

# **Dynamic Model and Weighted Ranking Strategy for Intelligent Agents' Negotiation in electronic commerce environments**

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Mobile agent technology may enhance the intelligence and improve the efficiency of systems in the electronic marketplace, driving e-commerce to evolve to a dominant market segment. This paper is based upon the notion of interacting autonomous agents that act in order to achieve particular objectives and accomplish the goals of their owners in a negotiation environment. In this framework, the roles of the negotiating agents may be divided into two categories that, in principle, are in conflict: the Buyer Agents and the Seller Agents, which are considered to be self-interested, aiming to maximize their owner's profit. The purpose of this paper is twofold. First, to propose a negotiation protocol to be employed in a dynamic, multi-lateral, multi-step negotiation model. Here, the authors exploit a multi-round negotiation mechanism, which demonstrates inherent computational and communication advantages over single-step mechanisms. The negotiators hold private information, which may be revealed incrementally, only on an as-needed basis, while the proposed solution is efficient in cases where the disclosure of information is not acceptable, possible, or desired by the parties. The negotiation environment considered covers multi-issue contracts and multiparty situations, while being a highly dynamic one, as its variables, attributes and leading objectives may change over time. Second, to provide an efficient negotiation strategy for the highly competitive Business-to-Consumer e-marketplace, considering the case where the negotiators face strict deadlines, and assist agents to reach to a satisfactory agreement within the specified time-limits. The approach of this paper is the following. Initially, the negotiation protocol and model are presented, where the alternating sequential offers pattern is not employed, but instead a contract ranking mechanism is used. Then, an innovative negotiation strategy adopted by the Seller Agent is described, enabling agents to reach to good agreements in reasonable time. Finally, conclusions are drawn and future plans are given.