

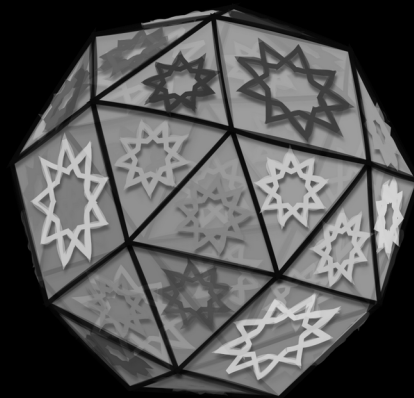
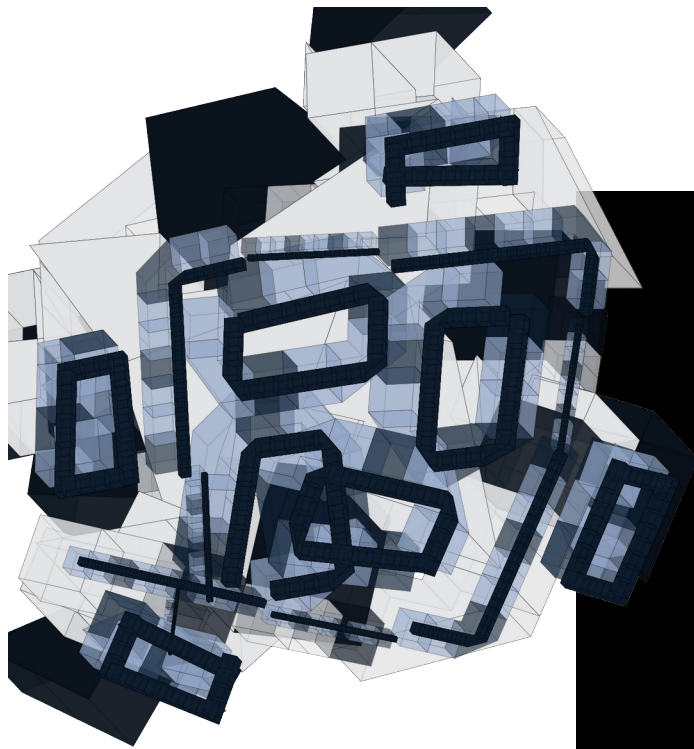
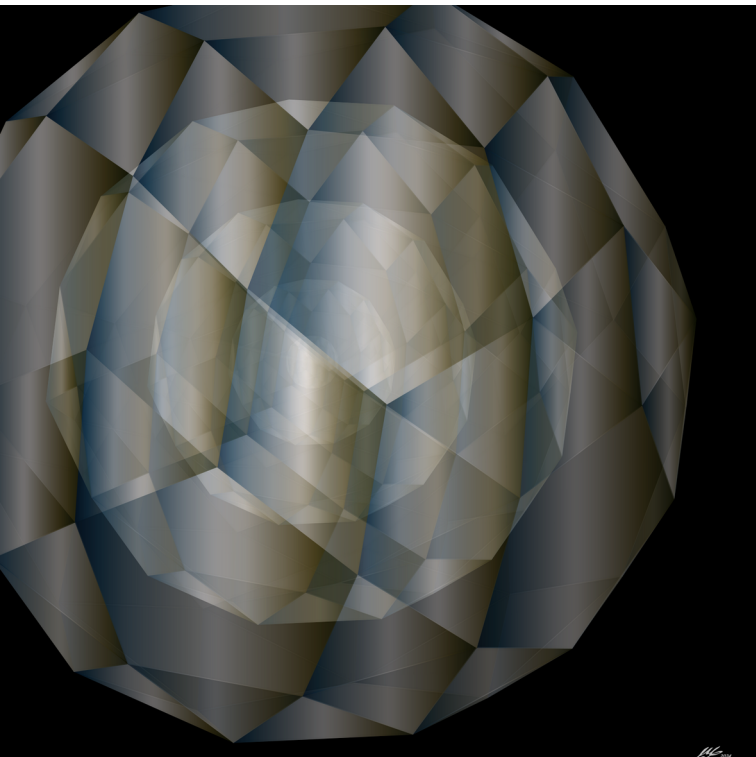
# •Recent Art

- Mary Holstege
- 2024

(A flock of paired cubic edges over the gorgeous “managua” gradient.)



