Morphological Decomposition in Heritage Turkish Speakers in the U.S.

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Introduction. Existing literature highlights the need to understand the divergences in the language development of heritage speakers (HSs)—individuals who acquire a heritage language at home but live in an environment where a different dominant community language is spoken [4]. HSs tend to be weaker in the first (heritage) language than in the second (dominant) language, and their morphology acquisition is particularly vulnerable [5]. Accordingly, this study aimed to analyze the processing of morphologically complex words in HSs of Turkish.

Lexical access of morphologically complex words in agglutinative languages is suggested to involve decomposition rather than whole-word processing [1]. HSs of Turkish residing in the U.S. (henceforth, HTSs) are unbalanced bilinguals of an L1 (Turkish) that has a rich morphological structure and an L2 (English) that has an analytical structure, with comparatively little infection and derivation. The combination of these two morphologically distinct languages raises critical questions as to how HTSs process agglutinative morphology in their weaker L1 compared to their morphological processing in the dominant analytical L2.

Aim and Research Questions. Studies on morphological processing have largely explored the processing of inflectional morphology, especially in Indo-European languages. Hence, this study aimed to investigate whether HTSs process morphologically complex derived words in Turkish and English through decomposition or as whole words. This study also examined the extent to which HTSs' processing patterns in their L1 and L2 are similar to or different from those of homeland native Turkish (TSs) and homeland native English speakers (ESs), respectively.

Methodology. Two separate primed lexical decision tasks (one in Turkish, one in English) were conducted on HTSs (n=27), TSs (n=28) residing in Turkey, and ESs (n=21) residing in the U.S. Participants were selected based on their self-evaluations and language background (HTSs' mean age of onset to English=4;5). For each stimulus (Fig. 1), participants gave a lexical decision response (yes, no) by pressing a key. Morphological priming effect was measured by comparison of RTs across three conditions: morphologically complex (related) prime (*careless–CARE*), identical prime (*care–CARE*), and unrelated prime (*peace–CARE*): The literature [2-5] suggests that slower RTs in the unrelated prime than in the related prime show the stem (*care*) is activated during morphological decomposition, making it easier to recognize the target *CARE*.

Experiment 1. The Turkish task compared the RTs of HTSs and TSs. Adjectives formed with denominal adjectival suffix *-sız* (e.g., *sınırsız–SINIR*; '*limitless–LIMIT*') and nouns formed with deadjectival nominalizer *-lık* (e.g., *hastalık–HASTA*; '*sickness–SICK*') were the target stimuli of Exp. 1. The best-fit linear mixed effect regression model showed a significant main effect of GROUP ($\breve{\beta}$=-0.204, SE=0.028, t=-7.21, *df*= 52.85, p<0.001) and CONDITION ($\breve{\beta}$=0.066, SE=0.0081, t=8.11, *df*= 1510, p<0.001), yet no significant effect of SUFFIX ($\breve{\beta}$=0.035, SE=0.018, t=1.91, *df*= 4303, p=0.063): Overall, HTSs had significantly slower RTs than TSs. Both groups were significantly slower in the unrelated prime than in the related prime condition (Fig. 2).

Exp. 2 (English). HTSs' and ESs' RTs were compared for derived words with *-less* and *-ness* (translational equivalents for *-sız* and *-lık* from Exp. 1). The best-fit model revealed a significant main effect of CONDITION ($\breve{\beta}$=0.051, SE=0.0074, t=6.88, *df*= 1389, p<0.001) and SUFFIX ($\breve{\beta}$=-0.028, SE=0.012, t=-2.28, *df*= 45.42, p=0.03), but no significant effect of GROUP ($\breve{\beta}$= 0.048, SE=0.031, t=1.53, *df*= 45.83, p=0.13): No significant difference was found between the RTs of HTSs and ESs. Both groups were significantly slower in the unrelated prime condition (Fig. 2).

Discussion. Similar to the two baseline groups, HTSs' efficient priming in derived Turkish and English words showed morphological decomposition both in their weaker L1 and dominant L2. Despite the limited exposure to their L1, and contrary to the surface errors in HSs' production of morphology commonly noted in the literature [3], HTSs developed homeland native speaker-like morphological decomposition mechanisms for derived Turkish and English words [5]. In line with

the literature [2-5], HTSs' significantly slower RTs than TSs in the Turkish task in contrast to no significant difference between groups in the English task can be due to HTSs' dominance in L2.

