# Age and input effects in ultimate attainment of morphosyntax: The case of Turkish-American returnees and L2 learners residing in Turkey

This study addresses a fundamental issue at the heart of our understanding of language acquisition: is early age of exposure crucial for successful ultimate attainment? Critical Period Hypothesis (CPH) postulates the existence of an optimal time frame in development during which humans are particularly sensitive to linguistic input (Abrahamsson & Hyltenstam, 2009). However, we know that heritage language (HL) speakers, despite their early HL exposure (usually from birth), and late second language (L2) learners exhibit significant structural variability in morphosyntax when tested in their dominant language environment (Montrul, 2016; Prela et al., 2024).

We take this line of research a step further and ask whether HLers and L2ers can achieve full target-like attainment in complex morphosyntax if they are tested in a naturalistic setting, when they are fully immersed in and using the HL/L2 in a majority language context (i.e., in the homeland). We test English-speaking L2ers of Turkish and Turkish-American returnees residing in Turkey. Returnees are a particular case of HLers, who grew up in a migration context and then returned, around puberty, to their (parents') country of origin (Flores, 2020). We ask: To what extent do L2ers and returnees show target-like acquisition of Turkish morphosyntax upon full immersion in Turkish after their return? If CPH holds, we expect returnees and HLers to pattern with monolingual Turkish speakers; if input factors play a more prominent role than maturational effects, HLers would be less accurate than returnees and L2ers residing in Turkey. Thirty Turkish HLers in the US were compared to 34 Turkish-American returnees with varying age of return (AoR) to Turkey (before and after puberty), 24 L2ers, and 30 monolinguals residing in Turkey. We report on production and judgement data on three vulnerable structures in Turkish HL grammars: passives (Bayram et al., 2019), relative clauses (RCs) (Pfaff, 1994) and anaphoric reference (Gračanin-Yüksek et al., 2020) using a context-based Acceptability Judgement Task (AJT) and a Sentence Repetition Task (SrepT) with a total of 164 and 116 stimuli, respectively.

