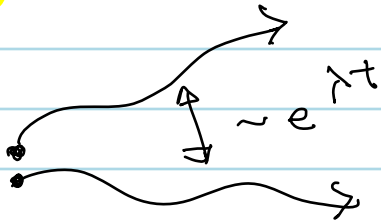
For BLACKBOARD, ACCOMPANYING RELIABILITY / DYNAMICS SLIDES.



(could just add $e^{\lambda t}$ to slides...)

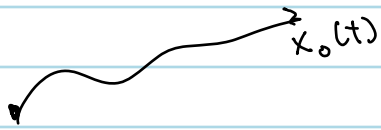
- OVERALL to say -- Amazing that ... local information about trajectory separation, defined in limit when those trajectories start close, yields GLOBAL info on ensemble of traj.
  THAT'S Beauty of dyn. sys. results. Intuition: works when get wobbly drive... b/c then explore enough of state space so that local expansion there describes global props. of ensemble.

- Deriving the eq^{n} for v,

$$\dot{\vec{x}} = \vec{F}(\vec{x}, t, q)$$

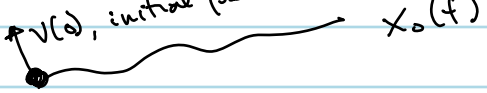
Drive / Input

$\vec{x}_0(t)$, trajectory.



Let $J(t) = DF(\vec{x}_0(t))$, "time-dep" Jacobian.

Solve... $\dot{v} = J(t)\, v$



(THINK, if $\vec{x}_0(t) \equiv \bar{x}$ fixed pt, standard linearization)

— · —

- Probably include Jensen's Ineq. deriv... OR, just say...: on p. 9 of 2009 ppr.

For θ model... $\dot{\theta} = F(\theta, t)$ → solve from $\theta(0)$, get $\theta(t, \theta(0))$ ...

NEEDS MORE CALCS IF GOING TO DO...
see J Nonlin Sci... need to average over IC = $\theta(0)$, define $F(t, \theta(0))$ as... time - T LINEARIZED MAP, ETC...
Would take some work not sure we want to fill in?

- For final Guillaume slides...
Montrin, ave of any LE, not just λ_{max}...

(think back to ev^{ls} of $J(\bar{x})$ for f.p...
lyap. exp. not exactly ev^{ls}, but same idea.)

Reason for result... ~100 pos. LE,
~900 neg. LE → Thin attractors,

which enable reliable spiking much of time (think back to 2-D movies
⇝ $\theta \rightleftarrows 0$