Finding the Total Number of Connected Line Segments in Centered-Point Flowers

When there are multiple jumps involved, it is no longer true that the maximum number of possible segments is simply ***n*·*S***, often written as ***nS***. Now it is a multiple of that number.

In CPF, there are 3***n*** vertices in the vertex frame because moving to the next vertex requires 3 movements, the move to the next vertex, then the move in to the center, then the move from the center back out to that vertex. This file forces ***J*** = 1 so polygons result, but the vertex frame no longer looks like a polygon, but rather a polygonal pie plate with ***n*** equal-sized triangular pieces. Since ***J*** = 1, all polygonal vertices are used and VCF = 1.

The number of lines calculation replaces ***n*** with 3***n*** in the SCF calculation discussed in the traditional model.

On the subdivision common factor, *SCF*: On each of the 3***n*** line segments, we create ***S*** subdivisions. The total number of possible subdivision endpoints is thus 3***nS***. Not all of these endpoints are used if ***P*** has factors in common with 3***nS***.

Mathematically, the subdivision common factor, ***SCF***, is: $SCF = \mathbf{GCD}(P, 3nS)$.

The number of lines in the image, ***L***, is then given by: $L = 3nS/SCF$.