

Antecedents at the Right Frontier: Disambiguating Pronouns

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The literature on coreference has identified a number of factors that influence the interpretation of ambiguous pronouns. For example, first-mentioned referents and those that appear in the grammatical subject position are often favored as antecedents [1]. Such syntactic structural factors have largely been the focus of prior research, with factors relating to discourse structure receiving less attention (but see [2] & [3]). The hierarchical, structural organization of a discourse can help determine which segments therein are available to establish coherent connections with newly added segments [4], [5]. Such ‘available’ segments might be expected to be more likely hosts for antecedents. In the current study, we investigate the influence of discourse structure – whether a clause hosting a possible antecedent for an ambiguous pronoun is at the Right Frontier (RF: [6]) or not – on the accessibility of antecedents for ambiguous pronouns.

The RF of discourse consists of the last-added segment and any segments this segment is subordinate to in the discourse structure following Segmented Discourse Representation Theory (SDRT, [7]). The Right Frontier Constraint [6] posits that only discourse segments at the RF are available for coherence connections with newly added segments. In examples (1) and (2), the relation between the first two clauses (*elaboration*) is a subordinating one, but the position of the subordinate segment differs between the examples. When the appositive relative clause (ARC) ‘who owns a Persian cat’, is added to the discourse in (1), it is subordinate to the matrix clause preceding it: Both the matrix clause and the ARC are at the RF at that moment and ‘a cake’ is available as the antecedent for ‘It’. When the matrix clause is completed in (2), it is the only segment at the RF. The ARC and ‘a cake’ therein are not available for a subsequent coherent connection:

- (1) Kathy baked a cake for Alex, who owns a Persian cat. | It’s a birthday funfetti cake.
- (2) Kathy, who baked a cake for Alex, owns a Persian cat. | [?] It’s a birthday funfetti cake.

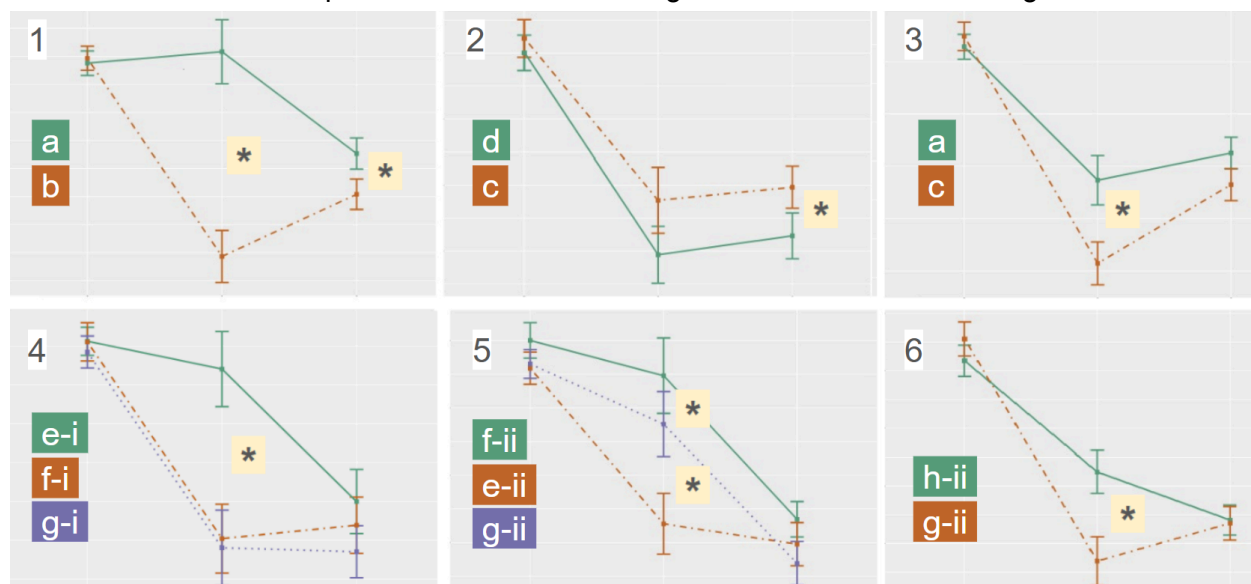
Across six self-paced reading experiments, we systematically compare how discourse-structural factors influence pronoun interpretation. We compare between reading times when a temporarily ambiguous pronoun ‘It’ is disambiguated (underlined in Figure 1) to a referent hosted by a clause either at the RF or not (Experiments 1, 2, 4 & 5) and we compare between reading times of this disambiguation to a referent hosted by clauses that differ in terms of their sentence-structural features but not in terms of their position at the RF (Experiments 3–6). We find that disambiguation to referents in clauses at the RF is read faster compared to disambiguation to referents in clauses not at the RF. When comparing between clauses that do not differ in terms of their position at the RF, we find that reading times are faster when the antecedent was hosted by the most recent clause or a matrix clause. Recency, however, seems to be the more important structural feature, as no effect of clause type (matrix vs. subordinate) was found when comparing between multiple recent segments. In summary, our findings suggest that to arrive at the most accurate predictions for ambiguous pronoun interpretation, discourse- and sentence-structural factors should be taken into account together, with recency as a determining predictor when other factors are insufficient to decide the outcome.

Figures

Figure 1: Overview of all experimental conditions (disambiguation region underlined)

	intro	segment 1	segment 2	disambiguation	relation
a	My parents went out yesterday.	After they dined at a French bistro,	they went to a violin concert.	It was a <u>very small</u> cozy restaurant.	narration (coord.)
b		After they went to a violin concert,	<u>they dined at a French bistro.</u>		narration (coord.)
c		<u>They dined at a French bistro</u>	after they went to a violin concert.		precondition (coord.)
d		They went to a violin concert	<u>after they dined at a French bistro.</u>		precondition (coord.)
e	My mom(,)	who had just returned from a shopping trip,	<u>was having a chat with our neighbor.</u>	(i) It was a <u>quick trip</u> to get some supplies. (ii) It was <u>about their</u> plans for the weekend.	elaboration (subord.)
f		who was having a chat with our neighbor,	<u>had just returned from a shopping trip.</u>		elaboration (subord.)
g		<u>was having a chat with our neighbor,</u>	<u>who had just returned from a shopping trip.</u>		elaboration (subord.)
h		<u>was having a chat with our neighbor.</u>	He had just returned from a shopping trip.		elaboration (subord.)

Figure 2: Reading plots for all experiments (lower on y-axis = read faster). The three regions represent 'It is/was', disambiguation and spillover. Colour/letter combinations can be cross-referenced with experimental conditions in Figure 1. Asterisks indicate significance.



References

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