

The Extensive Form

An intuitive way to define and characterize a game is to present its extensive form. This is the substance of Chapter 5. Briefly stated, the elements comprising the extensive form are the players, the possible moves they can make, the information available to each player when making a move, and the possible outcomes of the game as defined by the payoffs to the players. Our description is supplemented with several examples, where we also show why omitting details that help define the extensive form creates ambiguities for the players.

Every game has an extensive form, but it is not necessarily unique. This raises the question whether presenting subjects in experimental settings with different extensive forms of the same game will yield the same outcome. We discuss why this might not be the case, and report on experiments that test the null hypothesis.

The theory in this book focuses on the outcomes of games played by rational players whose preferences obey the independence axiom of expected utility. Chapter 6 provides a solution technique for perfect information games, defined as games where players take turns to move, and where each player is kept fully aware of how the game's history is progressing. Rationality requires each player to anticipate the consequences of her own current actions, and believe that all other players do this too. Thus the solution to perfect information games can be found using the backwards induction algorithm.