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## Predicting Cognitive Driver Distraction with Threaded Cognition Theory

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Threaded Cognition theory describes how people integrate and perform multiple concurrent tasks, providing a computational model of human multitasking situated in the ACT-R cognitive architecture. We present further evidence for this theory by predicting performance in a driver distraction task and validating these predictions with data from human drivers. Specifically, we show how threaded cognition accounts for the subtle but significant effects of a serial recall memory task on driver behavior. These results extend previous results for typical perceptual-motor tasks (e.g., dialing a phone) in demonstrating that even exclusively cognitive secondary tasks can adversely affect driver performance.