

Game Theory

Exercises

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Related material at:
<https://github.com/fe-lipe-c>

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The following exercises are from [1].

1 Chapter 3

3.0

template

response

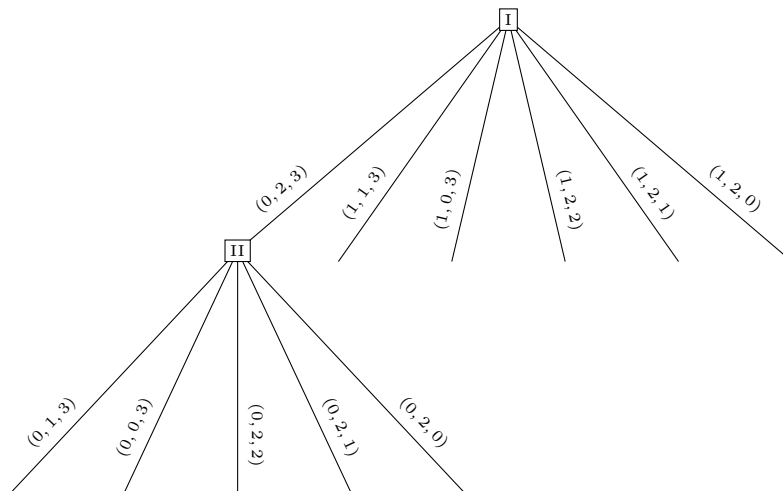
3.1

Describe the following situation as an extensive-form game. Three piles of matches are on a table. One pile contains a single match, a second pile contains two matches, and the third pile contains three matches. Two players alternately remove matches from the table. In each move, the player whose turn it is to act at that move may remove matches from one and only one pile, and must remove at least one match. The player who removes the last match loses the game.

By drawing arrows on the game tree, identify a way that one of the players can guarantee victory.

response

Without loss of generality, consider that the player I starts the game.



References

- [1] Michael Maschler, Eilon Solan, and Shmuel Zamir. *Game Theory*. 2nd ed. Cambridge University Press, 2020.