

Games of Power

Enabling Game Theory to Untangle Power

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Abstract

Power takes many forms in social situations and influences dynamics and outcomes in social-ecological systems (SESs) every day. Game theory models social situations between different entities (groups or individuals), with strategies and outcome pay-offs. The canonical two-players two-choice games (2x2 games) can be used to depict a wide diversity of social interdependence relationships beyond the archetypal social dilemma. We explore how practical power and power by design (Morrison et al. 2019) work across social situations using 2x2 games. We sort out 144 strict ordinal 2x2 games from the archetypal games of interdependence (Bruns and Kimmich 2021) and relate them to typologies of power within the domain of SES governance. Our contribution extends beyond the conventional understanding of the impact of framing on strategic interactions, by delving deeper and more explicitly into the role of power dynamics in shaping the arrays of 2x2 games that are dominant underpinnings prevalent in environmental governance discourses. It also challenges persistent Eurocentric, patriarchal, and colonialist epistemologies underpinning the assumptions made by game theory (as applied to real world scenarios) by advocating for a nuanced examination of how power dynamics contribute to the selection and perpetuation of specific game configurations within typologies of games. We see this paper as contributing and expanding existing scholarship on synthesis and communication across different fields relevant to SES governance.

Bruns, B., & Kimmich, C. (2021). Archetypal games generate diverse models of power, conflict, and cooperation. *Ecology and Society*, 26(4), 2.

Morrison, T. H., Adger, W. N., Brown, K., Lemos, M. C., Huitema, D., Phelps, J., ... & Hughes, T. P. (2019). The black box of power in polycentric environmental governance. *Global Environmental Change*, 57, 101934.