## Algorithmic game theory

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#### 7th lecture

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# Regret minimization

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- We now restrict ourselves to losses from  $\{0, 1\}$ .

## Example

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\*



No single action significantly outperforms the dynamic.



1	0
0	1

Weather	***	***		***	Profit
Algorithm	7			1	3
Umbrella	5	7	7	7	3
Sunscreen					1

Source: No regret algorithms in games (Georgios Piliouras)



 Besides game theory, the "multiplicative weight update method" has many applications in various fields of science, for example in optimization, theoretical computer science, and machine learning.



Sources: https://clubitc.ro

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• See https://en.wikipedia.org/wiki/Multiplicative\_weight\_update\_method#Applications

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## Thank you for your attention.