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Asymptotically optimal pairing strategy for tic-tac-toe with numerous directions. (English)

[Zbl 1202.91044](#)

[Electron. J. Comb.](#) 17, No. 1, Research Paper N33, 6 p. (2010).

Summary: We show that there is an $m = 2n + o(n)$, such that, in the Maker-Breaker game played on \mathbb{Z}^d where Maker needs to put at least m of his marks consecutively in one of n given winning directions, Breaker can force a draw using a pairing strategy. This improves the result of *K. Kruczek* and *E. Sundberg* [[Electron. J. Comb.](#) 15, No. 1, Research Paper N42, 6 p. (2008; [Zbl 1160.91008](#))] who showed that such a pairing strategy exists if $m \geq 3n$. A simple argument shows that m has to be at least $2n + 1$ if Breaker is only allowed to use a pairing strategy, thus the main term of our bound is optimal.

MSC:

[91A46](#) Combinatorial games

Cited in **1** Document

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