

Extended abstract

## **Sociological Game Theory: Human Agency, Social Institutions & Cultural Formations, Interaction Patterns and Equilibria**

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**Abstract.** Game theory can be viewed as a major contribution to multi-agent modeling, with widespread applications in economics and the other social sciences. This paper extends – “socializes” -- classical game theory incorporating major social science concepts (Tom R. Burns and associates and Erving Goffman, numerous publications). In Section I, the approach is outlined and compared and contrasted with classical game theory (J. von Neumann and O. Morgenstern, R.D.Luce and H. Raiffa, among others).

From a social science perspective, classical game theory fails to systematically distinguish – and to provide analytic leverage on -- a number of interpersonal relations and institutional forms – such as relations of close friendship and intimacy, solidarity, enmity, hierarchy, market, and state-citizen relations; and moral and normative considerations are only superficially considered, if at all. These subjects are given systematic attention in the research of SGT as well as the work of Erving Goffman -- and have resulted in the conceptualization of such equilibria as normative equilibria, moral dilemmas, normative-instrumental dilemmas as well as in models of complex interaction on markets, in administrative bodies, and policy systems.

Erving Goffman (1961, 1969) in his research focused mainly on face-to-face interaction situations with a stress on ritual but also genuine strategic behavior in the classical game sense; multi-value games and mixed-motive orientations of the actors characterized Goffman’s considerations. SGT (Burns et al, 1970s-2000s) focused more on normatively and institutionally regulated interactions in markets, bureaucracies, and democratic systems; also, there is attention to actors involved in

friendship, collaboration and exchange as well as diverse conflict and negotiation processes.

Section II stresses that most of the tools of sociology and the social sciences are readily and easily incorporated in SGT models which can be applied empirically and policy-wise. SGT offers a toolbox of social science concepts and methods for describing, analyzing, and explaining highly diverse interaction phenomena. Sociological concepts such as norm, value, belief, role, social relationships, and institution can be defined in a uniform and consistent way in SGT in terms of rules, rule complexes, and rule systems (which in formalized SGT are also defined as mathematical objects).

The toolbox of social science concepts and methods provides a robust, systematic basis to describe, analyze, understand and explain patterns of interaction, their stability, instability, and transformation. In some instances, predictions of interaction patterns are possible because institutional arrangements and normative orders are stable. Interaction conditions that are likely to lead to stable patterns, on the one hand, or to unstable patterns and disorder, on the other hand, can be investigated and specified

Section II ends by concluding that with a social science grounded game theory, sociologists and social scientists no longer are forced into the classical straightjacket with its hyper-rationality, anomic players, and the absence of any social fabric (institutional and cultural formations).

In concluding, the paper provides a matrix for comparing and contrasting on a number of core theoretical dimensions SGT, on the one hand, and classical game theory, on the other hand.

In Section III, we present briefly selected results from applying SGT to a few diverse interaction and game situations.

- Market bargaining games (a type of “open” game and often also multi-value (mixed motive)). Bargaining patterns, outcomes, and equilibria are identified.
- Prisoners’ dilemma (a type of closed game) which will be played differently by actors with differing social relationships and/or normative contexts; this results in different outcomes and equilibria. In one case, the game is played by solidaristic or normatively constrained actors; in another case, the game with the same situational opportunities and external payoff results is played by antagonistic or belligerent actors.
- A 2-person (or organized agents) transforming meta-game where one or both agents use their given capabilities (rights, strategic resource control) to transform  $G_1$  to  $G_2, \dots, G_k$

**Keywords:** Game Theory, social science concepts and models, institutions, norms, interaction, communication, negotiation