

The relation between protocols and games

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Both, games in a game theoretic sense and protocols in an informational sense describe rule based interactions between systems. Some similarities and differences of both approaches are explored and illustrated with the example of the well known game tic tac toe.

The main thesis of this article can be roughly states as “protocols, enriched by decisions are games without payoff evaluation”. Introducing decisions as an additional input alphabet to determine the usually nondeterministic transition relation of a protocol leads to a classification of decisions as being either spontaneous (or inducing) or selection decisions.

Relating protocols and games, the complementarity of the focus of current game theory and informatics becomes better visible: the focus of current game theory to find distinguished strategies within single interactions requires the introduction of some often quite arbitrary payoff function for optimization purposes. The focus of current informatics to solve the coordination problem for finite systems, that is to determine the nondeterminacies of single interactions by other interactions may contribute to an inappropriate disregard of the decision and thereby the strategy concept of game theory.