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Assessing Incremental Syntactic Processing in Spanish with Eye-Tracking Glasses

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Abstract

Previous research shows children have difficulties comprehending non-canonical sentences. However, studies of incremental processing in Spanish-speaking children are scarce, and online processing of non-canonical sentences remains unexplored. Wearable eye-tracking technology provides an accessible and flexible alternative for studying language processing in children. Building on prior validation against a stationary system, this study examines whether Pupil Labs' Neon glasses capture incremental syntactic processing in Spanish-speaking adults, in preparation for future research with children. Participants completed an auditory sentence-picture matching task with the visual-world paradigm, with structures varying in canonicity and complexity. Gaze-to-target proportions were analyzed to determine when they diverged from chance. For structures with agents in canonical sentence-initial position, gaze diverged early, indicating rapid role assignment. In contrast, non-canonical and structurally complex sentences showed later divergence following additional cues. Results suggest inefficient processing of less salient morphology, promoting delayed role assignment. The findings support wearable eye-tracking for incremental syntactic processing.