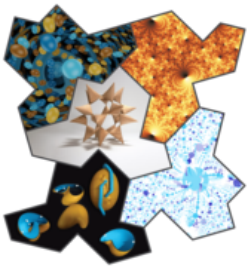

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# From connecting the dots to conjugacy of dynamical systems

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Around 1986, I was working on an interval map which was self-induced, with the Tribonacci constant (real root of $x^3 = x^2 + x + 1$) as coefficient, and I knew that a particular rotation of the 2-torus had been proved (by Gérard Rauzy) to have the same property; were these 2 systems conjugate? The conjugacy would, in that case, be a surjective map from the interval to the torus; what would it look like?

I remembered the classic children game of connecting numbered dots, and thought I could do the same to see if there was any possibility of a continuous conjugacy. I computed the 10609 first iterate of 0 by the interval map, and the 10609 first iterate of (0,0) for the rotation; I ordered the second sequence according to the order given by the first, and connected the dots, as an experiment. I expected to get a random set of segments with no structure, but got a very nicely behaved curve, which was clearly self-similar.

It was then clear that the two systems were conjugate, it just remained to prove it, which turned out to be quite easy. It also turned out along the years that followed that there were many more things to do with this game, for example a real tree, and that the illustration could go much further; there are still things I do not understand here, and questions I could not even ask 40 years ago.

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