



Math for the people, by the people.

extensive form game

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Defines	extensive form
Defines	information set

A game in *extensive form* is one that can be represented as a tree, where each node corresponds to a choice by one of the players. Unlike a normal form game, in an extensive form game players make choices sequentially. However players do not necessarily always know which node they are at (that is, what moves have already been made).

Formally, an extensive form game is a set of nodes together with a function for each non-terminal node. The function specifies which player moves at that node, what actions are available, and which node comes next for each action. For each terminal node, there is instead a function defining utilities for each player when that node is the one the game results in. Finally the nodes are partitioned into information sets, where any two nodes in the same information set must have the same actions and the same moving player.

A pure strategy for each player is a function which, for each information set, selects one of the available actions. That is, if player i 's information sets are h_1, h_2, \dots, h_m with corresponding sets actions a_1, a_2, \dots, a_m then $S_i = \prod_x h_x \rightarrow \prod_x a_x$.