

SMC-ABC

- Rounds $t = 2, \dots, T$: Set a tighter threshold $\epsilon_t < \epsilon_{t-1}$
 - (1) Select $\theta_i^{(t-1)}$ with probability $\propto w_i^{(t-1)}$
 - (2) Draw $\theta^* \sim \text{Normal}(\theta_i^{(t-1)}, \text{diag}(\hat{\sigma}_1^2, \dots, \hat{\sigma}_M^2))$
 - (3) Simulate $x^* \sim p(x \mid \theta^*)$
 - Repeat (1)-(3) until $d(S(x^*), S(x^o)) < \epsilon_t$ and set $\theta_i^{(t)} = \theta^*$

- Set weights $w_i^{(t)} \propto p(\theta_i^{(t)}) \cdot \left[\sum_{k=1}^N w_k^{(t-1)} \sum_{j=1}^M \phi \left(\frac{\theta_{i_j}^{(t)} - \theta_{k_j}^{(t)}}{\hat{\sigma}_j^{(t-1)}} \right) \right]^{-1}$
- Calculate weighted sample variances $\hat{\sigma}_j^2$ (for each dimension $j = 1, \dots, M$)
- Set proposal density $q(\theta^{(t+1)} \mid \theta^{(t)}) = \text{Normal}(\theta^{(t)}, 2 \cdot \text{diag}(\hat{\sigma}_1^2, \dots, \hat{\sigma}_M^2))$

Summary statistics %>%

Distance function %>%

Threshold %>%

Things that make you go *hmmm*?