The effect of the global language context on the lexical access in highly proficientbilinguals

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The goal of the current study is to investigate the influence of the top-down information about the current global language context (i.e., cues about presence of the second language) on the lexical access in Russian-speaking highly proficient learners of English (planned N=30). The *Bilingual Interactive Activation plus* model (Dijkstra & van Heuven, 2002) suggests that early lexical access in bilinguals is driven by bottom-up input only, and it is likely to be restricted to one language only in languages with different orthographies. In contrast, the *proactive gain control account* (Hoversten & Traxler, 2020) proposes that bilingual speakers use the control mechanism that utilizes the top-down information about the current global language context. In general, the latter account predicts that the activation threshold in the non-target language decreases with the increasing amount of the non-target language cues from the earliest stages of lexical processing. In the eye-tracking reading experiment, we test the prediction by introducing 2 types of such cues (language membership of a filler trial [Russian vs. English sentences] and interlocutor identity [Russian vs. English native speaker]). Specifically, we hypothesize that the gradual introduction of English language cues will have a facilitatory effect on the early (first fixation duration, skipping probability) and late(total time reading and regression probability) eye-tracking measures that are believed to reflect early and late lexical processing, respectively (Rayner et al.,1989).

Method. The study employs an invisible boundary paradigm: a Russian sentence is displayed until the eyes reach an invisible boundary located before the English critical word, which then is replaced by a Russian target word (Figure 1). We will use a 2 (filler language: Russian vs. English) X 2 (interlocutor identity: Russian vs. English) X 3 (target-critical word relation: translational equivalents РАМКА-FRAME; and two control conditions: unrelated code-switches СТОЛ 'table' - HEAD; pseudoword ОТЕЦ 'father' - ЖМЕН) within- subject design. In total, participants read 180 Russian sentences (15 sentences per condition) and 180 fillers distributed across 4 Blocks: Block 1 (Russian fillers, Russian interlocutor), Block 2 (English fillers, Russian interlocutor), Block 3 (Russian fillers, English interlocutor), Block 4 (English fillers, English interlocutor).

Analysis and expected results. The analyses will include a series of the (g)LMMs with each eye-movement measure as an outcome and the following fixed predictors: interlocutor type, filler type , target-critical word condition (plus the interaction), word length and frequency of the current and next word, target word position, target word cloze probability, trial order. As the experiment progresses from Block 1 to Block 4, we expect facilitatory effects of the global context cues on early (increase in skipping probability, decrease in first fixation duration) and late (decrease in total reading time and regression probability) eye-tracking measures on the target word, but only in the translational equivalents condition due to the semantic priming (Neely, 1991). Specifically, we anticipate 1) no effects on any dependent eye-tracking measures in Block 1; 2) the facilitative late effects in Block 2 and Block 3 due to the initial introduction of the cues; 3) facilitative early and late effects in Block 4.
The study will not only contribute to the debates in the bilingual lexical access research, but also can be useful from the applied perspective (e.g., contrasting the influence of the written stimuli and the instruction mode on the bilinguals' ability to access words in the second language; results that can serve as the information resource for bilingual educators).

Critical word sentence	[A]Мальчик подумал, что это очень добрый **l** <u>sign</u> для его действий
Target word sentence	[B]Мальчик подумал, что это очень добрый **l** <u>знак</u> для его действий
Gloss	Boy thought that this very good sign for his actions
Translation	'The boy thought that this was a very good sign for his plans'

Figure 1. *Example of a sentence (translational equivalent condition): The eye represents the fixation of the gaze before (A) and after (B) the sentence change. The red vertical line represents the invisible boundary that triggers a sentence change when eyes cross it. The critical and target words are underlined for display purposes only.*

References

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