# 3D





# Colophon

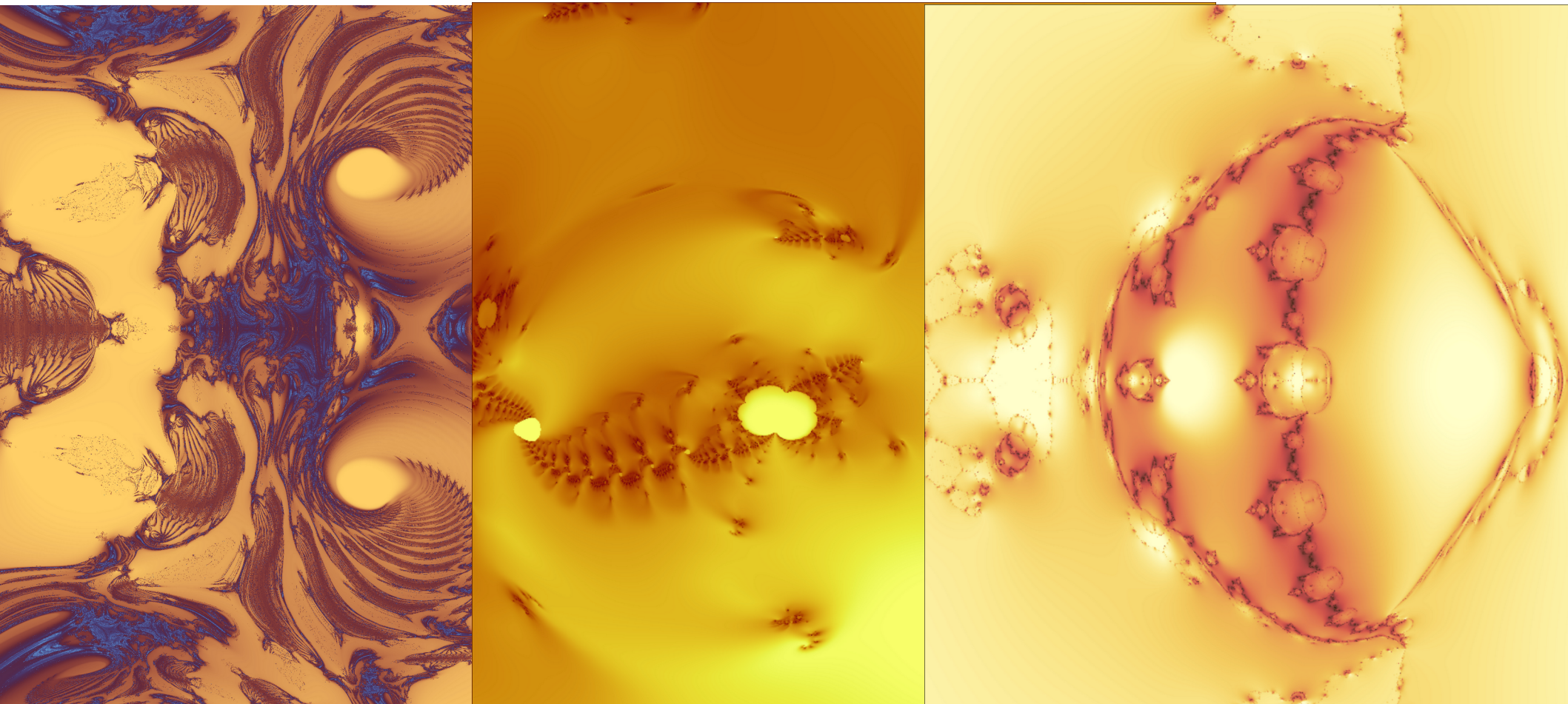
This year I made significant extensions to my solid geometry code, including adding some generic operators (which then got mapped into the art shell)

Left: Onioning a polyhedron

Right: Plastering a star onto each face of a polyhedron

Center: metallic sequence fractal over a space filling-curve, projected

# (Pseudo) Newton Fractals



# Colophon

Newton fractals: iterate  $z[n+1] = z[n] + a f(z[n])/f'(z[n])$   
over the complex plane

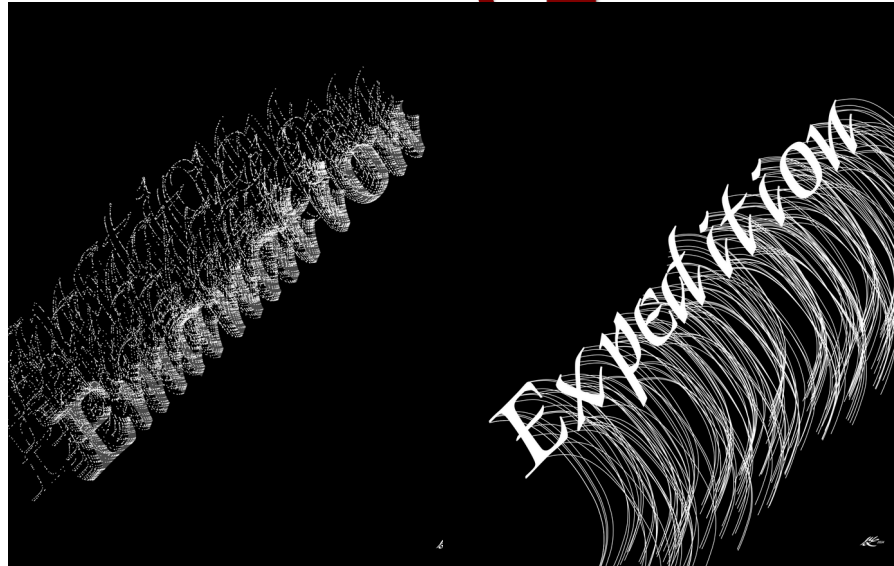
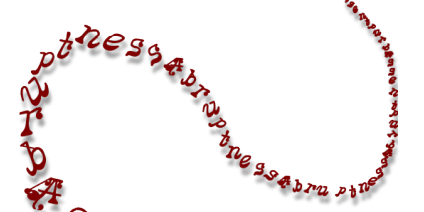
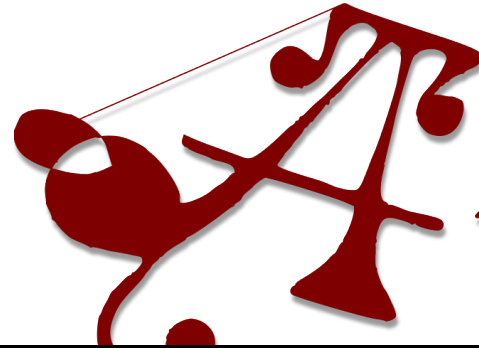
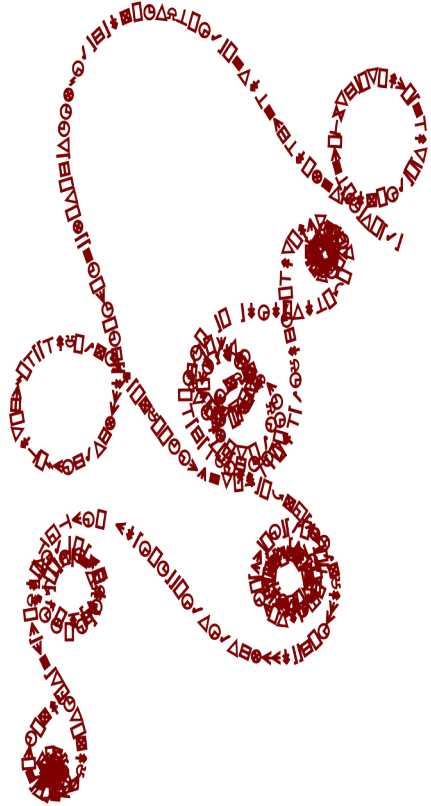
I added more variety to functions (e.g. product of a  
polynomial over  $\sin(z)$  with a polynomial over  $z$ )

