9) Binary decomposition around the Mandelbrot set

The level sets around the Mandelbrot set can be decomposed with binary decomposition as well. The first image, ”BinaryAdamDistant” (figure 1), shows the Mandelbrot set from a long distant (magnification 0.14).

The area outside the radius 10, the target set, is divided in two half’s:

The black lower part of the target set are those parameters c = #pixel FOR WHICH the critical point z = 0 (on the dynamical plane) is already in the dark half of the target set. That is the Julia set is such extreme Cantor dust that the black lower part of the target set, even for an escape radius = 10, is bent to

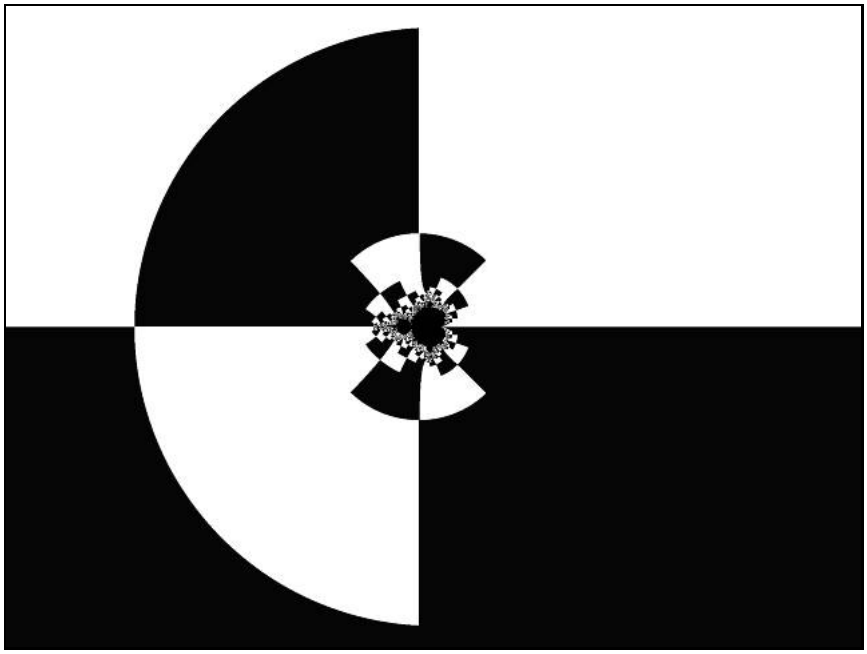

Fig 1. Binary Adam Distant.

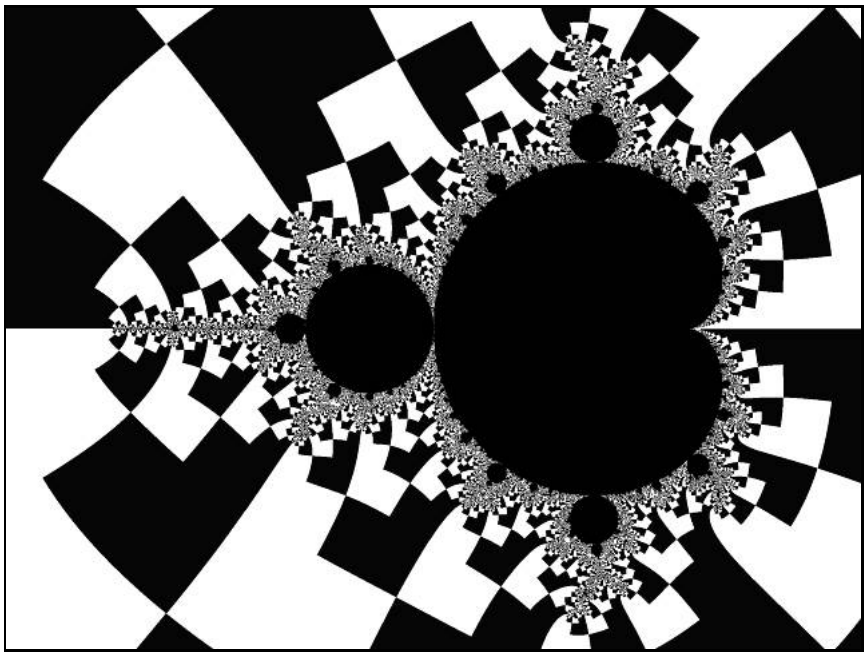

Fig 2. Binary Adam (normal magnification).

embrace z = 0. This can be checked out using Switch Mode.

The white upper part of the target set are those parameters c = #pixel FOR WHICH the critical point z = 0 (on the dynamical plane) is already in the white half of the target set. That is the Julia set is such extreme Cantor dust that the white upper part of the target set, even for an escape radius = 10, is bent to embrace z = 0. This can bu checked out using Switch Mode.

The different c = #pixel in the following level sets towards the Mandelbrot set are colored black or white according to if the critical point z = 0 after 2,3,4… iterations reach the target set on the lower black half or the upper white half. Like in the case of the Julia sets, the borderlines between the black and white regions that radiates from the border of the Mandelbrot set, far from the set have angles that can be written in the form $k/2^n \ mod1$, k and n integers, for example 3/4, 1/8, 5/16 of a whole turn.

I named these spots on the border of the Mandelbrot set from (or to) these borderlines radiate (like the case of the Julia sets) the *acupuncture points.*

These acupuncture points corresponds to those points on the minibrots where the secondary decorations join. In figure 3 (”Spiky Mandel”) the biggest minibrot belonging to the M set is blown up, and here the secondary

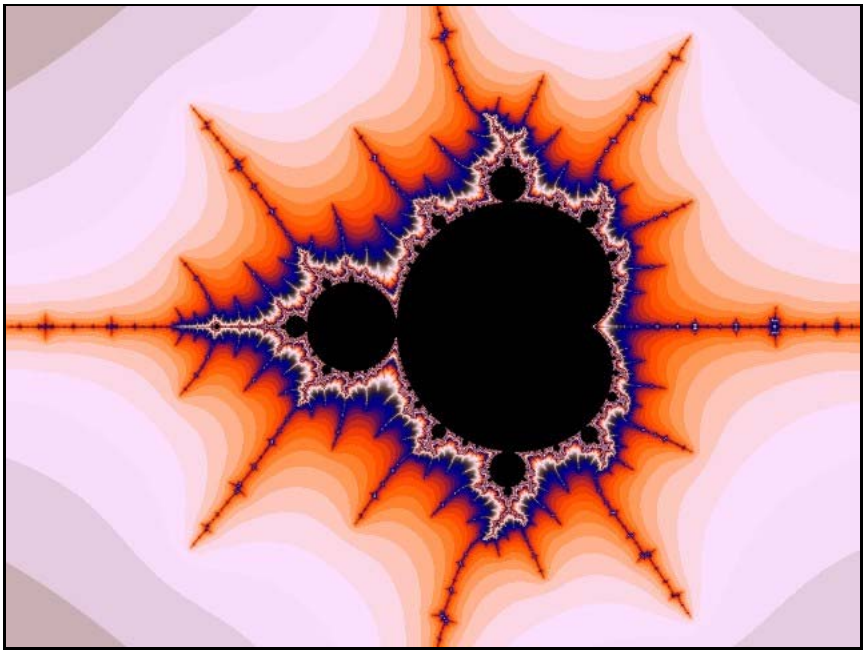

Fig 3. Spiky Mandel.

decorations are constituted by an infinitive hierarchy of spikes. With respect to the minibrots I also use the term *acupuncture points* to the points on the minibrots were the secondary decorations join.

Regards

Ingvar