

Cue-Weighting mechanism and bilingualism

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Cunnings' proposed theory can explain why second language (L2) learners have difficulty resolving certain types of dependencies (i.e., backward-looking dependencies) but not others (i.e., forward-looking dependencies). However, his theory should be more explicit about the mechanism underlying late L2 learners' and native speakers' DIFFERENT weightings of retrieval cues, and research framed within his theory should strive to tease apart age-of-acquisition effects from bilingualism effects.

Cunnings (2016) argues that differences in sentence processing behavior between late second language (L2) learners and native speakers can be understood in terms of the retrieval memory operations that underlie successful language comprehension. He proposes that late L2 learners are typically native-like in their resolution of syntactic dependencies if their task is to determine WHEN to resolve a dependency (e.g., in forward-looking dependencies), but they have difficulty resolving syntactic dependencies if their task is to determine WHAT referent to retrieve from memory (e.g., in backward-looking dependencies). Cunnings interprets this difficulty within a cue-based theory of memory retrieval where all referents that partially match the retrieval cues are activated and the referent that provides the best match to the retrieval cues is retrieved; late L2 learners have difficulty retrieving the correct referent because they show interference from competing referents and ultimately assign greater weight to discourse-level retrieval cues than to syntactic retrieval cues.

Cunnings (2016) thus proposes a concrete mechanism to explain why L2 learners have difficulty resolving certain types of dependencies but not others. As Cunnings explains, several studies have provided evidence that L2 learners CAN construct syntactically complex parses (e.g., Hopp, 2014, 2015), a finding which remains unexplained under a theory that posits shallow L2 parses (e.g., Clahsen & Felser, 2006). What Cunnings' theory does not make explicit, however, is the mechanism underlying late L2 learners' and native speakers' DIFFERENT weightings of discourse-level and syntactic retrieval cues and, if applicable, what would lead late L2 learners to alter their cue weighting as they become more proficient in the target language. In the sound domain, the cue-weighting theory of speech perception (e.g., Francis, Baldwin & Nusbaum, 2000; Francis & Nusbaum, 2002; Holt & Lotto, 2006) posits that multiple acoustic cues are simultaneously available to listeners, but these cues are weighed

probabilistically as a function of their informativeness for signaling linguistic contrasts, with listeners' greater reliance on more informative cues resulting in weaker reliance on less informative cues (Repp, 1982). The cue-weighting theory of speech perception has been used to explain effects of the native language (L1) on the perception of new/L2 linguistic contrasts (e.g., Ingvalson, Holt & McClelland, 2011; Invalgson, McClelland & Holt, 2011; Iverson, Kuhl, Akahane-Yamada, Diesch, Tohkura, Kettermann & Siebert, 2003), with L2 learners' cue weighting becoming more native-like after perceptual training (e.g., Ingvalson, Holt et al., 2011) and with increased exposure to the target language (e.g., Ingvalson, McClelland & Holt, 2011). The mechanism underlying the weighting of retrieval cues in Cunnings' theory may differ from that posited for speech perception, in that late L2 learners' different weighting of discourse-level and syntactic retrieval cues is not proposed to explain L1 effects, but rather to explain late L2 learners' vulnerable use of syntactic cues in the processing of backward-looking dependencies – though Cunnings acknowledges that the weighting of retrieval cues in one language may also influence how similar retrieval cues are used in the other language. The current comparison between the two theories is only meant to highlight the importance of being more specific about the mechanism that underlies late L2 learners' and native speakers' different weightings of retrieval cues.

Ultimately, any theory of L2 sentence processing should seek to tease apart age-of-acquisition effects from bilingualism effects. Distinguishing such effects is especially important if one approaches the study of L2 sentence processing from the perspective of a cue-based theory of memory retrieval where retrieval cues from one language can interfere with the processing of the other language. Cunnings (2016) raises this issue in his discussion of a study on the interpretation of

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English reflexives by early and late Chinese L2 learners of English (Kwon, Cunnings & Lesmana, 2013). One way to tease apart effects of age of acquisition from effects of bilingualism would be to compare late L2 learners to simultaneous bilinguals who speak the same two languages. Although such control participants are more difficult to find, the findings of such research would be far more conclusive.

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