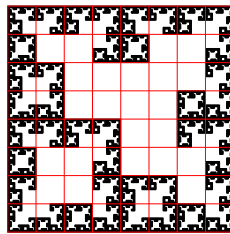


Third homework set

Due at the beginning of class on Thursday, Oct 1. No late homework will be accepted.

Fold your homework paper vertically and PRINT your name on the outside.

1. Can this IFS be generated by 1-step memory (forbidden pairs), or must 2-step memory (forbidden triples) be used? Your explanation should include lists of forbidden pairs and forbidden triples, and an explanation of why these lists support your conclusion.



2. Sketch the driven IFS produced by this time series, with the bin boundaries indicated. Explain how you arrived at your sketch.



3. Compute the box-counting dimension of this fractal, enclosed in the unit square, by finding the number of boxes of side length $1/4$, $1/16$, and in general, $1/4^n$ needed to cover the fractal. Your answer should be a fraction, and contain no logarithms.

