

The transition from Decision Theory to Game Theory was essentially a transition to including rational agents' choices among our “states” of interest. A key question for us is “how does including new agents alter Decision Theory, (if at all)?” One possible answer I discussed was: “it affords us new and very special strategies for reasoning about which states hold (here, how other players will behave). Thus it gives us slightly subtler ways of settling our credences before making our choices. But that's all.” If so, including other agents introduces a small “human” element, essentially the influence of iterated forms of reasoning into the determination of credences.

Today we'll look at another, perhaps more distinctively human, element in choice situations.

Too Many Equilibria

We noted in earlier classes that sometimes there are quite a few Nash equilibria to choose from. A simple way this can arise is in a “coordination” game.

	a	b
A	10 10	0 0
B	0 0	10 10

If there is more than one reasonable equilibrium play, how should agents coordinate on which they choose?

One way is obvious: communication. Sometimes this will involve the complexities of negotiation. But communication isn't always available. What to do when communication isn't around? Two options:

- (A) Guess
- (B) Look to mathematical features of the game (its structure, payoffs, etc.) to settle what to do. For example, maybe in this game $\langle B, b \rangle$ is to be preferred because it involves better payoffs for everyone.

	a	b
A	5 5	0 0
B	0 0	10 10

Could there be a third?