Linguamapping: the new frontier in language processing

Francesco Romano, Halmstad University

Aoife Ahern[1] and Jose Amenos Pons[1]

[1]University Complutense Madrid

It is fairly undeniable that phenomena such as global warming and COVID have had a significant impact on the way we do research in educational linguistics. In this context, traditional lab-based instruments intended to measure incremental language processing such as eye-tracking and self-paced reading have had to come to terms with several limitations (Boyce, Futrell, Levy, 2019; Spencer-Patterson & Nicklin, 2023) such as testing participants located remotely, decreasing the amount of travel to testing sites, and minimizing human contact.

The aim of this talk is to introduce a new tool in linguistic processing research, Linguamapping, that is more sustainable, accessible, and affordable than eye-tracking and self-paced reading, yet equipped to yield comparable, albeit not as sophisticated, data. The tool marries two types of software, one designed for the creation of conventional word order exercises used in textbooks and a specific cloud-based heat mapping software, Plerdy, intended to record an internet-user's mouse movements and clicks across the screen. We exemplify the tool reporting results from a pilot demonstrating how Linguamapping can track L1 Spanish transfer to L2 English sentence processing in real-time. A word order exercise testing knowledge of English word order in 4 sentence types (sorry no space is allocated by the call for papers to repor examples in the abstract) comprised 24 items, 6 per sentence type. It was made up of a word list at the top followed by a line with gaps where participants dragged and dropped words from the list. Above and beyond accuracy scores on the number of correct sentences, we recorded 3 measurements of processing: videos recording mouse movement while reordering; the total number of clicks on each word; the most frequent word order for critical words.

Results confirm L1 transfer affected participants' response and showcase Linguamapping's ability to explicitly capture L1 transfer in real time via videos and numerical click data which traditional behavioral tests achieve only via inferencing of correct and incorrect responses and eye-tracking/self-paced reading achieve via more expensive, and less sustainable and accessible means. We conclude the talk discussing limitations of Linguamapping at its current stages of development.