But I accidentally got the derivative wrong – and it still  
came out beautifully

So I leaned into that and ran with using arbitrary function  
 $g$  instead of derivative

Colors: left=managua, center=oxygen, right=lajolla

# Font Play



# Colophon

Combining fc-match and ImageMagick I can enumerate all the characters in a font and generate an SVG file giving the shape of a character.

I can read and parse the SVG into my internal geometric shapes, and then play with it.

Here we do some space and path filling, plus various stylistic manipulations

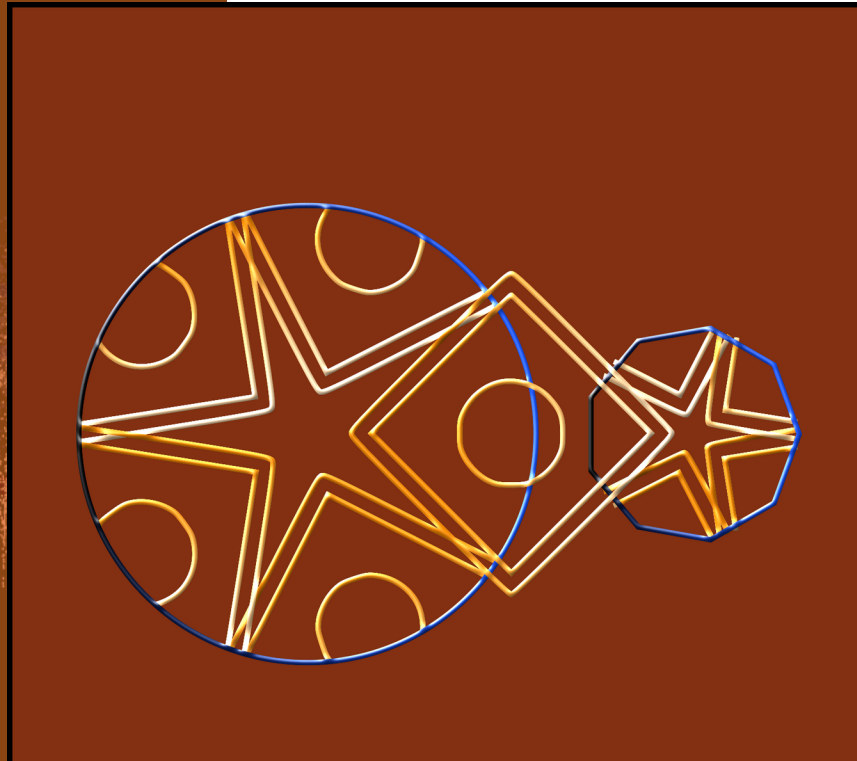
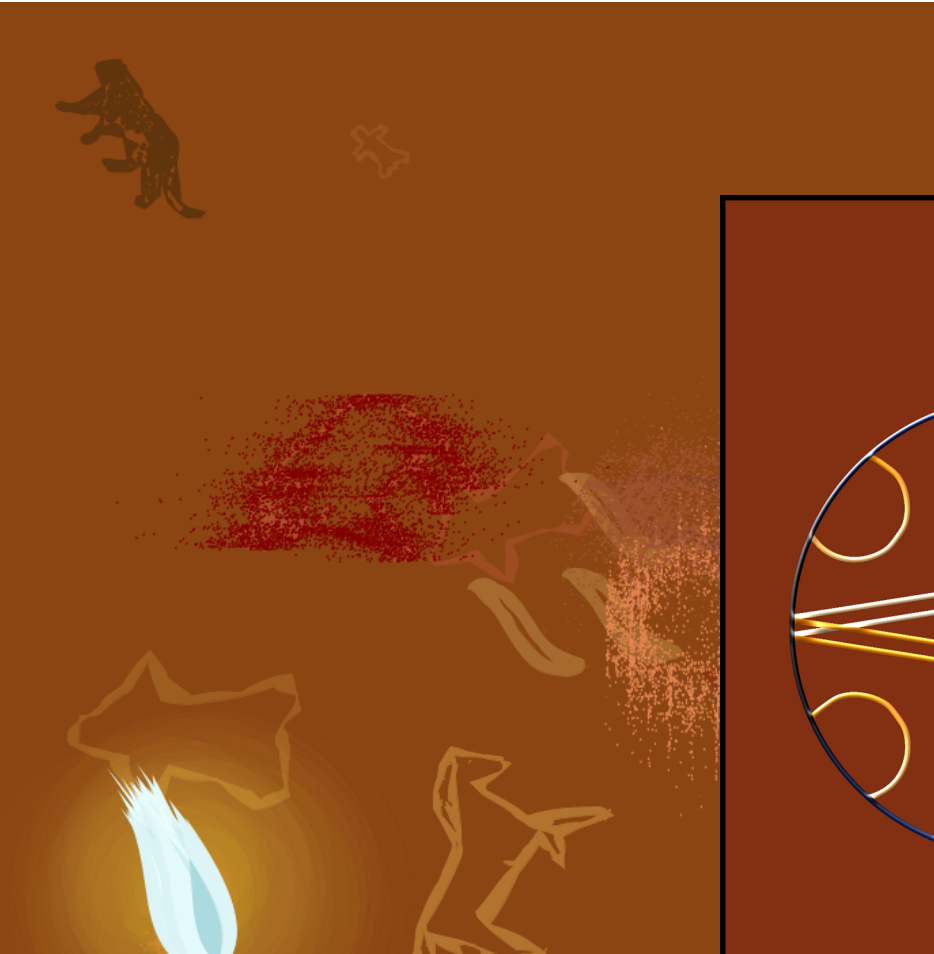


