DISSERTATION ABSTRACT OF JOONGSAN HWANG

This dissertation is on rendezvous games and their departure and wait times. Rendezvous games where two people try to meet each other are common in reality. In such games, players decide when to depart for the meeting place and how long to wait if they do not see the other person. This dissertation is the first to analyze these games using game theory and solves for the Nash equilibria of the games.

In the first chapter, I analyze discrete rendezvous games. When players' travel instantly to the meeting place, I find that the players never wait for each other. When player's travel times are stochastic, the player who departs early and waits for the other player is revealed to have a high value of meeting but the other player's value of the meeting is unknown. Adding the restriction that players may not be able to depart when they want to enhances the realism of Nash equilibria. When travel time variation is small, agreeing on a back-up meeting time can improve social welfare. When a player knows that the other player has a high value of meeting, the player may choose to depart late and make the other player wait for her.

In the second chapter, I analyze continuous rendezvous games. When players can depart whenever they want, the dissertation finds Nash equilibria where the meeting probability is 1. When there is variation on how early players can depart, there are Nash equilibria where players' departure times and decisions differ based on this variation. In these Nash equilibria, meeting probability is low because players may unable to depart when they want to. To increase meeting chance and social welfare, players can agree to compensate each other for arriving early and waiting. Alternatively, they can agree to not depart early but wait for each other.

In the last chapter, I extend the model of the first and second chapters by adding signals. Now, players send claimed departure times simultaneously with their departure. In this setting, I analyze different types of PBE's, Perfect Bayesian equilibria. The most important PBE is the Partially Revealing PBE. Here, players alternate between telling the whole truth, being ambiguous and lying. In being ambiguous, players vaguely announce they are coming "soon". In lying, they falsely announce they will arrive early. I find that this PBE gives players the greatest expected utility compared to other types of PBE's. Also, when the variation in players' departure times is large, this is the only possible type of PBE.