AdaBoost and Game Theory

- summarizing:
  - weak learning assumption implies maxmin strategy for **M** defines large-margin classifier
  - AdaBoost finds maxmin strategy by applying general algorithm for solving games through repeated play
- consequences:
  - weights on weak classifiers converge to (approximately) maxmin strategy for game **M**
  - (average) of distributions D_t converges to (approximately) minmax strategy
  - margins and edges connected via minmax theorem
  - explains why AdaBoost maximizes margins
- different instantiation of game-playing algorithm gives online learning algorithms (such as weighted majority algorithm)