

## Problem 1

John has no money for Christmas presents.

If he gets an A from micro, he gets  $W = 400$  EUR from his parents.

Otherwise, he gets only  $W = 100$  EUR.

The more John studies, the higher is the probability of getting an A.

$S$  is his study effort and the probability that he gets an A.

John's utility function is  $U(S, W) = \sqrt{W} - 10S^2$ .

- What  $S$  maximizes John's von Neumann-Morgenstern utility function?
- How does John's  $S$  change if he currently has EUR 300 instead of 0?