Problems

① Suppose f is trasc. ent fnctn with wandering domain, can the limit fnctn Remp of $\{f^n|_U\}$ be bounded?
(≈ bounded orbit in the plane) (Rempe)

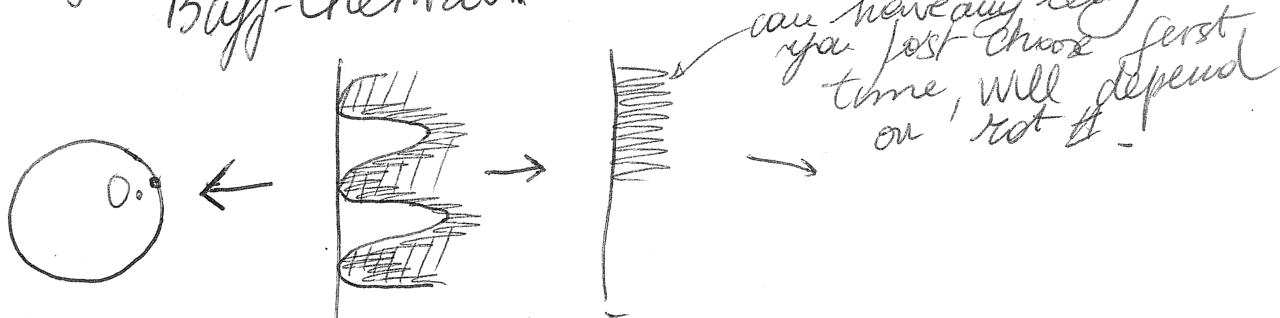
1b ~~②~~ Say Postsing set of f bounded; can f have wandering domains?
What if we assume all cr. pts are non recurrent?
In the latter case there are part. results with Van Strien by Mane's thm.

2 ~~③~~ Suppose f is in $\lambda e^z + k$ family, and both sing values are non recurrent but the asympt value a is contained in ~~e~~ ω(crit.), can f have a Siegel disk? Rempe

! If $a \notin \omega$, there's no Siegel.

3 ~~④~~ Nice topolog. model for hedgehog dyn. in original or log. coord. → Rempe

Buff-Cheritat toy model:



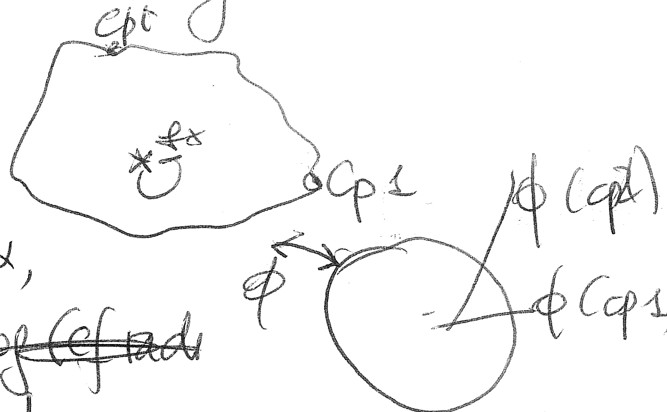
↳ Model = limit of constructn

④ Find a topol model (with dyn) of the full J set of quadr poly with a Cremer fx pt of high type Cheritat

④b Make a picture

⑤ deg 3 poly P with a fx pt with a Siegel disk say of bounded type, assuming both cr. pt belong to $\partial\Delta$, What is the cf radius; cherit
no more Briuno fnctn, but it might be much bigger.

rot # = θ
angle = α = angle b/w cp_1 & cp_2



⑥ prove $\exists$ c, for θ bdd type, $\forall\alpha$, ($\exists!$ poly like that) prove ~~log (cf rad~~

$$|\log(\text{cf radius} + Y(\theta,\alpha)| < C$$

$$\sum_0^\infty \frac{1}{q_n}\log\left(q_{n+1}\cdot\min\left(1,\frac{\sqrt{\log(d(q_n\alpha,\mathbb{Z}))}}{q_{n+1}}\right)\right)$$

7 ⑥ $\lambda z + z^2$ $|\lambda|\le 1$, $\inf(\text{Area}\, K_\lambda) \overset{?>?}{=} 0$ or $\underline{>1}$? Hubb

⑦ (Thurst. th) $f = f_{\lambda,d} = z^d + \frac{\lambda}{z^d}$ $d\geq 2$, $\lambda \neq 0$ Pilgrim

Assume: $\exists$ k $\forall c \in$ crit f, $f^k(c) = \infty$

$\Rightarrow$ (Dev+ al) we know $J_f \simeq$ Sierpinski

Also known: $f = f_\lambda$, $g = g_\mu$, $f|_{J_f} \underset{top}{\simeq} g|_{J_g}$ iff $f \underset{Moeb}{\simeq} g$ or
by th. rigidity

Problem find explicit λ, μ and show one of the follow

ⓐ either $J(\lambda) \nsim_{qc} J(\mu)$, ⓑ it is $J(\lambda) \underset{qc}{\simeq} J(\mu)$, f_λ not Moeb

→ geom quest, not dyn.

(9) Is the comp of hyperb. of family's ~~[illegible]~~ $\overline{\text{rat}_d}$ precpt? in $\overline{\text{rat}_d}$

$$\overline{\text{Rat}_d} / \text{Rat}_d = \text{Rat}_d / \text{Conj by Aut } \mathbb{P}^1$$

(10) Can we caracterize connectivity of the set of non esc pts for exp family or the set of non esc pts $\cup \{\infty\}$?

(11) $A_{11} \dots A_{12} \dots$

$\vdots$

$A_{m1} A_{m2} \dots \to \infty$

Bartholdi

B: A_{ij} is $2^i \times 2^j$ and are self similar:

C: $A_{i,j+1} = \begin{pmatrix} A_{f(i,k,l),j} \end{pmatrix}$ k, l

f does not depend on j

for example $B_{j+1} = \left(\begin{array}{c|c} 0_j & 1_j \\ \hline 1_j & 0_j \end{array}\right)$ } 2 rows

$G_{j+1} = \left(\begin{array}{c|c} B_j & 0 \\ \hline 0 & G_j \end{array}\right)$

then construct $f_j = \det(\lambda_1 A_{1j} + \dots + \lambda_n A_{nj})$

Q zero set of f_j's

Fact: for many examples $\exists$ R poly $\mathbb{C}^n \to \mathbb{C}^n$,

$f_{j+1}(\lambda) = f_j(R(\lambda))$ (prev. example $R = z^2 + 2$)

does it always $\exists$? If not < growth / invar meas } find tools to show $\cup f_j^{-1}(0)$ is a Cantor set

$\bigcup_n f_j^{-1}(0) = 0$

(12) Can thurst algorithm be implemented in time $\leq C(\deg f + \#\text{crit pts})^n$ — Kahn

(13) ~~Cb~~ (A) Can we find an algorithm assigning a start. pt. in Teich (S^2, P_f) given f, s.t. after iterating $C(\deg f + P\#\text{crit.})^n$ times we're close to a fxd pt or we find an obstruct.

(13) Suppose f hyperbolic, entire fnctn ($P(f) \Subset \mathcal{F}(f)$), is — Rempe

$$\dim_{hyp}(f) = \dim(J(f) \setminus I(f)) < 2 \, ?$$

(14) Parapuzzle for cubics with conn. J set — Lyubich