City University of New York (CUNY)

CUNY Academic Works

Heritage speakers can actively shape not only their grammar but also their processing

Irina A. Sekerina
CUNY College of Staten Island

Anna K. Laurinavichyute
National Research University Higher School of Economics

[How does access to this work benefit you? Let us know!](#)

Heritage speakers can actively shape not only their grammar but also their processing

Irina A. Sekerina[1,2] and Anna K. Laurinavichyute[2,3]

[1]Department of Psychology, College of Staten Island, and Ph.D. Program in Linguistics, The Graduate Center of the City University of New York, U.S.A; [2]Center for Language and Brain, National Research University Higher School of Economics, Russian Federation and [3]University of Potsdam, Germany

Commentary

Polinsky and Scontras (Polinsky & Scontras), in their thought-provoking keynote article, bring together two perspectives on heritage languages, i.e., of theoretical linguistics and of psycholinguistics, and show how they interact and enrich each other. The authors list three causes of differences (transfer from the dominant language, attrition, divergent attainment) and outcomes (avoidance of ambiguity, resistance to irregularity, shrinkage of structure) of how the heritage languages differ from their baselines, but say that they do not know whether there is "agency on the part of heritage speakers" with regards to these outcomes. In this commentary, we provide psycholinguistic evidence that supports Polinsky and Scontras' idea of how important it is for psycholinguistics and the linguistic theory of heritage languages to feed each other. We show that (a) heritage speakers' processing can diverge from the baseline in online but not offline measures, (b) transfer from the dominant language does not always happen, and (c) heritage speakers can actively shape their processing that can contribute to heritage language restructuring in a chain reaction fashion.

We focus on processing of monoclausal *wh*-questions with varying word orders in heritage Russian. Simple *Wh*-questions are resilient in heritage languages, but become vulnerable at the syntax-pragmatics interface, as in the case of long-distance dependencies when the *wh*-word and its gap are separated by a clause boundary, or when non-canonical word order is used. The interface phenomena, as Polinsky and Scontras point out, are particularly vulnerable in heritage languages. Cuza (2012) showed that Spanish heritage speakers do not produce the required subject-verb inversion in matrix questions in baseline Spanish. The same speakers also judge the embedded questions without the inversion as grammatical, which Cuza takes as evidence for transfer from the dominant English.

We conducted a Visual World eye-tracking experiment with monolingual Russian adults ($N = 12$, $Age_M = 30$) (Sekerina, Laurinavichyute & Dragoy, 2019) and then compared their processing of monoclausal *wh*-questions with Russian heritage speakers ($N = 24$, $Age_M = 19.4$) who were equally distributed according to age of arrival: 8 were born in the U.S.A., 8 arrived before 6, and 8 between 7 and 13 years. The participants listened to 20 vignettes in Russian (1) while viewing the central fixation point (happy face) and four referent images in the corners (*boy, girl, teacher, school*).

(1) One day a girl and a boy were walking around the school. And suddenly the boy kissed the girl. The teacher was very surprised.
(2) SUBJ *WH*-QUESTION + OBJ SCRAMB (≠ENGLISH WORD ORDER)
    Kto$_2$ devočku$_1$ t$_2$ poceloval t$_1$ v škole?
    Who$_{NOM}$ girl$_{ACC}$ kissed   at school
    'Who kissed the girl at school?'
(3) OBJ Wh-QUESTION (=ENGLISH WORD ORDER)
    Kogo$_1$ mal'čik poceloval t$_1$ v škole?
    Who$_{ACC}$ boy$_{NOM}$ kissed   at school
    'Who did the boy kiss at school?'

The participants answered the experimental question (2) – (3) by clicking on the answer referent while their eye movements were recorded. There were two types of the experimental questions with different word orders – a SOV subject *Wh*-question with a scrambled object (2) absent in English, and an OSV object *Wh*-question (3) similar to English.

