Compound processing has received attention in psycholinguistic research as it contributes to our understanding of how multimorphemic words are represented/processed in the mind. L1 studies revealed semantic transparency and headedness as two factors influencing constituent-based decompositional processing (Jarema et al., 1999). L2 research showed proficiency-based reliance on semantic transparency and headedness in compound processing (Wang, 2010).

The present study investigates, via masked priming, the role of transparency and headedness in processing L2 English Noun-Noun compounds. 102 L1-Turkish learners of English (51 advanced; 51 intermediate-level learners) and 51 English native speakers were tested. As both English and Turkish have right-headed compounds, both proficiency groups were predicted to demonstrate native-like processing pattern. The stimuli consisted of 10 transparent-transparent (headache), 10 partially-transparent (grapefruit), 10 pseudocompounds (wardrobe), 60 monomorphemic words (crocodile), and 90 nonwords. The prime-target pairs were presented in three conditions: (i) Constituent 1 (head–HEADACHE), (ii) Constituent 2 (ache–HEADACHE), and (iii) Unrelated (barn–HEADACHE). All items were matched on length and frequency.

A 2 x 3 x 3 Mixed ANOVA for the RTs revealed a significant main effect of word type (F=28.523; p=.000), prime type (F=9.615; p=.000) and groups (F=11.137; p=.000). The intermediate group was significantly slower than native speakers (p=.000) and advanced group (p=.02). Compounds were processed significantly faster than noncompounds (p=.000). Pairwise comparisons yielded significant differences between Constituent 1 and Unrelated Prime (p=.004) in compounds for native speakers. Constituent 1 (p=.001) and Constituent 2 (p=.026) served as significantly faster primes for advanced learners. A further analysis displayed that in native speakers and advanced learners, Constituent 1 (non-head) triggered significantly faster RTs than Unrelated Prime only in fully transparent compounds. Findings indicate the role of semantic transparency in constituent morpheme activation: native speakers and advanced learners employ decomposition for fully transparent compounds. Intermediate learners, however, do not exhibit any priming effects in compounds.

Keywords: headedness, L2 compound processing, semantic transparency.