

“Bask3twork” Celtic Knot Generator

G4G15 Gift

My application “Bask3twork” uses Daniel Isdell’s Celtic Knot font (clanbadge.com) to procedurally generate Celtic knots with any subset of D_4 dihedral symmetry, including no symmetry at all. The program checks boundary conditions of each glyph to always generate valid knots, where the connections of neighbouring glyphs line up.

Pictured on the right are two 4x4 knots with full symmetry, i.e. D_4 symmetry. Note that my claims of “mirror symmetry” are actually referring to 2-fold rotational symmetry in the third dimension.

For my gift, I adapted Masayoshi Iwai’s “Martin Gardner” 2-cycle Game of Life oscillator ambigram.
(<http://www.iwai-masaka.jp/54892.html>)

With the “2-way Rotational” symmetry option, I used Bask3twork to generate 160 unique Celtic knots in this pixelated “Martin Gardner” ambigram. I generated each knot in small piecewise segments to ensure the result was appealing. I added a few elements of local symmetry, along with the global C_2 symmetry.

Pictured on the right is an example “M”, that doubles as the tail of the “n” and the “er” when viewed upside-down.



