Information sets

Games in which the players play sequentially have been modeled with game trees that mark the order of play as one travels branch by branch from root to leaf through the graph. Games in which there is no sequential play, or in which some element of chance prevents a player from having full information about what is transpiring in the course of a game, are games of imperfect information. It will happen in such games that a player may have to make choices of strategy without knowing where in the game tree he is, as earlier decisions that place him at various possible nodes in the tree were made without his knowledge. The set of all nodes in the tree that correspond to positions in the game that the player is unable to distinguish for himself because of limited information is called an information set for the player. The game trees for games of imperfect information denote the information sets for each player by linking the nodes of an information set with dotted lines. Analysis of such games (by conversion from tree to matrix) must treat the selection of a strategy as a combination of choices from information sets (and not from individual nodes).

Example: Two-card poker (Straffin, Chapter 7)