Lingering misinterpretation of non-local dependencies in non-native comprehension

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Non-native (L2) speakers misinterpret garden-path sentences requiring reanalysis like (1) more often than native (L1) speakers [1,2]. Reanalysis also occurs in non-local dependencies like (2a), where ‘the car’ may temporarily be interpreted as the theme of ‘stopped’, but how this affects L2 comprehension is unknown. To explore this issue, we conducted two experiments with 40 intermediate-advanced English L2ers and 40 L1ers.

In Experiment 1 (Ex1), participants read 24 ambiguous (2a) and unambiguous (2b) sentences, and answered questions like (3). If initially-assigned interpretations linger [3], accuracy rates should be lower for ambiguous sentences. In Experiment 2 (Ex2), participants read 24 ambiguous (3a/3c) and unambiguous (3b/3d) sentences while their eye-movements were monitored. In (3a/3b), the second continuation sentence was consistent with the correct analysis of the first sentence (‘the maid was cleaning the floor’). The continuation in (3c/3d) is inconsistent with this correct analysis but is consistent with the initial misinterpretation (‘the maid was cleaning the brush’). If initial misinterpretations linger, reading times may become longer in (3a) than (3b) and shorter in (3c) than (3d) as the misinterpretation reverses (in)consistency effects in ambiguous conditions.

Accuracy rates were significantly lower for ambiguous sentences in Ex1, and reading times for the first sentence in Ex2 significantly longer for ambiguous sentences at the disambiguating noun (‘the floor’), showing filled-gap effects [4]. There were significant interactions in the continuation sentence, with longer reading times in (3a) than (3b) at the critical region (‘the floor’) and shorter reading times in (3c) than (3d) at the spillover region (‘while thinking’). No effects significantly interacted with group in either experiment.

These results suggest lingering misinterpretation in non-local dependencies in L1ers and L2ers. As in garden-path sentences [3], this difficulty for both L1/L2ers relates to difficulty erasing this misinterpretation from memory, rather than inability to construct the correct structure.
(1) While Anna dressed the baby played in the bedroom.

(2a) John saw the car which the officer stopped the bicycle near earlier today.
(2b) John saw the car near which the officer stopped the bicycle earlier today.

(3) What did the officer stop? 1. The car 2. The bicycle

(4a) The child noticed the brush which the maid was cleaning the floor with very carefully. It seemed that the maid was cleaning the floor while thinking about dinner.
(4b) The child noticed the brush with which the maid was cleaning the floor very carefully. It seemed that the maid was cleaning the floor while thinking about dinner.
(4c) The child noticed the brush which the maid was cleaning the floor with very carefully. It seemed that the maid was cleaning the brush while thinking about dinner.
(4d) The child noticed the brush with which the maid was cleaning the floor very carefully. It seemed that the maid was cleaning the brush while thinking about dinner.

References