Early bilinguals' on-line use of lexical and grammatical information in sentence processing

Nayoung Kwon (Nanyang Technological University) & Patrick Sturt (University of Edinburgh)

nayoung.kw@gmail.com

L1-L2 processing; Nominal control construction; Eye-tracking; Self-paced reading; English

According to the Shallow Structure Hypothesis (Clahsen and Felser, 2006), L2 speakers fail to build detailed structural representations of the L2 during on-line sentence processing, and tend to rely on lexical semantics rather than grammatical structure. In the current study, we investigate early bilinguals' on-line use of lexical and grammatical information in sentence processing. Our participants are early bilinguals from the multi-linguistic community of Singapore, who use both English and Chinese in daily life. They differ from the late bilingual populations typically studied in L2 experiments. Thus the study allows us to test the generality of the application of the shallow structure hypothesis.

Here, we report a self-paced reading experiment that probed for the on-line use of nominal control information. Control constructions varied with respect to the thematic roles of the controller: giver (GvC: refusal (1)) and recipient (RpC: request (2)) control. Match and mismatch conditions were created using a reflexive gender matching paradigm. We assumed that, if the control information was used online, and the reflexive interpreted in accordance with Principle A, then processing difficulty will be found when the reflexive refers to a PRO with mismatching gender (1b,2b) relative to matching gender (1a,2a).

Reading times at the reflexive showed an interaction of control*matching, with a mismatch cost for the Recipient control conditions, but a match cost for the Giver conditions. This early effect can be interpreted in terms of a recency strategy, where PRO initially targets the most recent potential antecedent (e.g. "Janet" in 1,2) as a referent, ignoring the lexical control information, leading to difficulty when the reflexive gender mismatches this. However, two words downstream from the reflexive, there was an overall effect of matching, with longer reading times for the mismatching conditions in general, suggesting that the final interpretation of PRO was in line with the control information.

These results suggest that our population of early bilinguals showed a delay in the use of detailed grammatical and lexical information in sentence processing. A companion experiment run on monolingual English speakers using the same stimuli (but using eye-tracking) showed a mismatch cost for both types of control condition, with no evidence of an early phase ignoring control information. However, the monolingual speakers did show a small increase in regressions out of the infinitival region ("to dress") for Giver control relative to Recipient control, suggesting that the assignment of PRO to the non-recent antecedent caused measurable processing difficulty, although unlike for the bilingual speakers, this did not influence the choice of antecedent for PRO.

Overall, our results suggest that while early bilinguals are able to apply grammatical and lexical knowledge (Principle A and control information) to on-line sentence processing, lexical information can be ignored in early stages of processing. Thus the early bilinguals appear to occupy an intermediate position between L1 speakers and late bilinguals, though their difficulty appears to lie in the use of lexical (semantic) information, rather than in grammatical structure building.

(1a) Giver control (GvC) Match
Apparently David's promise to Janet to dress himself in comfortable clothing went unheeded.

(1b) Giver control (GvC) Mismatch
Apparently David's promise to Janet to dress herself in comfortable clothing went unheeded.

(2a) Recipient control (GvC) Match
Apparently David's reminder to Janet to dress herself in comfortable clothing went unheeded.

(2b) Recipient control (GvC) Mismatch
Apparently David's reminder to Janet to dress himself in comfortable clothing went unheeded.