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Investigating the predictions of a memory-based account of statistical learning

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Abstract: Statistical learning (SL) refers to the ability to extract statistical regularities from the environment. Many researchers believe that SL arises as a consequence of the way that information is stored and accessed in memory (Thiessen, Kronstein, & Hufnagle, 2013). Accordingly, manipulations that influence memory should have similar effects in SL experiments. In the current study, participants were presented with artificial languages that varied along two dimensions known to impact memory: number of distractors in the input and timing of presentation (e.g., spaced vs. massed). Participants' performance was clearly influenced by these manipulations; for example, the ability to segment a word (e.g., "dupona") differed as a function of whether there was one frequent competitor (e.g., "dugalo") or several less frequent competitors (e.g., "dugalo," "dufalu," "dumiso"). Experimental results were compared to two memory-based computational models of SL (PARSER and TRACX). Implications of the experimental results and model comparisons will be discussed.