

the implicit function theorem, the map ^{2/11}
is locally invertible if $\frac{dw}{d\bar{w}} = \frac{1}{d\bar{w}/dw} = \frac{1}{2w}$

exists. So the only problem occurs when $w=0$. However, if $w=0$ is a fixed point,

$$(1.2.38) \quad \bar{w} = 0 = 0 - \mu \Rightarrow \mu = 0.$$

So, unless $\mu = 0$, the map is locally invertible in the neighborhood of any fixed point. Note that when $\mu = 0$ the map takes the simple form

$$w_{n+1} = w_n^2,$$

in which case the "dynamic aperture"
is the unit disk in the mapping plane.

Note that the change of variables (1.2.36) is simply a linear transformation plus a translation. Therefore the dynamic apertures in the z and w plane are simply related. In particular, one is