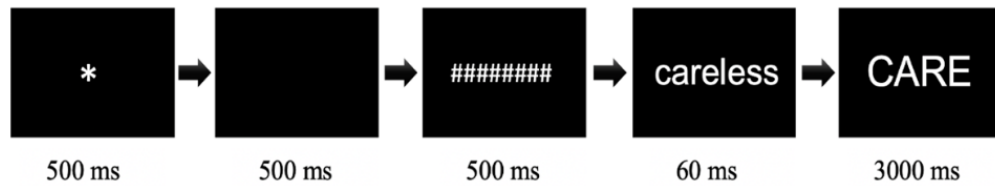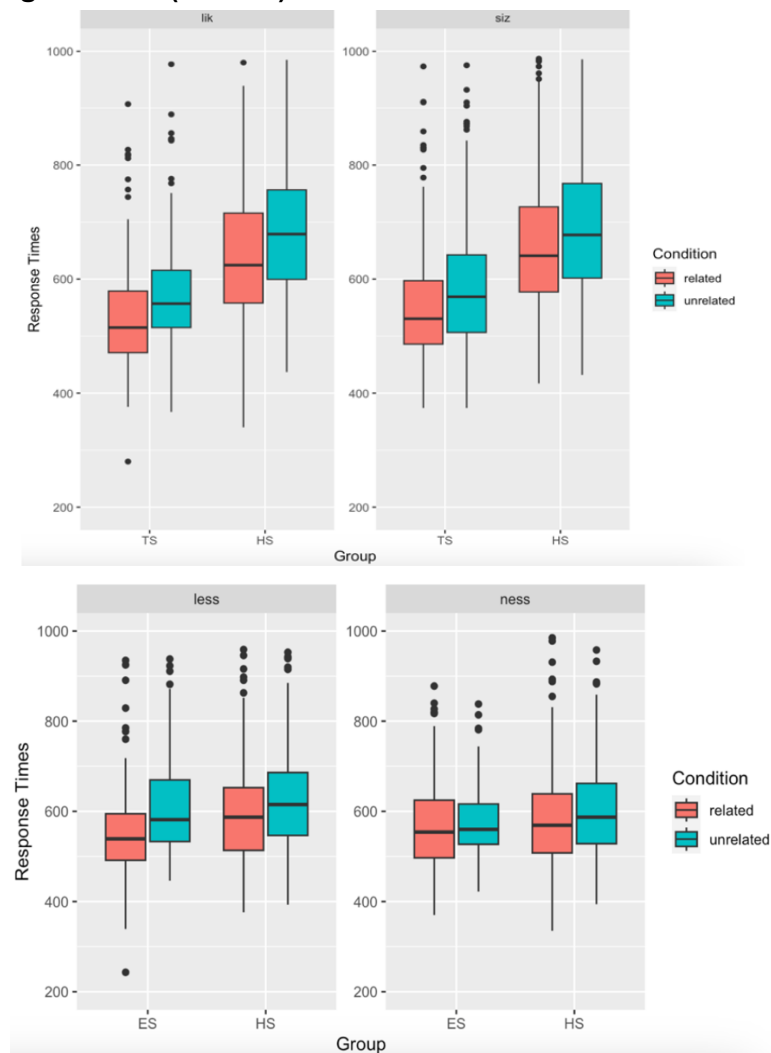**Figure 1. Visual Representation of a Primed Lexical Decision Task (for Each Stimulus)**

Figure 2. RT Comparisons Across Groups, Conditions, and Suffixes in the Turkish Task (top) and in the English Task (bottom)

Selected References. [1] Gürel, A. (1999). Decomposition: To what extent? The case of Turkish, *Brain Lang, 68*(1), 218-224. [2] Jacob, G., Safak, D. F., Demir, O., Kırkıcı, B. (2018). Preserved morphological processing in heritage speakers: A masked priming study on Turkish. *Second Lang. Res., 35*(2), 173-194. [3] Montrul, S. (2010). Current Issues in Heritage Language Acquisition. *Annu. Rev. Appl. Linguist. 30*, 3-23. [4] Scontras, G., Polinsky, M., & Fuchs, Z. (2018). In support of representational economy: Agreement in heritage Spanish. *Glossa: JGL, 3*(1), 1. [5] Uygun S., Clahsen, H. (2020). Morphological processing in heritage speakers: A masked priming study on the Turkish aorist. *Biling.: Lang. Cogn.*, 1-12.