

Counting Backwards

If you play around with the *Excel* file that generates vertex jumps by equation you may well end up with negative values for a vertex jump. A negative vertex jump simply means to move counterclockwise or count backwards.

Top image. The jump pattern created from $(n,k,d,c) = (14,7,1,3)$ is the seven jump sequence: $(4,3,2,1,0,-1,-2)$.

Applying these jumps leads to an image created by connecting the following sequence of vertices on the 14-gon:

0-4-7-9-10-10-9-7 – 11-0-2-3-3-2-0.

The image is created in two 7-line jump sets (although, two of those lines have starting vertex and ending vertex that coincide (10 and 3) since they involve zero jumps).

Note the sum of jumps is 7 so $VCF = 7$ and $Lines = 7 \cdot 14 / 7 = 14$.

If you like kinked tails, $(n,k,d,c) = (16,8,1,4)$ has four 3-kink-tails.

Middle image. This is the same VF as above done in the web version with $S = 13$ and $P = 75$. If you open this image there you will note that the last three jumps are 14, 13, 12 not 0, -1, -2.

The web version does not support non-positive jumps but realize that a jump of J and $J+n$ creates the same VF. The only difference is how many times you go around the circle before landing on the next VF vertex endpoint. Therefore, n (of 14) was added to all non-positive values to create the VF.

The jumps of $0 = n = 14$ are quite clearly visible at the ends of the tails. That is the only way to get a spray of S lines, all emanating from the same point (since that point is two adjacent vertices of the VF piled on top of one another).

If you play with P in the above model, you will find other fun images. In particular, note the *very slanted S* in this $P = 27$ image.

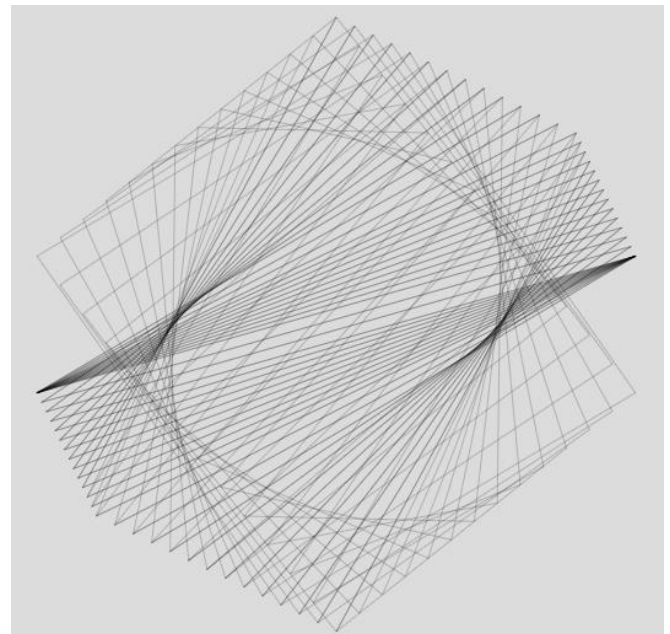
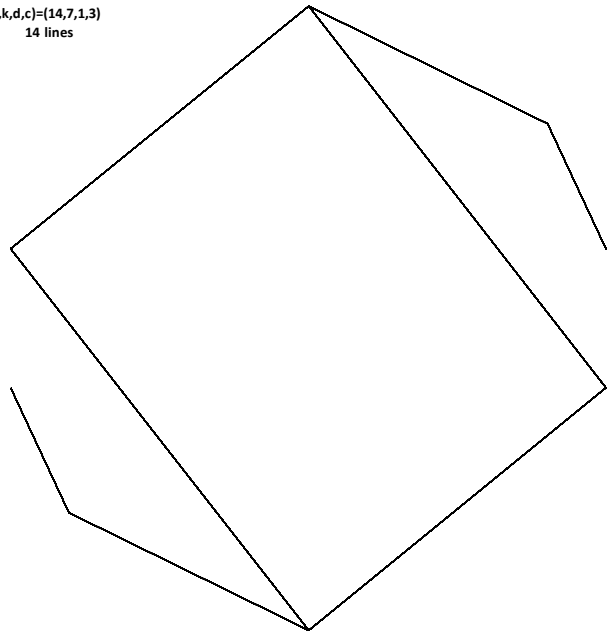
In the same vein, the [Line Analysis of a \$J = 0\$ Image](#) could have been accomplished in the web version by replacing the $J_3 = 0$ jump with $J_3 = 12$.

Bottom image. This image involves two changes from the top image. Increase n by 1 to 15 and set $c = 0$ so that the jumps are $(7,6,5,4,3,2,1)$. The result is a [mystic rose](#).

This is an example of a composite n that produces an image with $VCF = 1$. This is true because the sum of jumps is 28 which has no factors in common with 15.

Additionally, 7, the largest jump in the set, is also the largest jump less than or equal to $n/2$ and the jump set ends at 1. Therefore, given the size of n , and given the jump pattern, each vertex is connected to all other vertices, just as required by a mystic rose. This rose has $105 = 15 \cdot 14 / 2$ lines.

$(n,k,d,c)=(14,7,1,3)$
14 lines



$(n,k,d,c)=(15,7,1,0)$
105 lines