# Symbol fonts

Rooster



Rooster



# Colophon

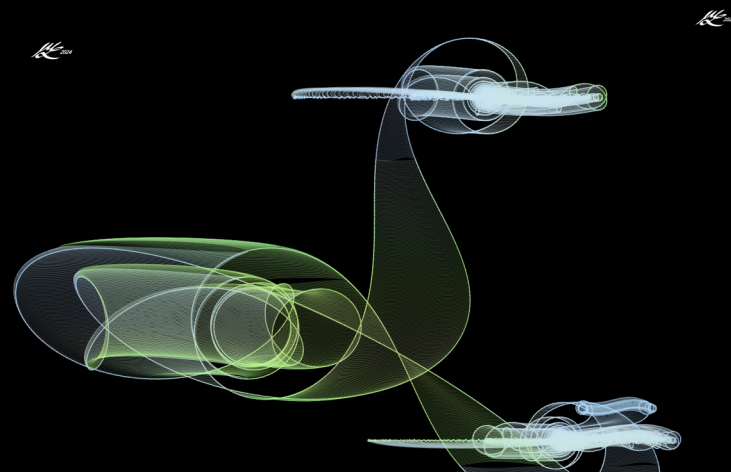
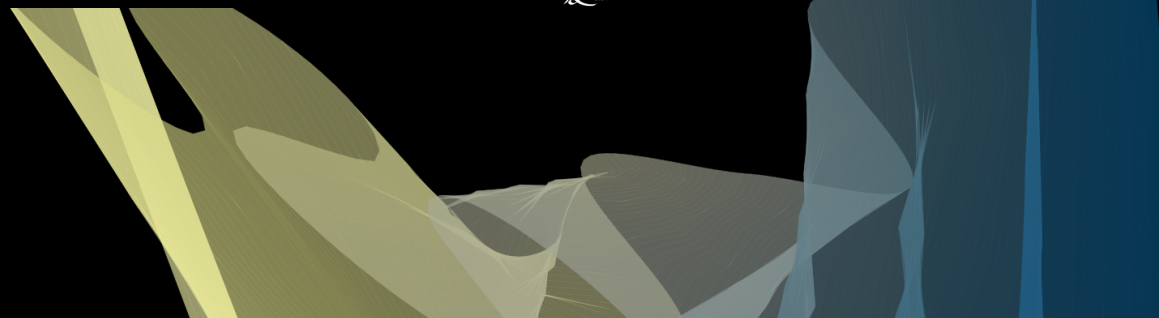
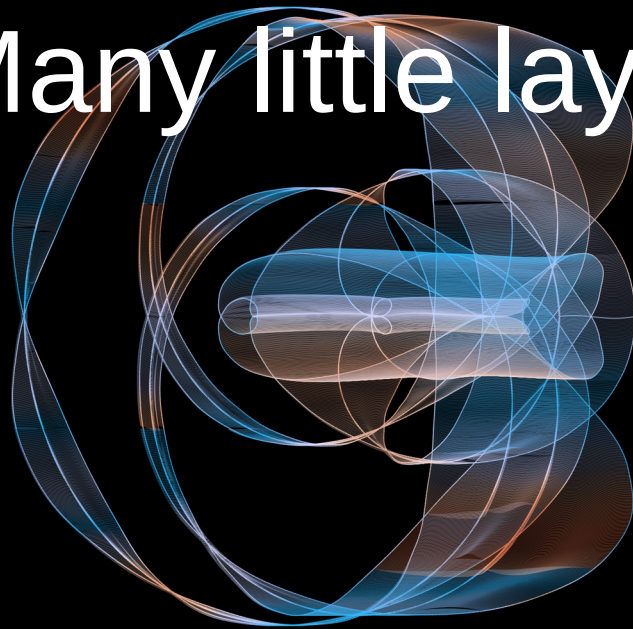
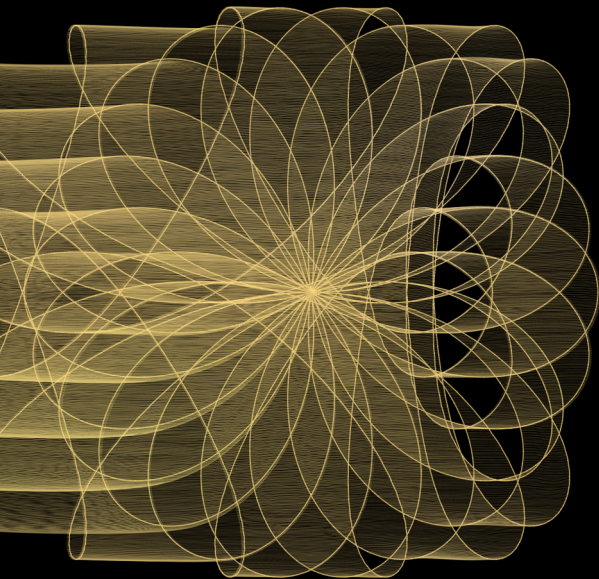
One font is particularly fun: Symbola, which includes an extensive set of emojis

