

Coherence driven prominence and reanalysis: Some outstanding questions

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1 Discourse reanalysis

Smyth (1994) provided the discourse in (1) to show that a pronoun can be resolved to either the subject or the object of a previous sentence. That is *him* can be understood as picking out Phil or Stanley. In turn, it has been argued based on (1) and related discourses that an antecedent's prominence in a given discourse is correlated with how that discourse coheres. More precisely, it has been argued that the resolution of pronouns and the establishment of a coherence relation are correlated (Hobbs 1979, Kehler et al. 2008) and mutually constraining (Kaiser & Cherqaoui 2016, Stojnić 2016; Stojnić, Stone & Lepore 2017) tasks. For example, if we establish the coherence relation, Result, between the two sentences in (1), then Phil is the salient antecedent: Phil played with Stanley and Liz responded by poking Phil. On the other hand, if we establish the coherence relation, Parallel, between the two sentences in (1), then Stanley is the prominent antecedent: Stanley is whom both Phil and Liz played with. These two readings of (1) are made prominent by the two follow-ups in (1a) and (1b) respectively.

- (1) Phil tickled Stanley. Liz poked him...
a. ...Phil stopped. Stanley thanked her.
b. ...They tortured him for a while.

The correlation between prominence and coherence has far reaching consequences if we assume, following Hobbs (1979), Lascarides & Asher (1993) and subsequent work that inferring a coherence relation between two discourse units is non-monotonic. In particular, if we assume that, upon hearing (1), the pronoun is resolved, we are led to the view that the resolution strategy in question can be revised with more content. Altshuler & Haug (2017) call this phenomenon *discourse reanalysis*, following the terminology in the syntax processing literature on garden-path sentences (see e.g. Ferreira & Henderson 1991, Ferreira & Fodor 1998, Ferreira, Christianson & Hollingworth 2001).

As an illustration, let's assume that, given one's world knowledge, Parallel is inferred in (1), thereby leading the hearer to resolve *him* to Stanley. Let's further assume that (1) is followed-up with (1-a). Consequently, the hearer could revise the coherence relation in (1) as being Result and thus the antecedent for *him* would also be revised.

2 Two objections

One may object to the just given characterization of (1) as follows: (1) could not exemplify discourse reanalysis because the intonational contour would force a particular resolution of *him* such that only one of the follow-ups would be felicitous.

Here is another objection to characterizing (1) as involving reanalysis: (1) is not semantically ambiguous, but rather underspecified with respect to two possible readings. After hearing *Liz poked him*, the hearer would not resolve *him* to a particular antecedent. It's only upon hearing, e.g. (1-a), that the antecedent of the pronoun would be specified. Put differently, it's only when there is enough content in the discourse that an antecedent is deemed prominent enough to be identified with a pronoun.

These objections could, in principle, be generalized, potentially leading to the conclusion that there is no such thing as reanalysis at the discourse level. In §4, I motivate the phenomenon of discourse reanalysis through naturally occurring examples and outline challenges that this phenomenon invokes for a model theoretic analysis of coherence driven prominence. In the next section, I'd like to address the following question: How can we conclusively show that (1) is better analysed as semantic ambiguity vs. a case of underspecification?

3 Two possible experiments

Applying the underspecification approach to (1) would mean that upon hearing a pronoun, the processor has multiple parses available, and yet she waits until she has more evidence about which interpretation seems more reasonable. This means that the processor has to keep the two parses in memory. This process is much like a filler-gap situation. As is well known in the processing literature, the longer the distance between the filler and the gap, the harder it is to process. Hence, one prediction of the underspecification account is that one would get longer reading times in (1) if you lengthen the material that's intervening between the pronoun and the part of the discourse that is disambiguating. If longer times are not observed, then this would be evidence for the semantic ambiguity approach.

