Jackson Lockhart

Professor Tom Wears

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Final Exam Essay

In game theory, one of the main foundations of approaching any problem is to assume that those partaking in the game or decision making are “rational actors”, that they will always make the choice that is in their, and theirs alone, best interest. However, we run into a problem when we begin to think about what exactly best interest means, and how different people interpret different situations and what they value. Their own best interest might not exactly be a rational best interest. Kahneman and Tversky put this on full display in their paper, and I will use the data presented there to argue that, while game theory can predict what a rational actor would do, it can’t necessarily predict what a human might do, as their best interests differ, and they do not always act rationally. If or when they do, they often act in different ways, because of their unique individuality and values.

Despite the fact that human beings hold different things in different values, they almost universally hold value in certainty, and this extra value given for certainty is a variable that cannot be accounted for or made to be present in the payoff itself. This is displayed most prominently in Problem 4 in Kahneman and Tversky’s paper, where participants were supposed to make two concurrent decisions: Decision (i) Choose between: A. a sure gain of $240 (84%) B. 25% chance to gain $1000 and 75% chance to gain nothing (16%) Decision (ii) Choose between: C. a sure loss of $750 (13%) D. 75% chance to lose $1000 and 25% chance to lose nothing

(87%). Here, we can see in Decision (i) that A clearly dominates B in the number of people who chose that option, even though the Exp (B) is greater than Exp (A). This is a clear example of how certainty influences decision making but cannot be accounted for in the payoff function. The second part of the problem, Decision (ii), shows another key concept that is almost universally present in human decision making that is hard if not impossible to account for in game theory, that humans are not as willing to risk on possible wins than they are on their potential losses.We can see this by how in option D 87% of responders chose to risk the 75% chance to lose even more than the sure loss, but in option B only 16% of responders opted to take the 25% chance to gain much more than the sure gain.

If this were to be made into a regular game theory model, with the payoffs arranged accordingly, and we analyzed the expected value of each decision, we would expect that both players, being rational actors, would make the decision that gave them the highest chance at their greatest payoff. However, as this problem shows, humans aren't rational actors, and make decisions in a way that can't be put into an equation. There's no way to know exactly how much one person might value certainty over another, or just how much one player would be willing to risk on their possible losses versus another. This to me, proves that using game theory to try and predict human behavior is ultimately futile, and that it would be much better applied if you were to use it to model and analyze a given problem or situation. Whether or not the opponent is a rational actor, using game theory in a more analytic format rather than using it to predict behavior will still provide you, as a player, with a best response.