Left: fake cave drawings, using path simplification and wobbling to give a more hand-drawn look

Center: where symbol intersects shapes, it reflects around their centers, including those reflections

Top: cross-stitch rooster emoji

# Many little layers



# Colophon

Take a path, make a companion path nearby, draw lines across from one to the other, except make them cubic edges.

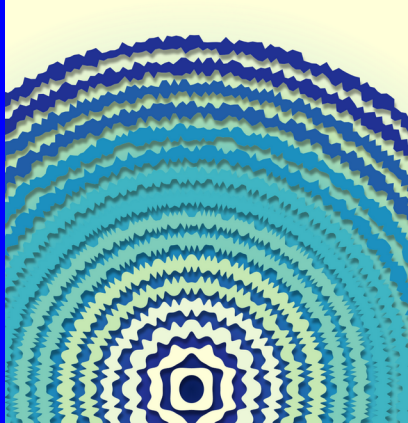
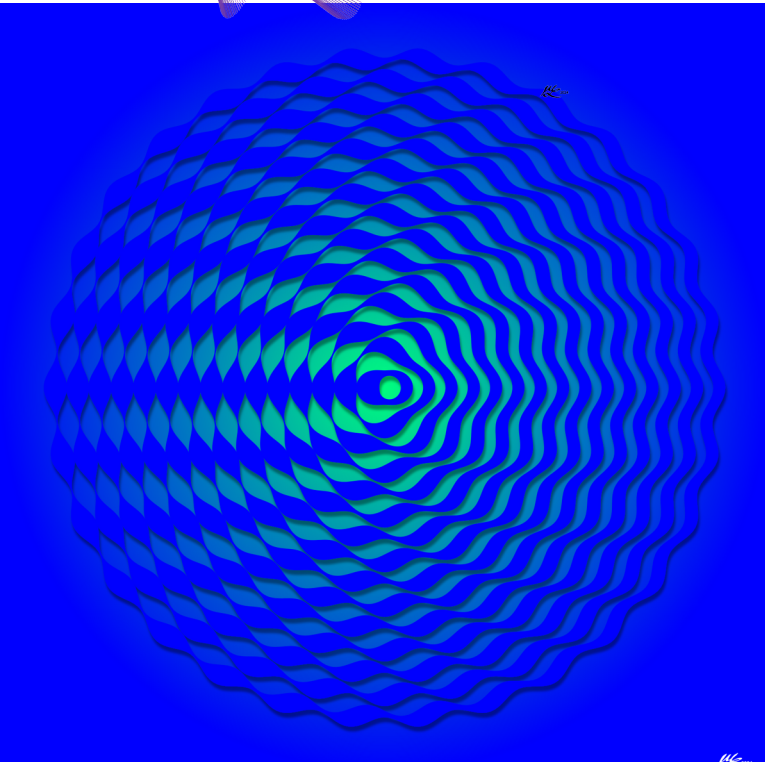
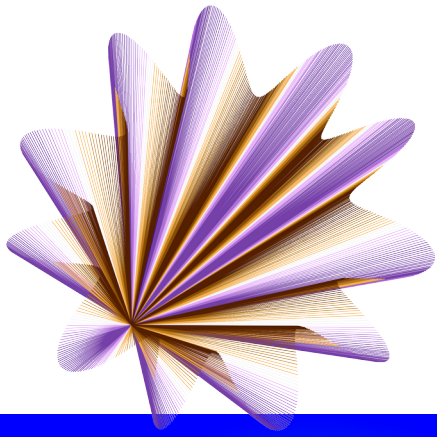
Make a lot of these little edges, almost transparent

