Case and argument order as sentence comprehension cues in Heritage Icelandic
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Background: Can heritage speakers of North-American Icelandic use argument order and case marking as cues for language comprehension? Difficulties with argument reversal in heritage speakers of other languages have been observed (e.g. Polinsky 2009, Anderssen and Westergaard 2017), and the original aim of the current project was to compare the results of heritage speakers on a sentence comprehension task to similar data from Icelandic monolingual language acquisition and patients diagnosed with aphasia following left hemisphere stroke. Icelandic preschoolers show reduced comprehension in constructions with A- and A’-movement (see also Hirsch and Wexler 2006) and even more so if the movement includes argument reversal, ignoring case cues (Þórðardóttir 2014). Futhermore, Magnúsdóttir’s (2000) research showed people with aphasia also displayed reduced comprehension in constructions with A- and A’-movement (noted in Grodzinsky 2000 as well) but argument reversal did not have as much of an overall effect, indicating that some Icelandic speakers with aphasia make use of case cues when interpreting sentences. The unusual population demographics of the small North-American Icelandic language community (very few speakers under the age of seventy) prompted another question as a necessary antecedent to the goal outlined above: Are the difficulties heritage speakers experience in processing comprehension cues due to attrition/incomplete acquisition or aging? The results yield insights into the possible impact of age-related decline on sentence comprehension, and underline the need for a broader interpretation of age correlation in studies on language variation and change, including heritage language studies.

Main question and method: Within sociolinguistics, correlation with age is traditionally associated with change in apparent time and/or age grading (e.g. Sankoff and Blondeau 2007). Other approaches, within speech pathology and psychology, show that different results might be due to cognitive effects of normal aging, and in particular the well-documented decline in language processing ability (Burke and Shafto 2008). Typically, comprehension is considered to be relatively well-preserved in older adults, while it is widely recognized that production shows marked age-related decline (particularly word finding failures, increased slips of the tongue, pauses in speech). Studies on the processing of complex sentences (increasing the working memory load and overall processing cost) indicate that this is in part due to compensatory knowledge-based strategies, where plausibility evaluation might play a role (e.g. Federmeier and Kutas 2005, Wingfield and Grossman 2006). To explore the possible effect of age-related decline in our data on heritage Icelandic, we present the results of 21 heritage speakers (mean age 70.5) on a picture-selection task as well as two native Icelandic control groups with participants aged 30–40 (N=30) and 70+ (N=30). Participants were asked to choose between three pictures and match one of them with a sentence. The stimuli consisted of 60 sentences divided between 10 different sentence structures (actives, the new impersonal construction (NIP), short and long passives, wh-questions, clefts and topicalization with and without an auxiliary), each structure being tested with 6 different action verbs.

Results: The results (figure 1) show that age is a significant variable in a number of constructions, but its effects play a much smaller role than the contrast between heritage speakers and speakers raised in Iceland. Interestingly, the difficulties encountered by older Icelanders do not pattern in the same way as the heritage speakers’ results. This allows us to partly untangle the aging effects from the much larger effects of being a heritage speaker. The different patterns across sentence types show us that the difficulties heritage speakers encounter are not general sentence comprehension difficulties, but linked to specific constructions. This is also true of the older Icelandic speakers. The reported effects are only present in certain contexts. Differentiating between a variety of constructions allows us to draw more precise conclusions when it comes to the nature of the difficulties, and the comprehension cues available in processing. The heritage speakers show patterns similar to the results found in language acquisition data, where the argument order relative to the verb is crucial, while the case marking information is not as useful (contrary to the aphasia results). On the other hand, the older speakers show a less consistent and clear pattern which might be compatible with the hypothesis of knowledge-based compensation strategies (see also Magnúsdóttir, Nowenstein and Thráinsson 2018).
Figure 1. Picture selection task. Mean scores of different speaker groups across 5 pairs of sentence types. 95% confidence intervals.

References: 