“On the one hand” as a Cue in the Comprehension of Discourse Structure

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Given evidence of anticipation within sentences (for upcoming sounds, words, and syntactic structures; Delong, et al. 2005; Kamide, et al., 2003; Levy, 2008), an open question is how comprehenders use cross-sentence cues to anticipate upcoming relationships between sentences. Within sentences, words combine via syntactic rules to determine what structures are possible. Between sentences, however, the resulting discourse structure is less constrained. Models of discourse coherence typically target relations that can be inferred to hold between pairs of propositions (Asher & Lascarides, 2003; Hobbs, 1979; Keeler 2002; Mann & Thompson, 1988; Prasad et al. 2008), with few hard constraints regarding the eventual structure of the discourse (cf. Roberts, 1996). Nevertheless there are cases in which the possible relations that could hold between a current sentence and a subsequent sentence are restricted. Existing work primarily targets local effects (e.g., verb-driven biases for the immediately upcoming sentence; Keeler et al., 2008; Staub & Clifton, 2006). Here we consider the contrast relation between sentences marked with On the one hand and On the other hand. Based on evidence of syntactic prediction (e.g., dependencies like either...or, Staub, 2006), our goal is to test whether comprehenders use On the one hand as a cue to anticipate upcoming discourse structure and furthermore how their processing of On the other hand is influenced by intervening material.

The expression On the one hand signals that a subsequent proposition will provide a contrast and will likely be marked with the expression On the other hand. The anticipation of a subsequent contrast can be satisfied immediately (e.g., Joe was interested in a car. On the one hand, it looks flashy. On the other hand, it doesn’t get very good mileage.). If the expected contrast is delayed, comprehenders are predicted to process On the other hand differently depending on the type of intervening material.

Self-paced reading study: Participants (n=60, recruited from Amazon’s Mechanical Turk) read sentences phrase-by-phrase via a web-based interface (IbexFarm). The intervening material varied—either leaving the expectation for contrast unfulfilled by mentioning causal information (1a,1b) or providing a contrast that could plausibly resolve the expectation for contrast (1c). Reading times were measured at On the other hand.

(1) SentenceA: Joe was interested in a car.
   SentenceB:
   (a) On the one hand, he would like to buy it, because it looks flashy.
   (b) On the one hand, it looks flashy, so he would like to buy it.
   (c) On the one hand, he would like to buy it, but he might try leasing it first.

SentenceC: On the other hand, it doesn’t get very good mileage.

As predicted, On the other hand in SentenceC was read faster following conditions with causal information (1a,1b) than contrastive information (1c), suggesting that participants used On the one hand as a cue to an upcoming contrast and were surprised (as evidenced by their reading-time slowdown) by On the other hand when they had already encountered a plausible contrast. Comprehenders thus use discourse connectors to predict discourse relations and can maintain such predictions across clauses.
References