Hilarity ensues

Rose curve, modulated torus knot, Starr rose, polynomial spiral

Similarly with many translucent triangles filling space between two curves

# Trigonometry FTW

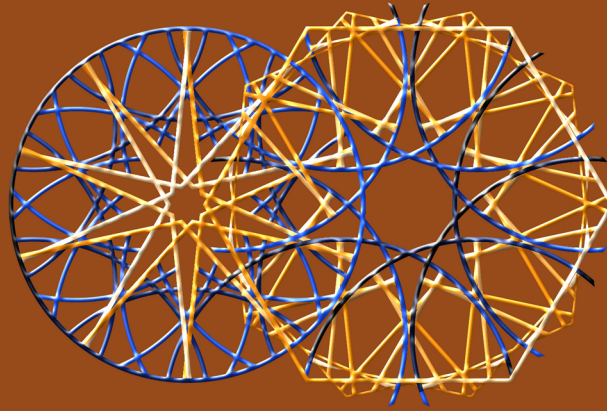




# Colophon

Sequences of sines and cosines put to various purposes

# Reiteration



# Colophon

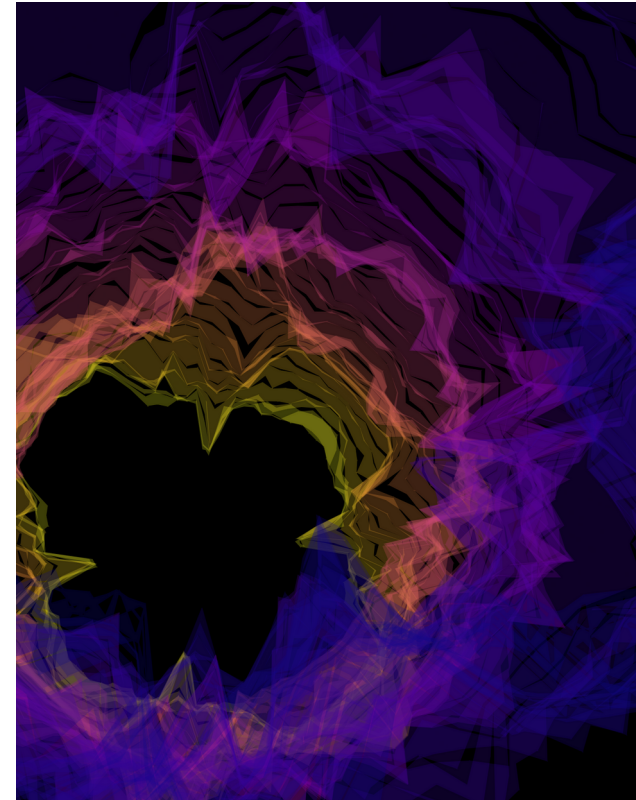
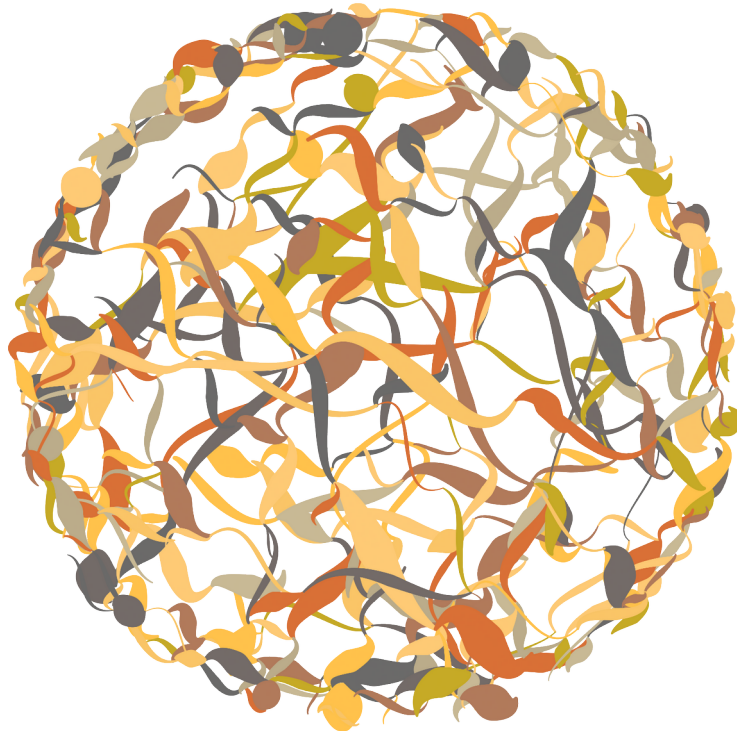
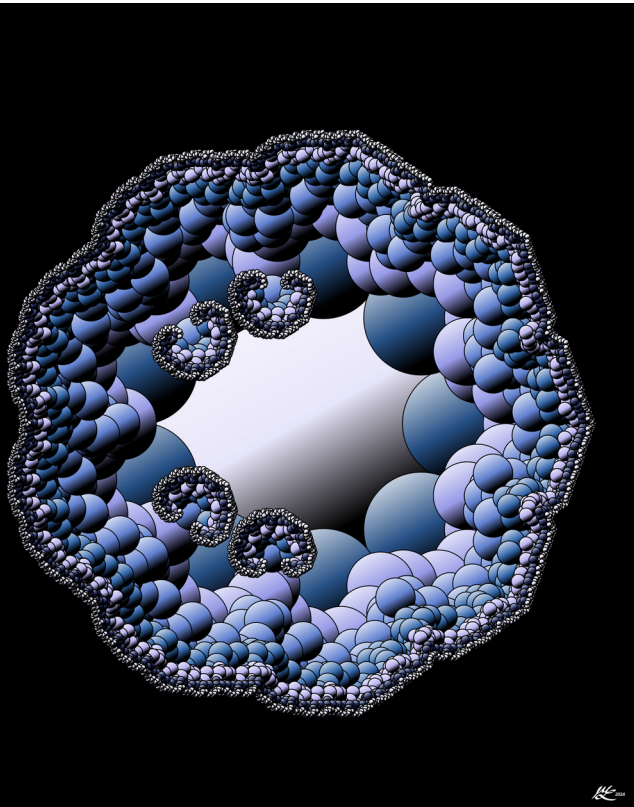
Reiteration, recursion, and repetition create interesting patterns and textures

Left: circles within circles within circles, line-filling

Center: reflecting intersections

Right: Droste effect: random scene includes itself which includes itself which includes itself...

