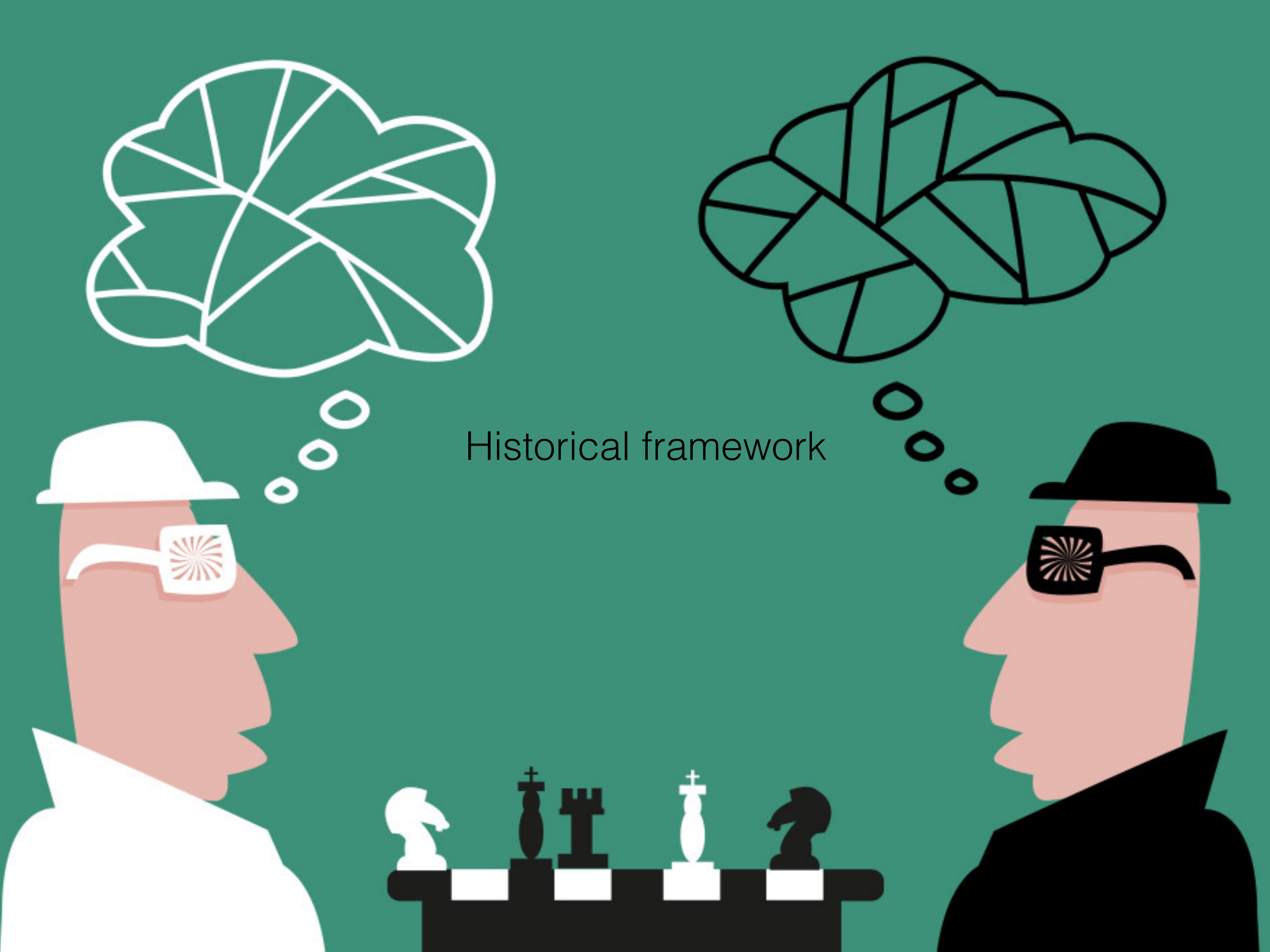
Game theory

Historical framework



Complete versus Incomplete Information

- So far we have assumed that players hold the correct belief about the other players' actions.
- In many situations, this is not realistic. Players' payoffs may NOT be common knowledge. You may be participating in an auction where you do not know the valuations of the other bidders. Firms may not know their competitors' cost functions.
- In Bayesian games, we analyze situations in which each player is imperfectly informed about an aspect of her environment that is relevant to her choice of action.

