants each completed 8 items without OTOH-sent.
▶ Coding: continuation type (+ or − contrast) and connective

Results:
▶ Fewer contrastive continuations in global than in local condition (evidence against H2, for H3)
▶ 29% of contrastive markers were connectives other than OTOH, e.g. but, although, however (evidence against H1)

Expt. 3: Eyetracking-while-reading study

Question
Do structure-sensitive expectations of contrast also influence on-line processing of OTOH?

▶ 32 participants read 24 items
▶ Reading times of OTOH were compared
If readers immediately build and maintain fine-grained discourse structure, then OTOH should be read slower in global condition

Results:
▶ RTs slower in global than local condition (evidence for H3)

Summary and Conclusions

Offline and on-line studies indicate that:
▶ a local contrast does not completely satisfy expectation of contrast set up by OT1H, but a global contrast does
▶ evidence for H3: readers build fine-grained expectation of scope contrast based on OT1H

More generally, these findings suggest that:
▶ readers build and maintain predictions of upcoming discourse relations across multiple sentences
▶ these predictions are structure-sensitive and can be elicited by discourse markers

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