What is game theory?

Game theory is a branch of mathematics that models strategic interactions between rational decision-makers or "players" in situations where outcomes depend on the choices made by all participants[1][2][3]. Developed by John von Neumann and Oskar Morgenstern in their 1944 book 'Theory of Games and Economic Behavior', game theory is widely used in various disciplines including economics, military strategy, politics, and biology[2][4]. It analyzes competitive situations where players try to anticipate their opponents' choices to determine their own best advantage, often under conditions of imperfect information[2][5]. The theory is particularly useful in simplifying and formalizing complex interactions, making them analyzable through mathematical models[1]. A well-known example in game theory is the prisoner's dilemma, which illustrates how rational actors may choose suboptimal outcomes due to lack of trust, even when better cooperative solutions exist[5].

[1] Turk, M., & Hefner, P. (2013). Being religious: cognitive and evolutionary theories in historical perspective. Pickwick Publications.

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[4] (2006). In Collins English dictionary. (8th ed., Complete & unabridged ed.). HarperCollins.

[5] Dunn, M. (2013). Belief and Religion in Barbarian Europe c. 350-700 (p. 71). Bloomsbury Academic.