

ACTR-QN: Integrating Queueing Network and ACT-R Cognitive Architectures

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Abstract

Integrating the symbolic modeling capabilities of ACT-R and the mathematical and visualization capabilities of Queueing Network has both theoretical and applied values. Theoretically, the integrated ACTR-QN allows modelers to examine a wider range of fundamental cognitive issues from new perspectives. For cognitive engineering applications, a software program implementing ACTR-QN has been developed, including task templates, model setup assistants, and visualization functionalities. These tools and features support easy model building and intuitive model analysis of both task performance and mental workload.