# Languages, automata and computation II
# Tutorial 12 – Games

Winter semester 2024/2025

**Exercise 1.** We say that a game is *finite* if every play eventually reaches a dead end (no player can move). Show that finite games are determined.

**Exercise 2.** Show that one player parity games on finite graphs can be solved in polynomial time. Conclude that two player parity games on finite graphs can be solved in $\mathsf{NP} \cap \mathsf{coNP}$.

**Exercise 3.** Are Muller games on finite graphs positionally determined? Finite-memory determined?

**Exercise 4.** Are all games on finite graphs finite-memory determined?