

A Systems Engineering Approach to Conflict Resolution

A Presentation by

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Abstract

The overall objectives of the research are to put the theory and practice of conflict resolution into proper perspective and to introduce the Graph Model for Conflict Resolution (GMCR) as a flexible decision technology for systematically studying real-world conflicts which can arise in engineering, international politics, business, and many other fields. Specific challenges that had to be overcome in the development of the graph model are described and it is explained how ideas from computational engineering and elsewhere were used to conquer them. For example, a difficult hurdle to surpass in the design of any decision model is how to obtain preference information. Accordingly, within the graph model paradigm for conflict resolution a number of flexible procedures have been designed for conveniently eliciting ordinal preference information for each of the decision makers. Other algorithmic and computational difficulties that had to be surmounted included developing techniques for handling very large conflicts, taking into account irreversible moves by decision makers, and carefully defining solution concepts for mathematically describing a rich range of human behaviour that can take place under conditions of conflict. The foregoing and other related developments have been incorporated into the decision support system GMCR II which permits practitioners and researchers to carry out comprehensive strategic studies within a user-friendly windows operating environment. The Cuban Missile Crisis of 1962 is employed for clearly demonstrating how GMCR II can be effectively used for modeling, analyzing, and better understanding real-world conflict.

Reference

Hipel, K.W., "A Systems Engineering Approach to Conflict Resolution in Command and Control", The International C2 Journal, special issue dedicated to Nigel Howard on Beyond Command and Control: Sense Making under Large World Uncertainty, Vol. 5, No. 1, 56 pages, 2011.