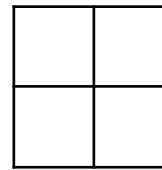


Explorations in the Emergence and Evolution of Human Communication Systems

By Angel Stone
University College Dublin

Human Communication Systems are important part of daily life. They are used in used in many tasks without even thinking as to where they came from and how we came to use them. My goal is to show how these systems come into existence and to show the features of how they grow and evolve. In keeping with a new trend in Linguistic I am following the Complex Adaptive System/Problem Solving Hypothesis, which states that instead of communication systems developing merely inside of the individual they develop outside the individual through the process of problem solving. The Human Communication System (HCS) is itself a complex adaptive system in that it shows properties of emergence, by the local phenomena creating a global phenomenon that bi-directionally affect each other.

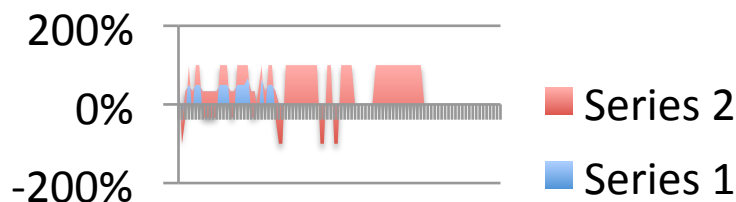


In my experiment I show some of these properties. My experiment begins with a cooperative task that is explained to the participants as a game. The object of the game is to get to 100 points and win. The game requires cooperation and requires that the players emerge a novel HCS to win the game. If they do not develop a novel HCS they cannot win the game. The game is a block building game. One of the players has the solution to what the block stacks should look like while the other player must build them. The novel addition to my experiment is that there is a third party onlooker will view the entirety of the game.

They are separated by a partition where only the area where the blocks are built is visible. That area is a 2x2 grid. Neither participant can see each other. Each player is equipped with a 9 key steel tongue drum and drums ticks goal was for them to communicate using the point system is +2 points for correctly placed block and -4 points for an incorrectly placed block. There is a -1 point per minute played to keep winning from being by chance and also offers an easy opportunity to evaluate communicative success.



Once the first two players finish the game. The player with the solution leaves, the player who did the building, will now be one with the solutions and the onlooker will become the builder. In the first round a very simple HCS should be bootstrapped.



By looking at this graph it is obvious that once the pair finds a working HCS they quickly win the game.