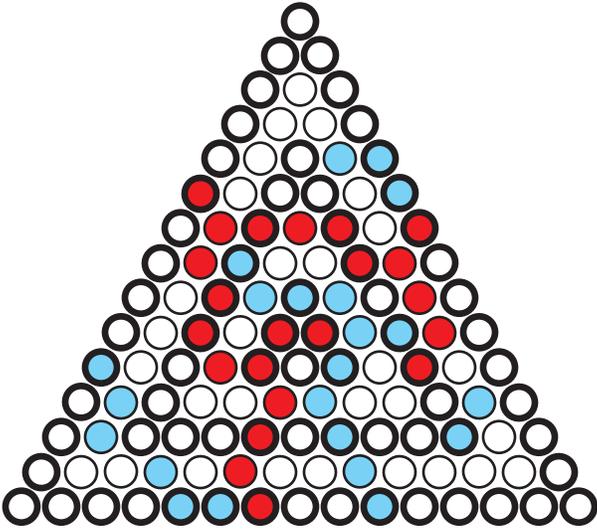# PRINCIPLE OF NESTED CONNECTIONS

Mark Steere - March 31, 2006

The fundamental principle of nested connections is demonstrated here using the game of Y, although the principle applies equally well to the game of Hex. Here we have three triangular, honeycomb pattern grids, concentrically superimposed. In general, the triangles are all of different sizes, there are an odd number of them (three or more), and the smaller ones are completely contained by the larger ones, though not necessarily concentrically arranged.

The three games of Y are played simultaneously and the winner of the majority of them is the overall winner. In this case Red has won the smallest and largest of the three, and Blue has won in the middle. So Red is the overall winner.

Specifically, the principle states that when different sized Y (or Hex) boards are successively nested as described above, they form interdependent games which can be played simultaneously. When an odd number of superimposed boards are used, the object being to win the majority of the games, ties cannot occur.

This is not the first appearance of subgames superimposed on subgames. There is Quadrant Hex (Steve Meyers, 2003) in which four hex boards are arranged into a two by two formation and superimposed onto a grid four times larger than the smaller grids. The winner of the majority of the five subgames is the overall winner. There is also a fractalized variation of Quadrant Hex (Cameron Browne, 2006).

Still, the game outlined here is the first that I'm aware of in which every subgame is superimposed on every other subgame. This creates a higher degree of interdependence among the subgames than in previous superimposition games.