

Can the RC-attachment processor work without semantics?

In 1988 Cuetos & Mitchell discovered that the structural ambiguity like (1) tended to be resolved differently in different languages -- English-speaking participants preferred to choose the lower site (interpretation 2a), while Spanish-speaking participants preferred to choose the higher one (2b). Since then this RC-attachment ambiguity is taking on theoretical importance.

A series of questionnaire studies on Russian, summed up in (F&Y 2006), showed inconsistent results -- e.g., two experiments presented in (F&Y 2004), 42 participants, and (F&Y 2006), 36 participants, respectively were conducted on the same materials but still they have 46% high attachment (h.a.) in the former and 64% h.a. in the latter. Why? The authors argued that diverse preferences are due to varying ratios of high to low Working Memory (WM) span participants -- Low-Spans focus on the matrix verb argument showing h.a. preference, while the High-Spans are able to keep NP₂ as well as NP₁ relatively active for attachment and actual preference is due to semantics of stimuli (M&P 1999). This hypothesis was confirmed in the second experiment (F&Y 2006) in which a Russian adaptation of Daneman & Carpenter's (1980) reading span task was used.

In previous studies we did not emphasize the distribution of RC-attachment interpretations by items. Meanwhile, some of examples in the first experiment (F&Y 2004) showed (i) no preference, as in (3a) -- out of 42 participants 21 preferred h.a. interpretation; (ii) strong low attachment (l.a.) effect, (4a) -- 39 participants preferred l.a. interpretation; (iii) strong h.a. effect, (5a) -- 33 participants preferred h.a. interpretation. We argue that the difference is due to semantics of stimuli.

F&Y (2006) hypothesized that the result of their first experiment (46% h.a.) was due to the accidental domination of High-Span participants. These participants, unlike Low-Spans, as M&P (1999) argued, are able to keep both sites relatively active for attachment taking into account the semantics of stimuli. So, one can expect that the distribution of the second experiment described in (F&Y 2006) where there were 18 High-Spans and 18 Low-Spans will be more uniform. In fact, we do not find any peak, e.g., 17 l.a. interpretations out of 36 for (4a) and 22 h.a. interpretations for (5a) in total. Moreover, we find that 13 out of 18 High-Spans of the experiment, however, in (4a) prefer l.a. interpretation.

Here we present the experiment on Bulgarian. The first Bulgarian experiment (Sekerina et al. 2003) demonstrated the significant h.a. preference (59% h.a. in total). The material of the present Bulgarian experiment is equivalent to our Russian sentences. 24 participants filled out the questionnaire with 16 ambiguous sentences like (3b). The results indicate that Bulgarians strongly prefer h.a. strategy (68% h.a.). But what about semantics of stimuli? Surprisingly, the distribution became very different from the Russian one -- e.g., for both (4b) and (5b) 20 participants out of 24 preferred h.a. interpretation.

The first explanation that comes to mind is that Russians and Bulgarians differ with their interpretations of the same stimuli. To test the hypothesis we conducted two judgment posttests -- 16 Russian and 16 Bulgarian participants read each experimental sentences and then rate each of its two paraphrases, like (2), on a scale rating from 0 to 3. The results, however, showed no differences between Russian and Bulgarian participants' interpretations -- the overall preference for h.a. was 2,5 versus 1,6 for Russians and 2,5 versus 1,5 for Bulgarians; (4a) as (4b) showed the significant preference for l.a. -- 0,9 versus 2,7 for Russians and 0,8 versus 2,5 for Bulgarians; (5a) and (5b) showed the significant preference for h.a. -- 2,7 versus 0,8 for Russians and 2,6 versus 0,7 for Bulgarians.

Thus, we do not accept this explanation. We are forced to hypothesize that (i) all or nearly all our Bulgarian participants in the main experiment accidentally have low reading span, or (ii) Bulgarian participants analyze these ambiguous sentences do not taking into account the semantics at all. In the talk we consider some consequences of the latter hypothesis for Universalist, Exposure-Based, and Cognitive accounts on RC-attachment ambiguity.

Examples:

- (1) Someone shot the servant of the actress who was on the balcony.
- (2a) Paraphrase: The servant was on the balcony (*high attachment, h.a.*).
- (2b) Paraphrase: The actress was on the balcony (*low attachment, l.a.*).
- (3a) Престъпникът застрелял служанку актрисы, която его прятала.
- (3b) Престъпникът застрелял прислужницата на актрисата, която го е укривала.
- (3c) 'The criminal shot the servant of the actress who was hiding him.'
- (4a) Сегодня я общалась с папой ученика, который мне грубил.
- (4b) Днес тя общува с бащата на ученика, който я нагрубил.
- (4c) 'Today I speak with the father of the student who was rude to me.'
- (5a) Корова забодала сына крестьянина, который ее пас.
- (5b) Кравата убоде сина на селянина, който я пасеше.
- (5c) 'The cow butted the son of the peasant who was herding it'.

References:

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