

MAT 667 : Feigenbaum's Constants

functions NOT in $\mathcal{D}$
functions in $\mathcal{D}$

$$g(x) = -\alpha g^2\left(\frac{x}{\alpha}\right)$$

$$\alpha = 2.503...$$

Stable manifold of g

$$= \left\{ f \in \mathcal{D} \mid \lim_{n \rightarrow \infty} I^n f = g \right\}$$

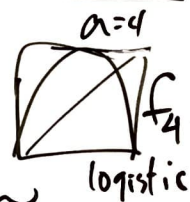
(M finite dimensional)

the unstable manifold of g
one-dimensional, eigenvalue $\lambda = 4.669...$

$$\log_4 K: f_\alpha(x) = -1 + \frac{\alpha}{2}(1-x^2)$$

$$\alpha = 4$$

$$\tilde{\Sigma}_0$$



$\mathcal{D}$ is between Σ_0 and $\tilde{\Sigma}_0$

$$\alpha = \alpha_\infty = 3.567...$$

$$g = \lim_{n \rightarrow \infty} I^n(f_{\alpha_\infty})$$

Σ_2 : superstable period $2^2 = 4$

Σ_1 : Superstable period $2^1 = 2$
 $\log_4 K = 2$

$$\alpha = 2$$

Σ_0
Superstable
period $2^0 = 1$

