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AN ANALYTICAL STUDY OF THE N-PERSON PRISONERS' DILEMMA

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Abstract. An analytical study of the N-person Prisoners' Dilemma game is presented for Pavlovian agents that modify their behavior according to Pavlov's experimental studies formulated by Thorndike's (1911) law of conditioning: if an action is followed by a satisfactory state of affairs, then the tendency to produce that particular action is reinforced. We found that in case of linear payoff functions a maximum 50% cooperation rate can be learned in a large community of agents starting with small cooperation rates. This limit can only be increased if the initial cooperation rate is above 50%. The results are confirmed by computer simulation experiments.

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