

Assignment3: Decisions

Dmitrii, Maksimov
dmitrii.maksimov@fau.de
ko65bey

Ilia, Dudnik
ilia.dudnik@fau.de
ex69ahum

Aleksandr, Korneev
aleksandr.korneev@fau.de
uw44ylyz

May 27, 2022

Exercise 3.2 (Expected Utility)

1. State the formal definition of expected utility of an action in the current state of an agent? Explain the meaning of every variable in the defining equation.

$EU(a|e) := \sum_{s \in \Omega} P(s|a, e) \cdot U(s)$, where EU - expected utility, a - an action, e - evidence, Ω - set of all possible states, s - specific set of states, U - utility function.

2. How do we use expected utility to make decisions?

We compute expected utility for all possible actions and then choose action that results in the highest expected utility:

$$\arg \max_a EU(a|e)$$