

Subgame perfection

1. A subgame perfect equilibrium is a Nash equilibrium that ...
 - (a) induces a Nash equilibrium in every subgame, including unreached ones
 - (b) reaches the last node of the tree
 - (c) maximises the sum of the players' payoffs
 - (d) uses only pure strategies
2. Backward induction solves a perfect-information game by ...
 - (a) converting it to a zero sum game
 - (b) working from the final decisions back to the root, choosing optimally at each node
 - (c) trying every strategy profile at random
 - (d) ignoring the players' payoffs
3. A non-credible threat is one that ...
 - (a) is written down before the game begins
 - (b) the threatening player would not actually want to carry out if the subgame were reached
 - (c) both players agree to
 - (d) always leads to the highest payoff
4. Which is true of Nash equilibria versus subgame perfect equilibria?
 - (a) subgame perfect equilibria need not be Nash equilibria
 - (b) every Nash equilibrium is subgame perfect
 - (c) they are always the same
 - (d) every subgame perfect equilibrium is a Nash equilibrium, but not conversely
5. Every finite game of perfect information has ...
 - (a) exactly two equilibria
 - (b) no Nash equilibrium
 - (c) a Nash equilibrium in pure strategies, found by backward induction
 - (d) a unique mixed equilibrium only
6. In the centipede game, backward induction predicts that ...
 - (a) both players pass to the final leaf
 - (b) there is no subgame perfect equilibrium
 - (c) the first player takes immediately, even though both could do better by passing
 - (d) the players alternate forever

7. A node initiates a subgame when ...
- (a) both players move there at once
 - (b) it is the root of the whole game
 - (c) it and all of its successors form a self-contained part of the tree
 - (d) it is a terminal node
8. In a game of perfect information, every information set ...
- (a) contains every node of the tree
 - (b) contains a single node
 - (c) is empty
 - (d) belongs to both players
9. A strategy in an extensive form game specifies ...
- (a) only the first move
 - (b) the opponent's moves
 - (c) a single action for the whole game
 - (d) an action at every decision node of the player
10. Subgame perfection rules out equilibria that rely on ...
- (a) cooperation
 - (b) non-credible threats off the path of play
 - (c) backward induction
 - (d) mixed strategies
11. Backward induction at a decision node chooses the action that ...
- (a) maximises the other player's payoff
 - (b) minimises the total payoff
 - (c) maximises that player's payoff given the optimal play that follows
 - (d) is chosen at random
12. If player 2 has a binary choice after each of player 1's two moves, player 2 has ...
- (a) two strategies
 - (b) eight strategies
 - (c) one strategy
 - (d) four contingent strategies
13. Every subgame perfect equilibrium is ...

- (a) Pareto efficient
 - (b) unique
 - (c) a Nash equilibrium
 - (d) in mixed strategies
14. Sequential rationality requires that a player's strategy is optimal ...
- (a) only at the first move
 - (b) only when the player is winning
 - (c) only on the equilibrium path
 - (d) at every information set, whether or not it is reached
15. In games of perfect information, the equilibrium found by backward induction is ...
- (a) always mixed
 - (b) the worst outcome for both players
 - (c) never a Nash equilibrium
 - (d) subgame perfect
16. An extensive form game has perfect information when ...
- (a) every information set contains a single node
 - (b) every player has the same payoff
 - (c) there are no chance moves
 - (d) players move simultaneously
17. Backward induction proceeds by removing, at each decision node, actions that are ...
- (a) played first
 - (b) on the equilibrium path
 - (c) dominated for the player deciding there
 - (d) chosen by chance
18. A subgame perfect equilibrium must induce a Nash equilibrium in ...
- (a) only the whole game
 - (b) every subgame, including those never reached in play
 - (c) only the final subgame
 - (d) only the subgames on the equilibrium path
19. The requirement that a strategy be optimal at every information set where a player decides is called ...
- (a) additivity

- (b) the folk theorem
 - (c) Pareto efficiency
 - (d) sequential rationality
20. In every finite game of perfect information, backward induction produces ...
- (a) a non-credible threat
 - (b) no equilibrium in general
 - (c) a pure-strategy subgame perfect Nash equilibrium
 - (d) a mixed equilibrium only