

## AI for games – SameGame

### Flat Monte Carlo

Version 1:

- Random simulation – every time we choose random region with size  $\geq 2$  to delete.
- Best move is chosen by average score
- **Codingame result: 26992**

Version 2:

- Simulations with Tabu policy
- Selection like in v1
- **Codingame result: 40697**

Version 3:

- Simulation like in v1
- Selection with Tabu policy
- **Codingame result: 29439**

Version 4:

- Simulations with Tabu policy
- Selection with Tabu policy
- **Codingame result: 47057**

### SPMCTS

- With UCT formula from slides and random simulations,  $C = 0.5$ ,  $D = 10000$ , Codingame results were smaller than 20000.
- I tried to remove 3rd term from this formula and use Tabu simulations, then algorithm reached score 35393.
- Using tabu to choose best move (considering moves with most frequent color as illegal), standard UCT formula (with 2 terms),  $c = 0.5$  gave result **47886**

### Zobrist hashing

Hashing is implemented.

Use (implementation not finished):

During expanding the node check if any existing node has the same position on board. If yes – leave only node with better score and delete the second one.