GBCD

$\rho(\alpha, t)$ statistic

claim: looks like solution to F P Equation

but don't know correct λ

$$\mu \frac{\partial \rho}{\partial t} = \frac{\partial}{\partial \alpha}\left(\lambda \frac{\partial \rho}{\partial \alpha} + \psi' \rho\right) \quad \text{in } \Omega, \quad t > 0$$

look at K-L relative entropy

$$\Phi_\lambda(\rho) = \lambda \int_\Omega \rho \log \frac{\rho}{\rho_\lambda}\, d\alpha \qquad \rho_\lambda(\alpha) = \frac{1}{Z_\lambda} e^{-\frac{\psi(\alpha)}{\lambda}}, \quad Z_\lambda = \int_\Omega e^{-\frac{\psi(\alpha)}{\lambda}}\, d\alpha$$

$$= F_\lambda(\rho) + \lambda \log Z_\lambda$$

$$= \int_\Omega \{\psi_\lambda \rho + \rho \log \rho\}\, d\alpha, \qquad \psi_\lambda = \psi + \frac{1}{\lambda}\log Z_\lambda$$

prefix code

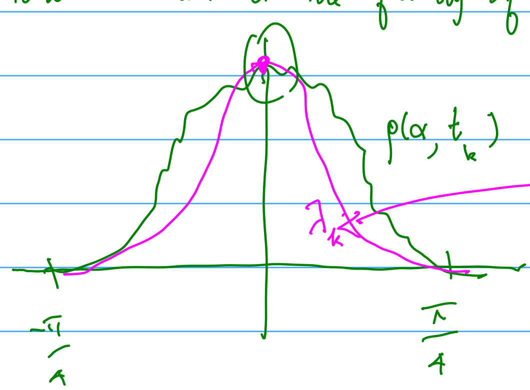
$$\int_\Omega e^{-\psi_\lambda}\, d\alpha = 1$$

look at $t = T_\infty$

$$\min_\lambda \Phi_\lambda(T_\infty) = \min_\lambda \int_\Omega \{\psi_\lambda \rho + \rho \log \rho\}\, d\alpha \geq 0$$

convex dual of ρ in family $\{\psi_\lambda\}$

How to construct the family of $\{\lambda\}$



goes into our formula for ψ_λ

$\rho(\alpha, t_k)$ will vanish in Φ at t_k;

$$\Phi_{\lambda_k}(\rho, t_k) = 0$$

$$= \int \rho \log \frac{\rho}{\rho_{\infty}} \, d\alpha$$