Is L2 Text Reading modulated by Proficiency and L1 Writing System? Evidence from Eye Tracking

Demareva V.A. (Lobachevsky State University, Russia), Edeleva Ju.A. (TU Braunschweig, Germany), Neef M. (TU Braunschweig, Germany)
kaleria.naz@gmail.com

Though potentially informative for models of second language acquisition (Godfroid, 2019), examination of L2 reading rarely goes beyond the identification of isolated words. Studies of isolated word recognition in L2 learners document universal effects that parallel those exhibited by native speakers during natural reading. We investigated the behavior of Russian native speakers with different L2 proficiency during natural text reading in Russian as L1 and English as L2. The Cyrillic script of Russian is comprised of alphabetic characters. There are still characters that do not map onto the same phonological units as in the Latin script, thus, resulting in potential cross-linguistic interference at the level of the writing system.

28 Russian (L1) native speakers aged 18-30 with different levels of English language proficiency (measured by C-Test) took part in the experiment. All of them had an equally high level of proficiency in L1. Text stimuli for L2 were adopted from Liversedge et al. (2016). A comparable Russian text corpus was generated by the authors. Russian sentences contained fewer words, but the words were longer than in English texts. We therefore inquired how potentially lower character density, on the one hand, and the packaging of meaning in word morphology rather than in functional elements, on the other hand, would affect selected eye tracking measures for Russian texts. Secondly, we inquired whether and to what extent the eye movement of non-native readers show adaptivity when reading a denser language (English) compared to a less dense one (Russian).

In L1 Russian, the participants generally made fewer fixations of shorter duration than has been previously found for native speakers of English and Finnish (Liversedge et al., 2016). Their rightward saccades also spanned fewer characters. Yet, the forward saccade size (M = 7.78, SD = 1.79) roughly corresponded to the average word length in Russian. This might be since the relations between sentential constituents in Russian are expressed via inflectional morphology on the words themselves and less so via functional elements such as articles or prepositions that are commonly skipped.

For the analysis of L2 reading behavior, the participants were grouped by their C-test score into high-proficiency (> 80 %), mid-proficiency (50-80%) and low-proficiency (< 50%) groups. The groups were approximately equal in size (Figure 1). The participants from the high-proficiency group evidenced shorter fixations than those from the mid- and low-proficiency groups. Additionally, the L1-L2 difference in fixation duration and saccade size was more pronounced in low-proficiency than in mid- and high-proficiency participants. For low-proficiency learners, the saccades are generally shorter in L2 than in L1 indicating lower probability of word skipping that, however, increases with proficiency.

In summary, the findings for the reading pattern in Russian as L1 complement the patterns that were previously observed for English and Finnish (Liversedge et al., 2016). It appears that the difference in eye tracking parameters for the three languages is likely to be conditioned by the peculiarities of word design and expression of syntactic relations rather than by elements of the writing system or character density as a function of average word length. For the L2 reading pattern, we identified selected parameters that were sensitive to the participants' level of L2 proficiency (fixation duration and saccade size). Though it has been evidenced that high frequency words are recognized by L2 learners quicker than low-frequency ones (Wang & Koda, 2007), the probability of their skipping during normal reading appears to vary as a function of proficiency. The effect of the writing system remains to be explored by binning individual words into graphematically unique, matching, and mismatching ones.

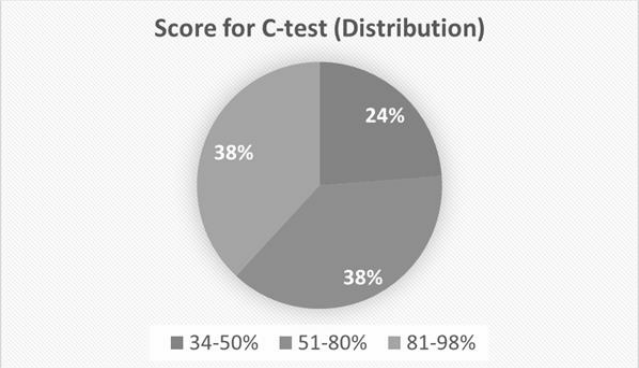

Figure 1 Participant Grouping by C-Test Score