First, we found that despite the numeric difference in accuracy and reaction time of answering the question, there was no effect of the question type, nor did monolinguals and heritage speakers differ in offline measures (97% vs. 93%; 5144 ms vs. 5939 ms, respectively). Therefore, the heritage speakers were not at a disadvantage for the non-English SOV word order with the scrambled object in (2). This finding contrasts with Cuza's explanation that heritage speakers do not invert the subject and verb in Spanish questions because of transfer of SVO from
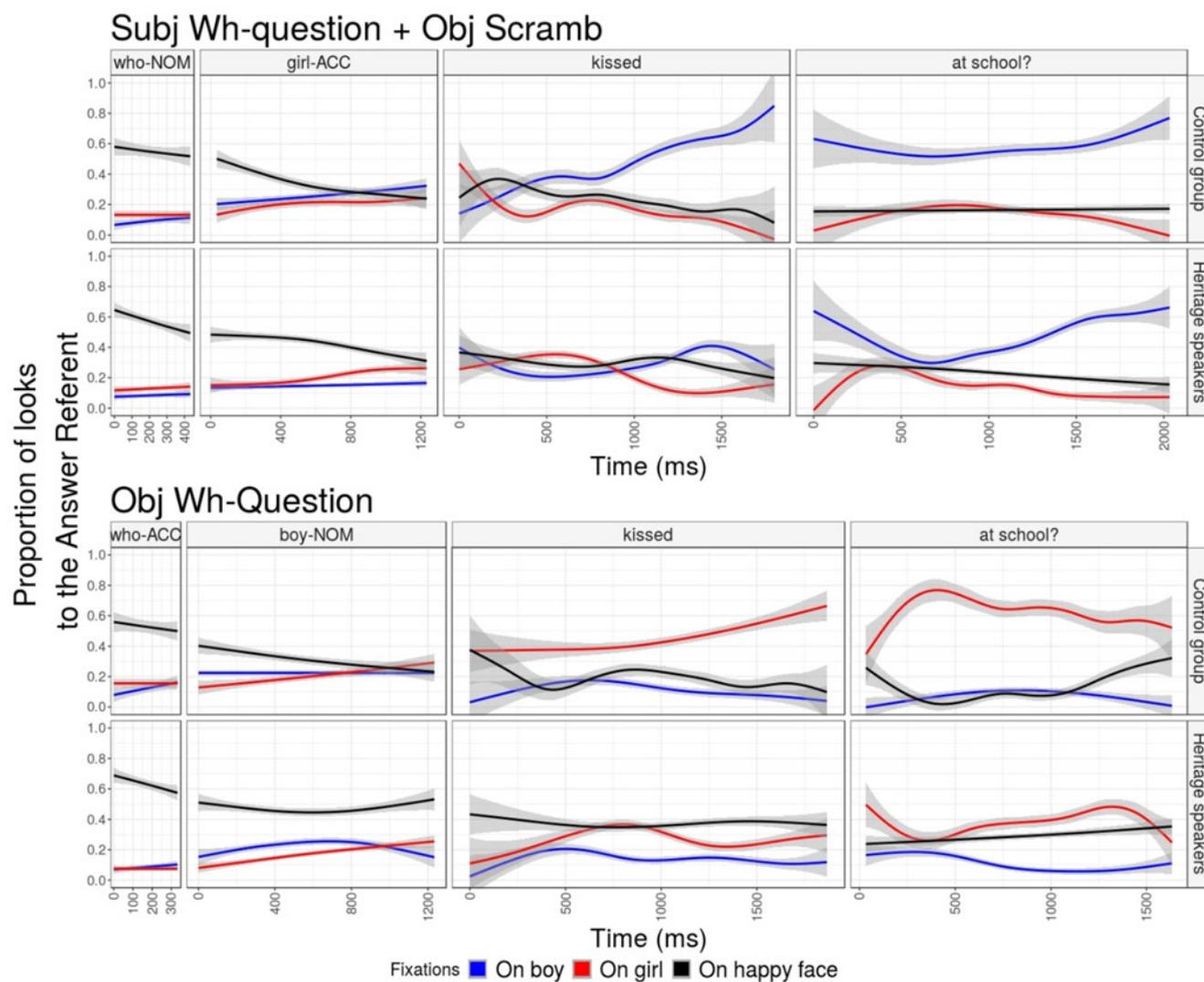
CAMBRIDGE
UNIVERSITY PRESS

Figure 1. Proportions of looks to the answer referent in Subj *Wh*-questions + Obj Scramb (2) and Obj *Wh*-questions (3).

English and supports Polinsky's (2018) results for the lack of word order transfer from English in processing of relative clauses in heritage Russian.

Second, the subtle, but statistically significant difference emerged in eye movements of the two groups (Figure 1).

The looks to the answer referent significantly increased with time at the verb (*kissed*) for the Subj *Wh*-question + Obj Scramb (2) condition [time x condition: $\beta = 1.17$, $CI = 0.49$–1.85, $p = .001$); importantly, the difference was much smaller for the heritage speakers [time x group: $\beta = -0.57$, $CI = -0.91$––0.23, $p = .001$]. At the PP (*at school*), the heritage speakers caught up with the monolinguals and looked equally more to the answer referent.

We argued elsewhere (Sekerina et al., 2019) that not only in the Subj *Wh*-question, but even in the Obj *Wh*-question condition, the monolinguals strategically adapted their eye movements, including anticipatory ones, to look for an answer to the question (pragmatic goal-directed processing of Salverda, Brown & Tanenhaus, 2011). Heritage speakers, on the contrary,

actively avoided any immediate commitments to the answer referent reflecting their low confidence while processing in their heritage language. What did they look at instead? They looked disproportionally long (38%) at the central fixation point (the happy face, black line in Figure 1, monolinguals: 27%) across the entire sentence. Thus, while the heritage speakers retained the *wh*-question formation in general (offline measures), there was a clear limitation of this knowledge in real-time processing. They did not commit to look for an answer the way the monolinguals did and strategically waited on the sidelines. We leave for the future the question of whether this behavior reflects their insufficient online resources while calculating even a short syntactic dependency or low confidence in processing in their heritage language.

Author ORCIDs. Irina A. Sekerina, 0000-0003-3859-3000; Anna K. Laurinavichyute, 0000-0002-3150-0206

References

Cuza A (2012). Crosslinguistic influence at the syntax proper: Interrogative subject-verb inversion in heritage Spanish. *International Journal of Bilingualism*, **17**, 71–96.

Polinsky M (2018). *Heritage Languages and Their Speakers*. Cambridge: Cambridge University Press.

Polinsky M and Scontras G (2019). Understanding heritage languages. *Bilingualism: Language and Cognition* 1–17. https://doi.org/10.1017/S1366728919000245

Salverda AP, Brown M, & Tanenhaus MK (2011). A goal-based perspective on eye movements in visual world studies. *Acta Psychologica*, **137**, 172–180.

Sekerina IA, Laurinavichyute AK, & Dragoy OV (2019). What eye movements can and cannot tell us about *Wh*-movement and Scrambling. In K Carlson, C Clifton Jr. , & J D Fodor (eds.), *Grammatical Approaches to Language Processing–Essays in Honor of Lyn Frazier*. New York: Springer, pp. 147–166.