JWARS Approaches to the Representation and Analysis of C4ISR

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Abstract

The Joint Warfare System (JWARS) is a campaign-level model of joint military operations that is currently being developed in the Office of the Secretary of Defense (OSD) for use by OSD, the Joint Staff, the Services, and the Warfighting Commands. JWARS is a closed-form analytic simulation whose design requirements include the ability to provide a "balanced" representation of joint warfare, including the effects of C4ISR on campaign outcomes. JWARS uses a representation of a decision process that includes observation, decision, and action. JWARS models ISR systems; the flow of information from those systems via C4 systems; the processing of information by C4 systems; and the fusion of information into approximations of mechanisms that provide battlespace perception (i.e., situation maps, track displays, and a common operating picture.) This paper describes the approach that JWARS is using to formulate a representation of perception. We explain how this approach to representing C4ISR supports analysis of the contribution of C4ISR systems to battle outcome. Finally, we identify areas of potential for future research, based on the JWARS development experience.