Another potential way to tease these two accounts apart would be to ask participants how they interpret the pronoun in, e.g. (1), and further include confidence ratings. One should see low confidence if underspecification is involved, and higher confidence ratings if semantic ambiguity is involved.¹

4 A naturally occurring example of discourse reanalysis

Hobbs (1990) argues that Chapter 4 in the novella, *Sylvie*, by Gérard de Nerval, often leads to a particular inference about how events are sequenced that is maintained until Chapter 7, where the reader finds out that the events are actually sequenced in a different way. This is an important realization because it leads the reader to the further realization that the narrator is unreliable – a major theme of the novella.

The first objection in §2 is irrelevant to this example. As for the second objection, note that on an underspecification account, the unreliability of the narrator would not be captured since the reader would be predicted to wait until Chapter 7 to establish the correct temporal sequencing of events. *Sylvie*, therefore, provides a clear case of discourse reanalysis that involves the resolution of temporal anaphors.

There are, of course, many more examples of this kind, including comedic sketches and mixed-media narratives (e.g., film). The question I would like to pose is this:

(2) How do we account for discourse reanalysis within a model theoretic framework?

5 A challenge

In order to address (2), one could say that: (i) context sensitive expressions (e.g. pronouns, tenses) are coindexed with their antecedents in the syntactic representation and (ii) such representations are assigned as many LFs as there are coindexation possibilities. On this approach, a reanalysis discourse would be treated as being semantically ambiguous. After hearing the ambiguous discourse unit, the hearer would choose one LF from multiple

¹ Thanks to Alex Göbel (p.c.) for discussing this experimental possibility.

possibilities. Upon hearing conflicting information the hearer could then revise this choice, selecting the other LF.

Unfortunately, the coindexation approach faces some non-trivial challenges if we assume (as in § 1) that pronoun resolution and coherence establishment are correlated and mutually constraining tasks. Unless the syntax has access to the discourse structure (which seems dubious), we must generate multiple LFs with different indexations for each context sensitive expression, then try to attach each LF to the previous sentence with the possible coherence relations, and assess the relative plausibility of the combinations. While this is possible to do, it's far from clear whether this is the best way of modeling the phenomenon. But if not this way, what is the best alternative?

References

- Altshuler, Daniel & Dag Haug. 2017. The semantics of provisional, temporal anaphors and cataphors. Talk presented at Deutsche Gesellschaft für Sprachwissenschaft, Saarland University, Saarbrücken.
- Ferreira, Fernanda, Kiel Christianson & Andrew Hollingworth. 2001. Misinterpretations of garden-path sentences: Implications for models of reanalysis. *Journal of Psycholinguistic Research* 30. 3–20.
- Ferreira, Fernanda & Janet Fodor. 1998. *Reanalysis in Sentence Processing*. Dordrecht: Springer.
- Ferreira, Fernanda & John M. Henderson. 1991. Recovery from misanalyses of garden-path sentences. *Journal of Memory and Language* 25. 725–745.
- Hobbs, Jerry. 1979. Coherence and coreference. *Cognitive Science* 3(1). 67–90.
- Hobbs, Jerry. 1990. *Literature and Cognition*. Stanford: CSLI.
- Kaiser, Elsi & Boutaina Cherqaoui. 2016. Effects of coherence on anaphor resolution, and viceversa: Evidence from French personal pronouns and anaphoric demonstratives. In Anke Holler & Katja Suckow (eds.), *Empirical perspectives on anaphora resolution*, 51–78. Berlin: De Gruyter.
- Kehler, Andrew, Laura Kertz, Hannah Rohde & Jeffrey L. Elman. 2008. Coherence and coreference revisited. *Journal of Semantics* 25(1). 1–44.
- Lascarides, Alex & Nicholas Asher. 1993. Temporal interpretation, discourse relations and commonsense entailment. *Linguistics and Philosophy* 16. 437–493.
- Smyth, Ron. 1994. Grammatical determinants of ambiguous pronoun resolution. *Journal of Psycholinguistic Research* 23. 197–229.
- Stojnić, Una. 2016. *Context-sensitivity in a coherent discourse*. PhD Dissertation, Rutgers University.
- Stojnić, Una, Matthew Stone & Ernie Lepore. 2017. Discourse and logical form: Pronouns, attention and coherence. *Linguistics and Philosophy* 40(5). 519–547.