

Effects of stress and coherence on pronoun interpretation

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At least two accounts for the interpretation of object pronouns in parallel structures (ex.(1)) have been suggested. Comprehenders using a parallel-function strategy ([4],[5]) most readily interpret object pronouns as entities that were previously objects. Stress on the pronoun is claimed to reverse this pattern, creating a subject preference [6]. Alternatively, comprehenders may attend to the relationship between the clauses: If two clauses stand in a parallel relation (ex.2a), the object pronoun prefers the preceding object, but in a cause-effect relation (ex.2b), the pronoun prefers the preceding subject (see[7]). [2] suggests that stress may reverse this, such that stressed pronouns may prefer subjects in parallel situations, and objects in cause-effect situations.

To investigate how stress interacts with coherence during real-time processing, we used visual-world eye-tracking to investigate the interpretation of object pronouns. We manipulated (i) COHERENCE by using clause connectives "similarly" and "as a result" (parallel/cause-effect, adapting [7]) and (ii) STRESS (stressed/unstressed pronoun), using stimuli tested for stress perceptability.

Participants (n=16) heard two-clause sequences (ex.(2)) while looking at pictures depicting the sentence's characters. The task was to click on the last-mentioned entity. Eye-movements and click choices were recorded. Existing work shows that eye-movements to objects are closely time-locked to potential referents that listeners consider as language unfolds [1],[3].

PREDICTIONS--If pronoun interpretation is driven by the parallel-function strategy and stress sensitivity, stressed pronouns should refer to the subject and unstressed pronouns to the object, regardless of coherence relation. If discourse coherence, combined with stress sensitivity, is the driving strategy, (i) in parallel conditions, unstressed pronouns should prefer the object and stressed pronouns may prefer the subject; (ii) in cause-effect conditions, unstressed pronouns should prefer the subject and stressed pronouns may prefer the object.

RESULTS--Click-choice data in the parallel-unstressed condition reveal a strong preference to interpret the pronoun as referring to the preceding object (94%), rather than the subject (4%). The parallel-stressed condition, in contrast, shows a slight preference for subject (59%) over object (40%, n.s.) Cause-effect conditions reveal a subject preference (94%), regardless of stress.

Click choices could reflect prescriptive grammar judgments, but we find this pattern repeated in eye-movements. In the parallel-unstressed condition, an object preference begins to emerge 400ms post-pronoun-onset, reaching significance at 800ms. In contrast, although the parallel-stressed condition triggers an early object preference (400-600ms, $p < .05$), starting at 800ms we see strong competition between the subject and the object. Both cause-effect conditions trigger more looks to subject than object, significant by 400ms post-onset ($p < .05$).

CONCLUSIONS--The results show an effect of discourse coherence: the parallel conditions differ from the cause-effect conditions, as predicted by the coherence view [2],[7]. However,

although stress has an effect in the parallel conditions and leads to greater consideration of the preceding subject, it does not trigger a full reversal of the referential preferences, or any reversal in cause-effect conditions, which show an overall subject preference. Our results are thus compatible with the view that reference resolution is influenced by multiple cues, and that stress is a weaker cue than coherence relation.

(1) John hit Bill and Tom hit him.

(2a) Anna commended Jenny and similarly Mary praised {her / HER}.

(2b) Anna saved Jenny and as a result Mary praised {her / HER}.

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