Processing Hyponymy in L1 and L2

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This study examined the processing of hyponymy in L1 and two levels of performance (overall and high proficiency) in L2 in a group of Persian-English bilinguals. In two experiments, the same participants detected semantic relation in hyponymy pairs (i.e., hyponym–superordinate vs. superordinate–hyponym) in L1 (experiment 1) and L2 (experiment 2). The variables of pair type, stimulus onset asynchrony (SOA), language, and language proficiency were manipulated. Overall, the results showed that participants’ median RTs and SDs were significantly greater in L2. This suggests that L2 processing in unbalanced bilinguals is less automatic than L1 processing. The findings of experiment 2 with the higher proficiency group showed a trend toward performance in L1 and therefore confirmed the prediction of the hierarchical model of bilingual memory that lexical processes in more-fluent bilinguals approximate those of L1 speakers. The results of the two experiments also showed that participants were significantly faster when presented with superordinate–hyponym word pairs than with hyponym–superordinate word pairs at 100-ms SOA in both L1 and L2 conditions. The results at 200-ms SOA, however, showed an opposite trend, although the results with L2 did not reach significance. This trend of results points to a possibility of automatic vs. strategic processing in the sense that participants’ processing of hyponymy relation was more strategic than automatic at 200-ms SOA.

KEY WORDS: bilingual processing; hyponymy; Persian.

INTRODUCTION

One of the major questions addressed by psycholinguistic research on bilingualism is whether the two linguistic systems available to a bilingual are distinguishable at the lexical level alone or at a conceptual level as well. Two major sets of models have so far been proposed: independence models.
and interdependence models. The independence models envisage a separate, distinct system for each language (e.g., Lucy, 1992; Paivio & Desrochers, 1980; Paivio & Lambert, 1981). In other words, these models claim that conceptual representations are language dependent.

The interdependence models, on the other hand, postulate separate lexicons but a common conceptual store for a bilingual’s first (L1) and second (L2) languages (e.g., Costa, Miozzo & Caramazza, 1999; Kroll & Stewart, 1994; Potter, So, Von Echardt, & Feldman, 1984; Sharifian, 1996). These models have also come to be known as hierarchical models, as they distinguish between a lexical level and a conceptual level. Two of these models are known as the word association model and the concept mediation model (Potter et al., 1984). The word association model postulates that words in L2 access concepts through words in L1, whereas the concept mediation model maintains that words in each language have direct access to the conceptual store.

Although data from less proficient bilinguals supported the word association model, data from more proficient ones, in tasks such as picture naming and translation, lent support to the concept mediation model (Potter et al., 1984). That is, the data have pointed to the possibility of a developmental shift from word association to concept mediation for L2 words with increasing fluency.

An observation made repeatedly in bilingual research is that bilinguals translate from L2 to L1 faster than L1 to L2 (Kroll and Stewart, 1994). Kroll and Stewart used this finding to propose the revised hierarchical model, in which the two lexicons are conceived to be separate but interconnected and the lexical links between the two systems are maintained to differ in strength. That is, L2–L1 lexical links are assumed to be stronger than L1–L2 links. Strength of links here relates to the degree of automaticity of processing. That is, L2–L1 processing in this model is maintained to be more automatic than L1–L2 processing (Kroll & Stewart, 1994). An integral part of this model is a conceptual store that contains abstract representations about the world and that feeds both the L1 and L2 lexicons. L1 has a direct and stronger link than L2 to this conceptual store. This is so because a bilingual is more likely to access this conceptual store via L1, even when exposed to L2 lexical labels. This model would, for example, predict L2–L1 translations to be faster than L1–L2 ones, which has in fact been supported by empirical findings (e.g., Kroll & Stewart, 1994; Samani & Sharifian, 1997).

The model has also been challenged by empirical findings with tasks such as categorization (Dufour & Kroll, 1995) and translation (Heredia, 1995; La Heij, Kerling, & van der Velden, 1996). Dufour and Kroll asked fluent and nonfluent French-English bilinguals to view a category label