Comparison of double auction bidding strategies for automated trading agents

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Absctract

In this work, ZIP, GDX, and AA automated bidding strategies are compared in symmetric agent-agent experiments with a variable composition of agent population. ZIPOJA, a novel strategy based on ZIP with Oja's rule extension for updating its optimal price, is introduced. Then it is showed that ZIPOJA underperforms in competition against other strategies and that it underperforms even against the original ZIP. Dominance of AA over GDX and ZIP is questioned and it is showed that it is not robust to composition changes of agent population and that the experimental setup strongly affects the results. GDX is a dominant strategy over AA in many experiments in this work in contrast to the previous literature. Some mixed strategy Nash equilibria are found and their basins of attraction are shown by dynamic analysis.