Analysis of data (binomial logistic regression) indicated that returnees and monolinguals showed significantly higher accuracy than HLers, who in turn outperformed L2ers, in SrepT (Figures 1 & 2) and in AJT (Figures 3 & 4). However, all groups showed the same patterns: similar performance in producing passives and RCs in SrepT, but better judgements of passives than RCs, and particularly binding, in AJT. Correlations between accuracy, AoR to Turkey, length of residence (LoR) in Turkey, and contact with English/Turkish after return of returnees and L2ers revealed that the earlier they returned to Turkey, the better they performed in both tasks (Figure 5). We take these findings to suggest that complex morphosyntax is still nimble and malleable post-puberty, and that early age of exposure is crucial but not sufficient for successful ultimate attainment; maximal input is also required at some point in life (before or after puberty). These findings provide a unique angle on the roles of age of acquisition and input factors in language acquisition and maintenance in a bilingual context.
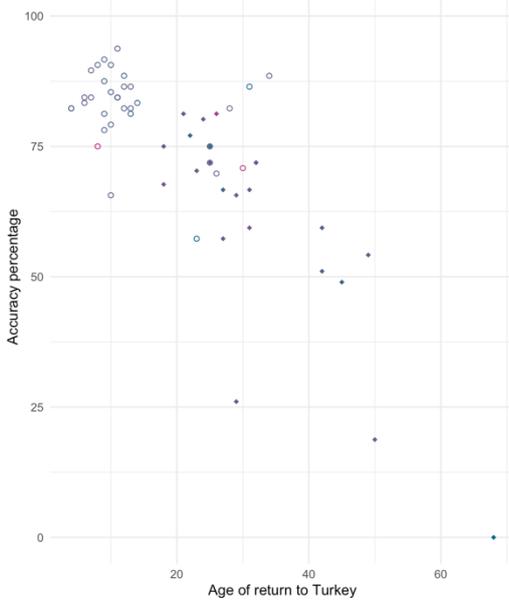
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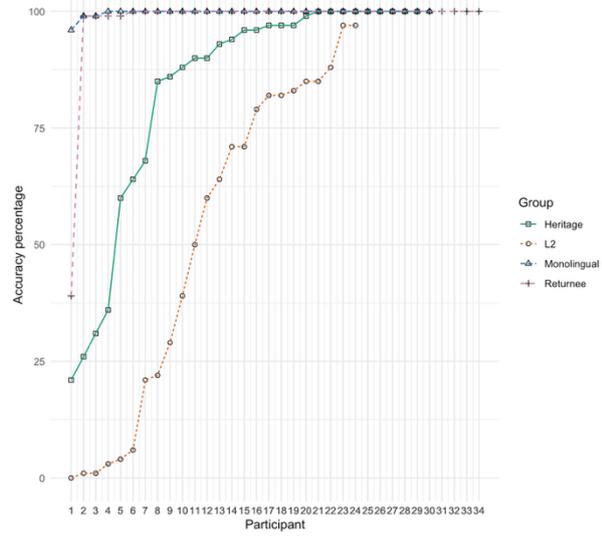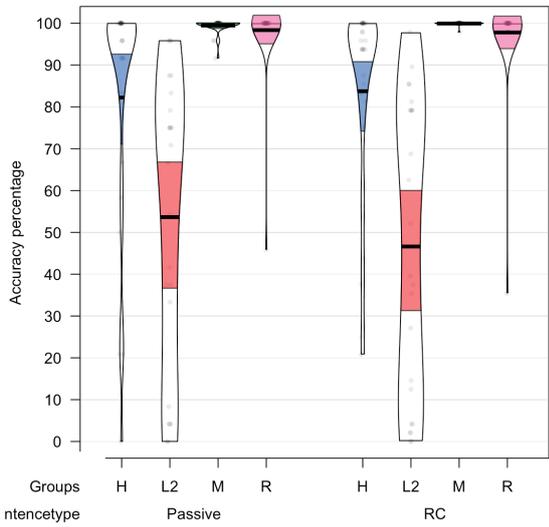
Figures 1&2. Mean accuracy percentages and individual variability per group in the Sentence Repetition Task
Note. H = Heritage; M = Monolingual; R= Returnee
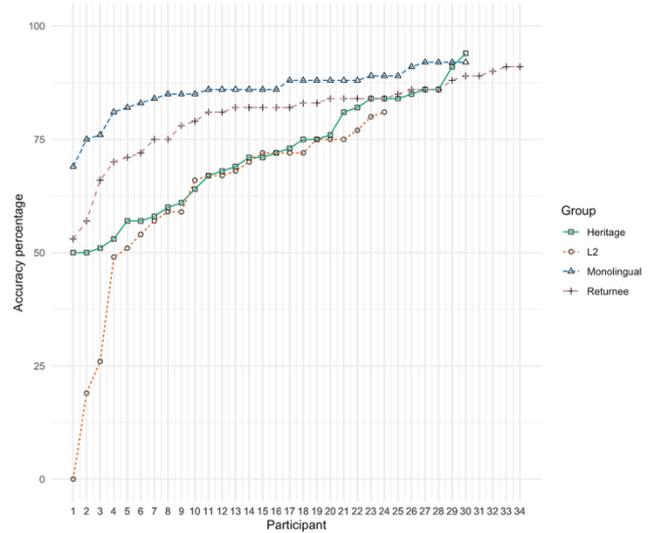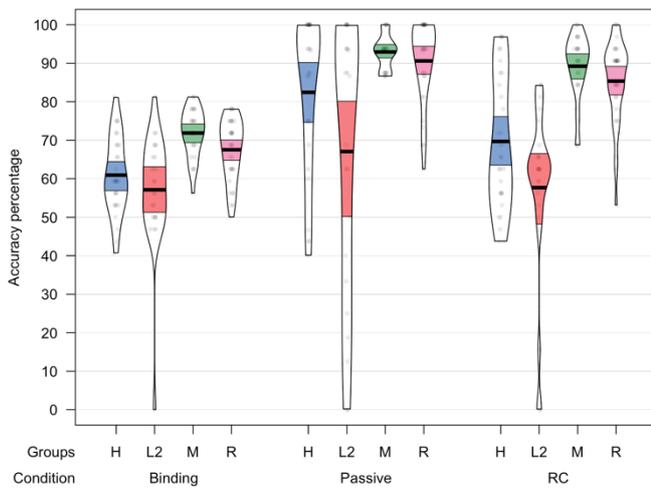
Figures 3 & 4. Mean accuracy percentages and individual variability per group in the AJT

Figure 5. Correlation between mean accuracy percentages, LoR and AoR to Turkey in returnees & L2ers in AJT

References: Abrahamsson & Hyltenstam 2009: Age of onset and nativelikeness in a second language: Listener perception versus linguistic scrutiny · **Bayram et al.,** 2019: Differences in use without deficiencies in competence: passives in the Turkish and German of Turkish heritage speakers in Germany · **Flores** 2020: Attrition and Reactivation of a Childhood Language: The Case of Returnee Heritage Speakers · **Gračanin-Yüksek et al.** 2020: The interpretation of syntactically unconstrained anaphors in Turkish heritage speakers · **Montrul** 2016: The Acquisition of Heritage Languages · **Pfaff** 1994: Early bilingual development of Turkish children in Berlin · **Prela et al.,** 2024: Beyond age: exploring ultimate attainment in heritage speakers and late L2 learners