Disthex: A New Twist on Hex

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Disthex is a variant of the classic connection game Hex, with one key difference that transforms the game. This article describes Disthex, its derivation, and the unexpected impact of a simple rule change, which resonates with the nature of the game and introduces significant new strategies.

1 Introduction

A common practice in game design is to take successful existing game ideas and look for ways in which they might be fruitfully modified or recombined [3]. This article describes one such case of a simple modification to the classic connection game Hex [2] that has a surprising impact on the nature of the game.

Figure 1. A 7×7 game of Hex won by White.

2 Hex and Disthex

Hex is the quintessential connection game [3]. Its rules are summarised below.

Hex is played on an $n \times n$ rhombus tessellated by hexagons, with two opposite sides coloured white and two opposite sides coloured black.

1. Two players, White and Black, take turns placing a piece of their colour at an empty cell.

2. Players win by forming a connected chain of their pieces between their sides of the board.

Hex is usually played with an additional *swap rule* to stop the first player making an overly strong opening move (towards the board centre):

Swap Rule: Instead of making their first move, the second player can elect to swap colours and steal the opening move.

For example, Figure 1 shows a 7×7 game of Hex won by White, who has connected the white sides of the board with a connected chain of white pieces. Note that only a small part of this board is filled before the game ends, which is typical of Hex. Hex is typically played on larger boards (usually 11×11 or 14×14 [2]) and has in fact been solved for size 7×7 [4].

2.1 Disthex

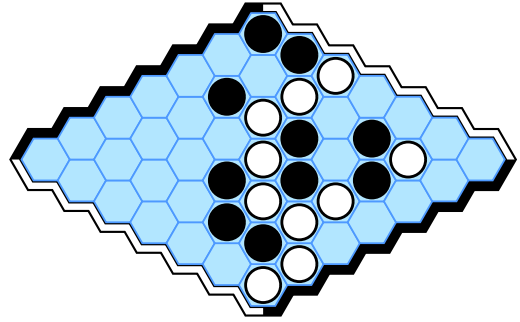Disthex was designed by the first author in 2017, and is played as follows:

Disthex is played on a 7×7 Hex board, as per Hex, except that players cannot play adjacent to the opponent's last move. The mover must pass if no legal move is available.
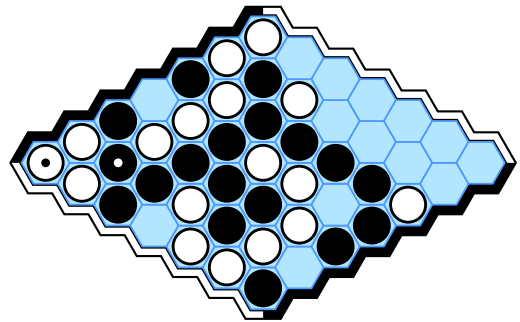

Figure 2. A game of Disthex won by Black.

For example, Figure 2 shows a game of Disthex won by Black, who has connected the black sides of the board with a chain of black pieces. Note that much more of the board has been filled compared to Hex, making Disthex more amenable to smaller boards. The basic mechanism that allows this, due to the novel 'no-last-