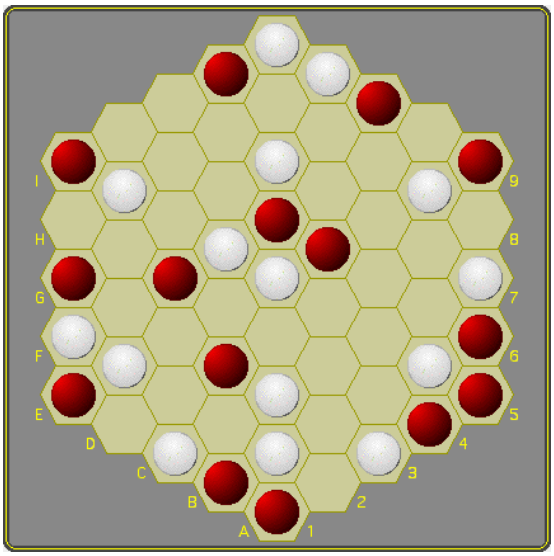
Multiplicity

Christian Freeling, 2012
https://mindsports.nl/index.php/the-pit/651-multiplicity



Multiplicity is an *inverted* connection game in in which connections often are to be *avoided*. It can be played using the **one-bound-one-free** opening protocol, but also without it.

Play Multiplicity interactively

Rules
There are two players, White and Red. Each has a sufficient number of stones and both move only with their own color. A 'group' is a number of connected like-colored stones. A single stone is a group by definition.

The game starts on an empty hexhex board. White moves first, after which turns alternate. Moving is compulsory.

The one-bound-one-free opening protocol
White starts by placing one stone on the empty board. From that point on players take turns to:

- Place a stone on a cell adjacent to the last stone placed by the opponent, and …
- … place a stone on a on a cell that has only vacant cells as neighbors.

Both placements are compulsory. When the player to move can no longer make the second placement, then his turn ends and his opponent may start the free placement phase. The number of white and black stones will always be equal,

although the 'density' of the position may vary and either player may end up being the one to start the next phase.

The free placement phase
This phase follows the opening protocol. If it is omitted, then the game *starts* with free placement.
Players take turns to compulsory place one stone on a vacant cell.

Object
The game ends when the board has precisely one vacant cell left so that players will have placed the same number of stones, and the player with the highest score wins. A player's score is the product of the sizes of all his groups. The applet keeps track of the score.

Draws
Though draws will be very far from common, the game may end with an equal score.

How I invented ... Multiplicity

Multiplicity was invented in early february 2013. The game seemed perfectly tailored to the Symple move protocol, to spawn and grow groups with the object of getting the highest score. A player's score at the end of the game is the product of the sizes of all his groups. The applet keeps track of the number of stones and groups and the score during play, allowing players to concentrate on strategy and tactics.

However, when the applet was made, the game turned out rather disappointing, with an obvious strategy and little tactical leeway. On April the 19th 2014 it suddenly occured to me that I had disregarded a well-known Shogi proverb: "If you find a good move, look for a better one". The Symple protocol is an almost perfect conceptual fit that results in a game that is theoretically deep, but practically dull. The "one bound - one free" protocol fits just as nicely, but results in a density and division of stones that support a far wider range of tactics and a more elusive strategy in both phases.

Note that groups larger than four stones carry a sense of inefficiency in that they can be split in two parts that factor to a higher value. A group of 5 carries less weight than the product of a group of 2 and a group of 3. The larger the group, the more inefficient it becomes. So connections should be avoided as much as possible. However, moving is compulsory ...

In 2020 Luis Bolaños Mures pointed out that Multiplicity actually didn't need an opening protocol, a fact that had escaped my attention. So now there's the option to play the game without it.