Negotiation Using Logic Programming with Consistency Restoring Rules

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We formalize negotiations using logic programming with consistency restoring rules (or CRProlog) [Balduccini and Gelfond, 2003]. Our formulation deals with incomplete information, preferences, and changing goals. We assume that each agent is equipped with a knowledge base for negotiation which consists of a CR-program, a set of possible assumptions, and a set of ordered goals. We use the notion of an answer set as a means to formalize the basic notions of negotiation such as proposal, response, negotiation, negotiation tree (protocol), etc. and discuss their properties.