# Growth



# Colophon

Growth algorithms create rhythms and textures by recursively applying to their own output

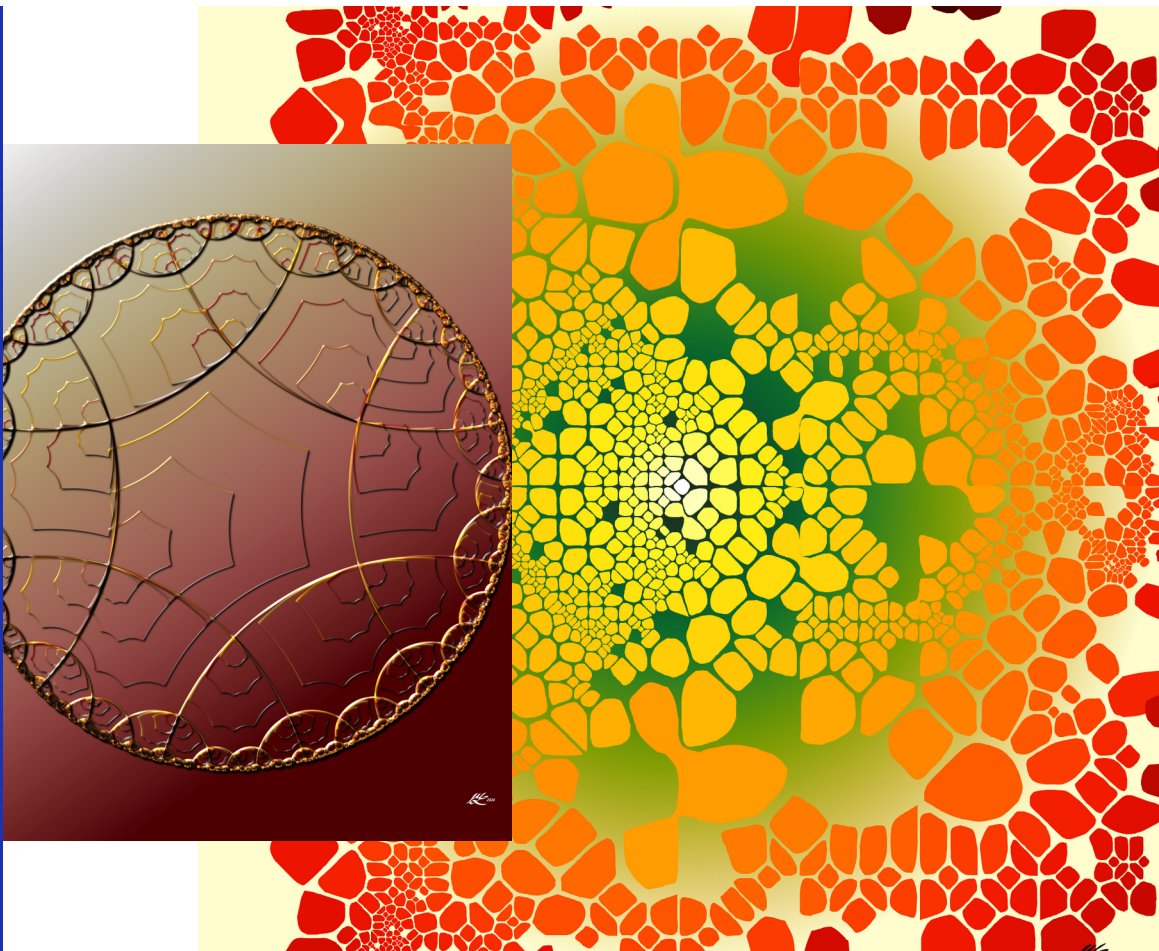
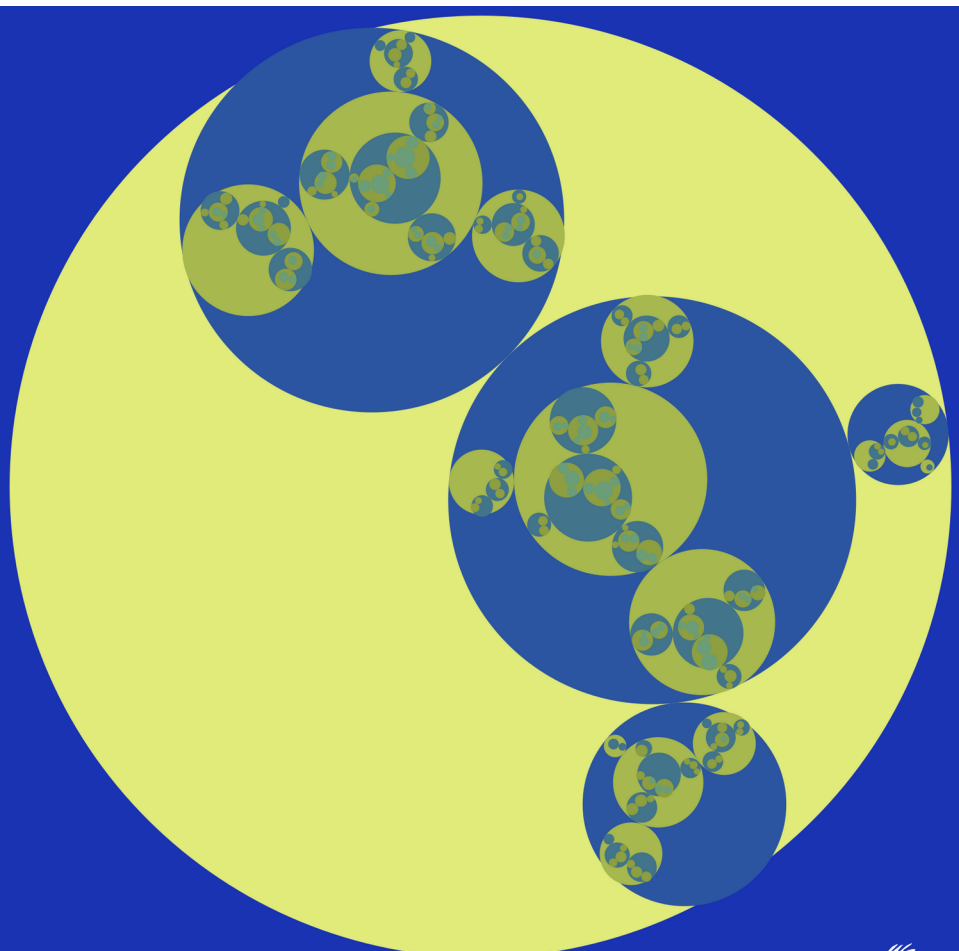
Left: circle tangent to circles tangent to circles