common knowledge

utility function

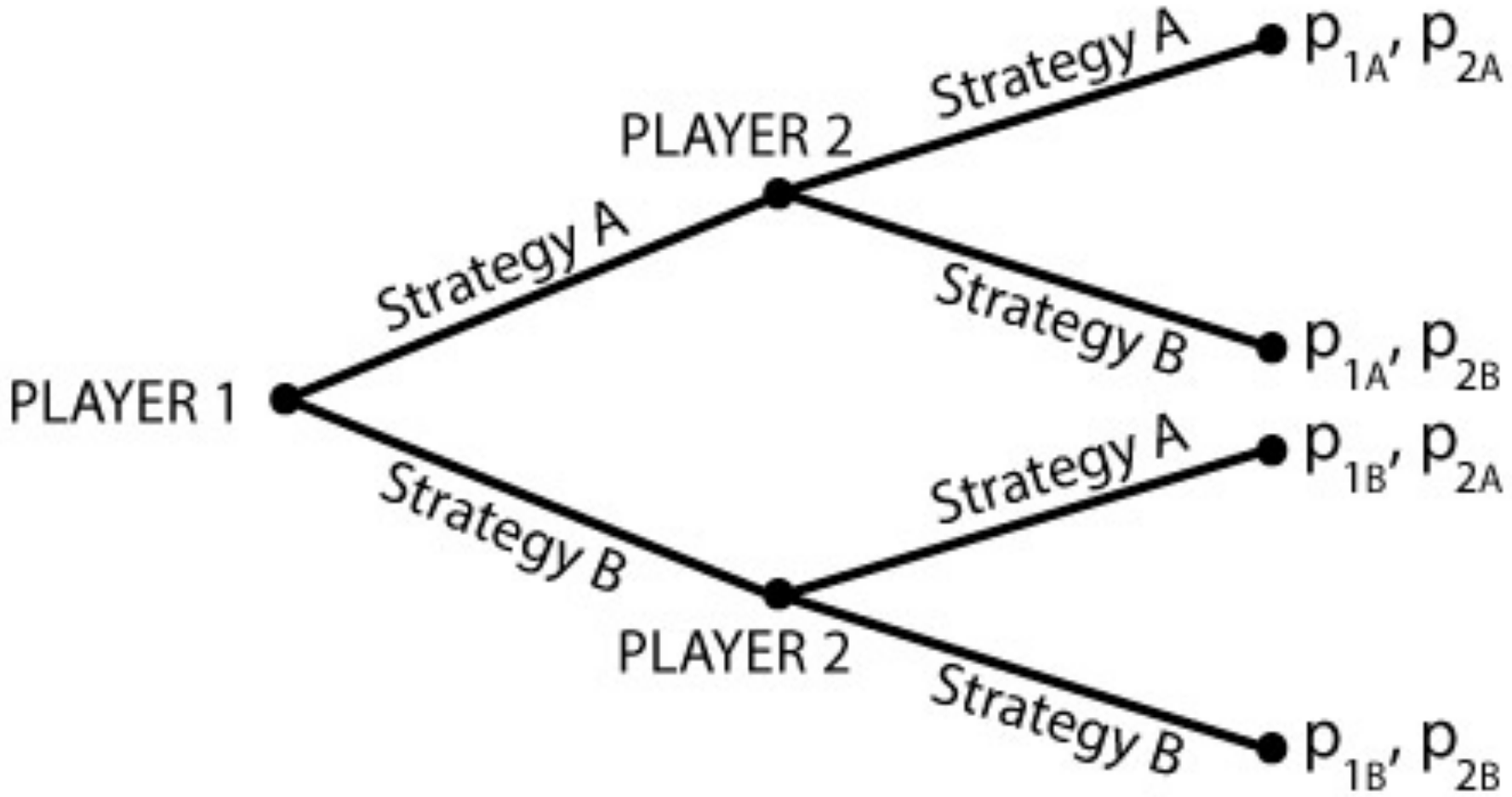
Perfect and imperfect information

Strategic form

		PLAYER 2	
		Strategy A	Strategy B
PLAYER 1	Strategy A	p_{1A}, p_{2A}	p_{1A}, p_{2B}
	Strategy B	p_{1B}, p_{2A}	p_{1B}, p_{2B}

Strategic form

		PRISONER 2	
		Confess	Lie
PRISONER 1	Confess	-8 , -8	0 , -10
	Lie	-10 , 0	-1 , -1


PLAYER 1
Strategy A
Strategy B
PLAYER 2
Strategy A
Strategy B
PLAYER 2
Strategy A
Strategy B
p1A′, p2A
p1A′, p2B
p1B′, p2A
p1B′, p2B