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# Two-player Domino games

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## Résumé

Many types of games can be played on infinite grids, which bring many new challenges: endless or transfinite games, etc.

We study games inspired from the classical Domino problem: starting from an empty grid, each player in turn chooses a vertex and colors it. The attacker intends to construct some target pattern, while the defender tries to prevent it and wins if the game never stops. This framework covers classical variants of tic-tac-toe and n-in-a-row (gomoku).

We describe properties of these games and provide undecidability results stemming from the undecidability of the Domino problem. In particular, we study how the choice of turn order impact the decidability of the problem of determining which player has a winning strategy.

This is a joint work with Rémi Pallen.

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