Center: branches of branches of branches, with an attraction/repulsion graph layout

Right: wobbly circle, growing wobbily; many translucent layers



# Division



# Colophon

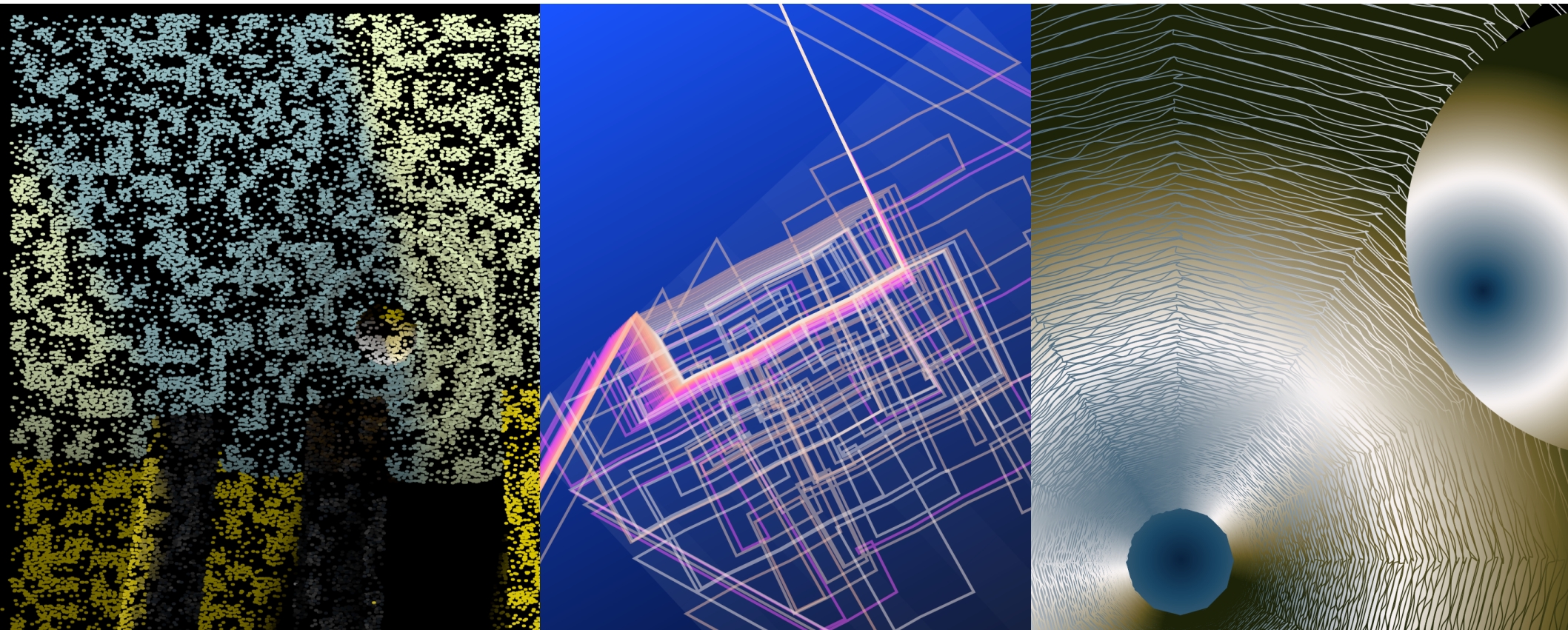
Division algorithms are the inverse of growth algorithms and achieve a lot of the same ends

Left: circles within circles within circles

Center: hyperbolic tessellation

Right: a test of quadtree implementation, with squishy fills

# Revisiting old friends



# Colophon

Sometimes I go back and revisit old projects, applying a new spin to them, or updating the implementation

Left: ray-casting from points chosen with dynamic Poisson disk sampling; the sampling was buggy here, but I like the texture that made

Center: Snell's law, with highly unrealistic Cauchy materials

Right: Simple wobbles around a central shape, but the adjustments of scale and the colouring give impression of depth



# Fin

(bonus Islamic tiling)

