Scanpaths in reading research: their use for testing long standing assumptions about L1 and L2 processing

Abstract Eye-tracking research typically analyzes measures on distinct interest areas in a sentence; for instance, the duration of readers' first fixation on a single word, or the sum of all fixations on a phrase. Another widely used measure is frequency of regressions (backwards eye movements) out of, *or* into a region. These analyses focus on an individual word at a time and ignore the continuous nature of eye movements. An alternative approach is scanpath analysis (von der Malsburg & Vasishth, 2011; 2013; von der Malsburg, Kliegl, & Vasishth, 2015). A scanpath contains temporal and spatial information of a holistic reading pattern, and thus considers the continuity of fixations in reading. In this talk, I will present the potential of scanpath analyses using data from two separate experiments. The first experiment involves garden path sentences read by L1 English participants; scanpaths allowed us to test assumptions about regressions in garden path sentences, and to test (and reject) the predictions of the Selective Reanalysis Hypothesis (Frazier & Rayner, 1982). The second experiment involves novel word processing in full sentences by L1 and L2 English speakers (an extension of Chaffin, Morris, and Seely (2001)). In an exploratory approach, I applied hierarchical clustering to reading pattern data in order to examine whether speaker group (L1-L2) determines reading behavior.