

Exercise 5.1: Be the Leader

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Setup:

- be-the-leader algorithm
 - 1 let $V_j^i = \sum_{r=1}^i v_j^r$
 - 2 in round i choose: $j^i = \operatorname{argmax}_j V_j^i$
- input:

	1	2	3	4	5
Action 1	1/2	0	1	0	1
Action 2	0	1	0	1	0

Question:

- On this input, what is the best-in-hindsight payoff (OPT)?
- On this input, what is payoff of BTL?
- In general, which is bigger OPT or BTL? (Answer on Canvas)

Lecture 4: Online Learning

Announcements:

- peer reviews due today

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- goal: no regret wrt. best in hindsight
- follow the leader
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Today:

- online learning (cont)
- warm up: be the leader
- follow the perturbed leader

Exercise 5.2: Learning Rate

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Setup:

- $n = 200$ rounds.
- $k = 10$ actions.
- follow-the-perturbed-leader algorithm (FTPL)
- optimized learning rate $\epsilon = 0.1$

Question: You find out you are going to run for for 400 days? Should you increase or decrease your learning rate? (Answer now on Canvas)