**Image to Z-plane transformations**

|  |  |
| --- | --- |
| Image dimension |  |
| Pixel position |  |
| Pixel centre coordinate |  |
| Region in Z-plane, given by centre coordinate ZC and radius R |  |
| Size of a pixel in Z-plane units: |  |
| Scaling factor from pixel coordinates to Z-plane coordinates |  |
| Z-plane coordinate of upper-left image coordinate (0,0) |  |
| Z-plane coordinate for given pixel coordinate |  |
| “ |  |
| Pixel coordinate for given Z-plane coordinate |  |
| Source pixel coordinate P1 for target pixel P2 coordinate, after centre Z-plane coordinate changed and/or region radius changed (used if s1 ≤ s2) |  |
| Target pixel coordinate P2 for source pixel P1 coordinate, after centre Z-plane coordinate changed and/or region radius changed (used if s1 > s2) |  |
| Source pixel coordinate P1 for target pixel P2 coordinate, after centre Z-plane coordinate changed (used if s1 = s2) |  |
| New centre Z-plane coordinate after region radius change at invariant Z(P) |  |
|  |  |

**Orbit aggregator**

With

n: Orbit length, number of iterations, 1 < n <= Itermax  
d: Vicinity dilation factor, d > 0  
T: Z-translation, T=(-2 <= Tx <= 2, -2 <= Ty <= 2)

“Vicinity” function Vic(x)=(1+x2/d2)-1 for various d:

|  |  |  |
| --- | --- | --- |
| d=½ | d=1 | d=2 |

Various “Distance” functions Dist(Z):

|  |  |
| --- | --- |
| **Function name** |  |
| Linear 1  (min. distance from X and Y-axis) |  |
| Linear 2  (min. distance from diagonals) |  |
| Linear 3  (min. distance from X- and Y-axis and from diagonals) |  |
|  |  |