

1-Basics of Game Theory

The games we study will share many characteristics. The following is a list of some of the things that all these games will have in common.

1. There are two players

2. The players take turns moving.

Note that these first two are the same as in many common games such as Checkers or Chess.

3. There are no ties or draws. Every game position we will examine ends in one player winning and the other player losing. This is different than Chess and Checkers where draws (ties) are common.

4. If a player can not “move” that player loses (and the opponent wins).

Note that this is *almost* the same as saying that the last player to move is the winner.

I put “move” in quotes because many of these games don’t involve moving pieces. So I’ll define my terms. Definition: By “move” we mean: take a legal action in the game.

The reason that the two descriptions of winning/losing (boldface above) are not quite identical is that a game might start with no legal moves available. In that case whoever was supposed to go first loses.

Note that this is the same as the rule in Checkers but the rule in Chess is different.

5. In all of the games we will study, either the first player or the second player can force a win. Thus if the first player has a forced win, you should prefer to go first. But if the second player has the win, then just offer to let your opponent go first.

A sample game is Take-1-2-3. The rules are on a separate handout.