Yannick Mogge
Hamburg University of Technology

Walker-Breaker Games on Random Boards

The Maker-Breaker connectivity game and Hamilton cycle game belong to the best studied games in positional games theory, including results on biased games, games on random graphs, and fast winning strategies. Recently, the Connector-Breaker game variant, in which Connector has to claim edges such that her graph stays connected throughout the game, as well as the Walker-Breaker game variant, in which Walker has to claim her edges according to a walk, have received growing attention.

For instance, London and Pluhár [2] studied the threshold bias for the Connector-Breaker connectivity game on a complete graph K_n, and showed that there is a big difference between the cases when Maker's bias equals 1 or 2. Moreover, a recent result [1] shows that the threshold probability p for the $(2:2)$ Connector-Breaker connectivity game on a random graph $G \sim G_{n,p}$ is of order $n^{-2/3+o(1)}$. We extent this result further to Walker-Breaker games and prove that this probability is also enough for Walker to create a Hamilton cycle.

This is joint work with Dennis Clemens and Pranshu Gupta.

References

[1] Dennis Clemens, Pranshu Gupta, and Yannick Mogge, *Connector-Breaker games on random boards*, The Electronic Journal of Combinatorics 28(3), 2021, pp. 3–10.

[2] András London and András Pluhár, *Spanning tree game as Prim would have played*, Acta Cybernetica 23(3), 2018, pp. 921–927.