TASK SWITCHING IN THE ARGUS MODEL:IMPLICATIONS FOR THE BUFFER ARCHITECTURE

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We are currently exploring different approaches to modeling task switching in ACT-R 5.0. The task environment is the Argus Simulated Task Environment. Argus Prime is a classification task, which entails dynamic decision-making in the context of a radar-tracking task that requires the interaction of human cognitive, visual, and motor operations. In the dual task environment, the classification task is combined with either a tracking task that requires use of perceptual-motor resources or a letter task that requires use of auditory and cognitive resources. Data from two Argus dual-task experiments indicate that task switching occurs as a result both of goal-driven and stimulus-driven processes. We focus on modeling the number of task switches from the classification task to the dual task.

ACT-R is well suited to model goal-driven processes. However, it is not as clear how to model stimulus-driven or bottom-up processing in ACT-R. We will discuss different approaches to modeling bottom-up processing that exploit features of the ACT-R buffer architecture. We will also discuss the issues that have surfaced as a result of the different resources required by the dual task (tracking or letter) and the implications of these issues for the ACT-R 5.0 buffer architecture.