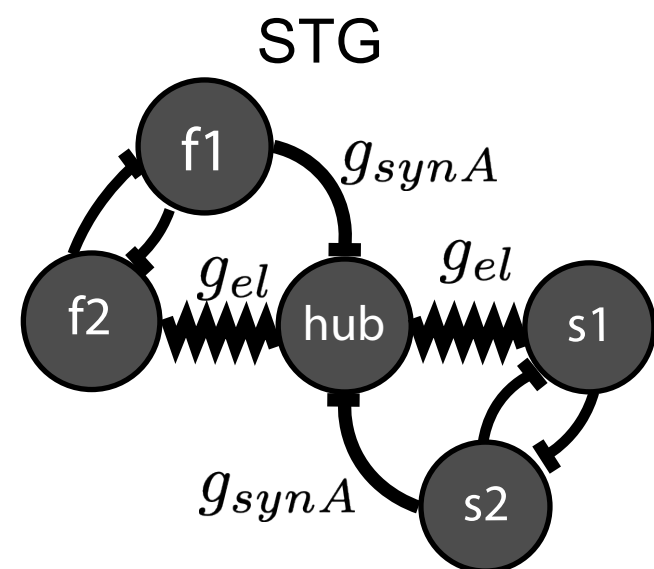
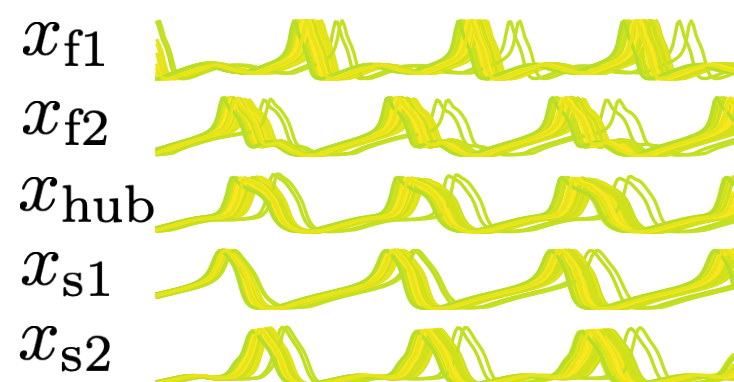
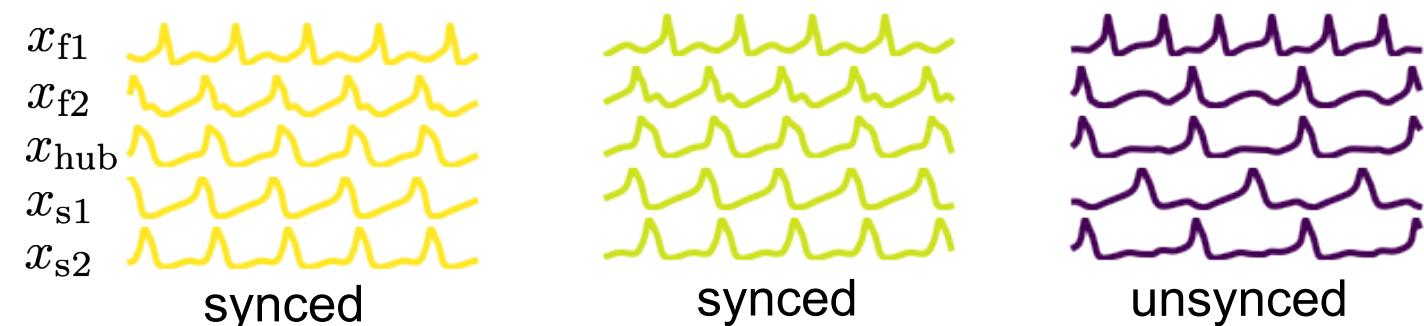
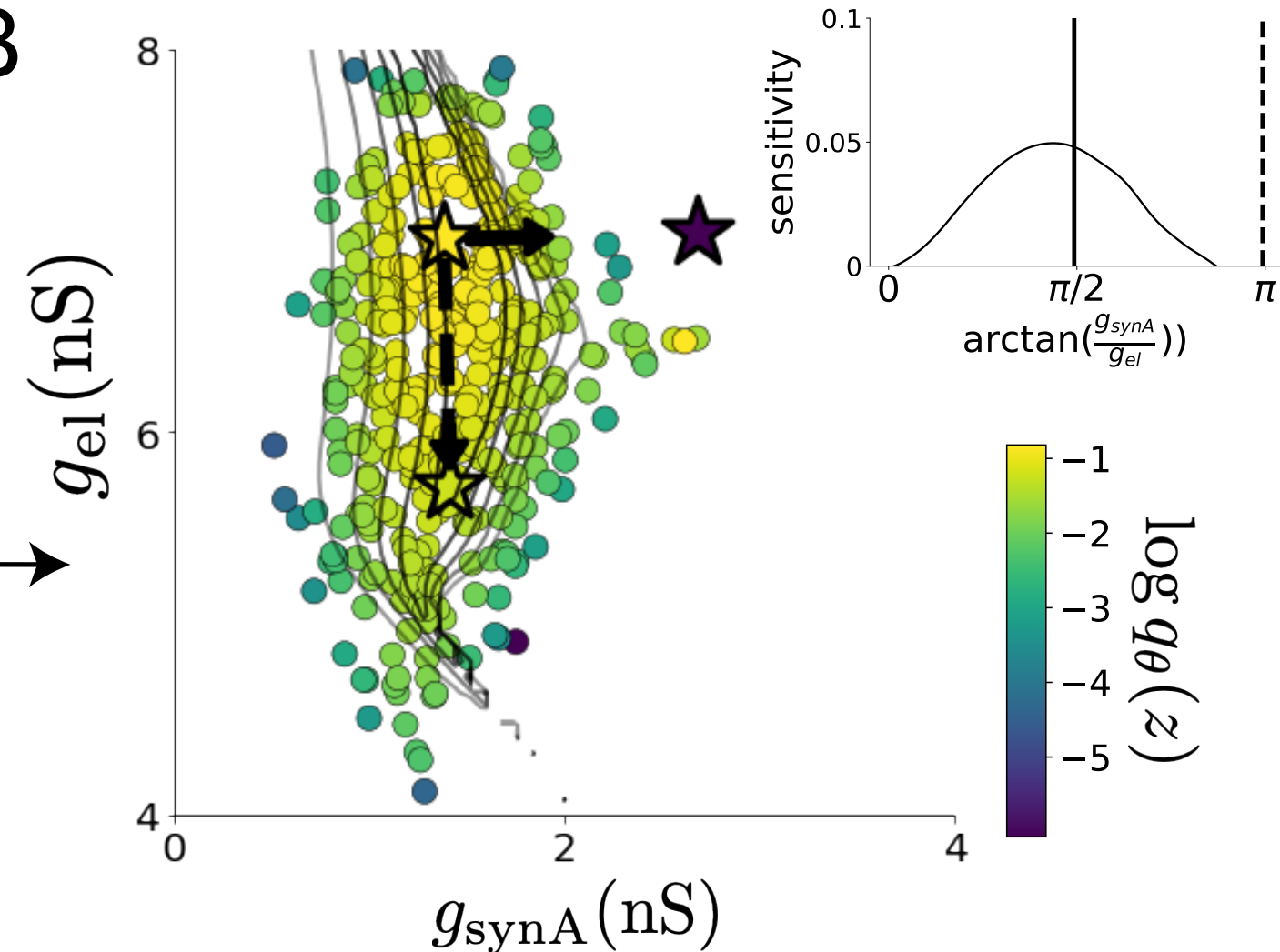
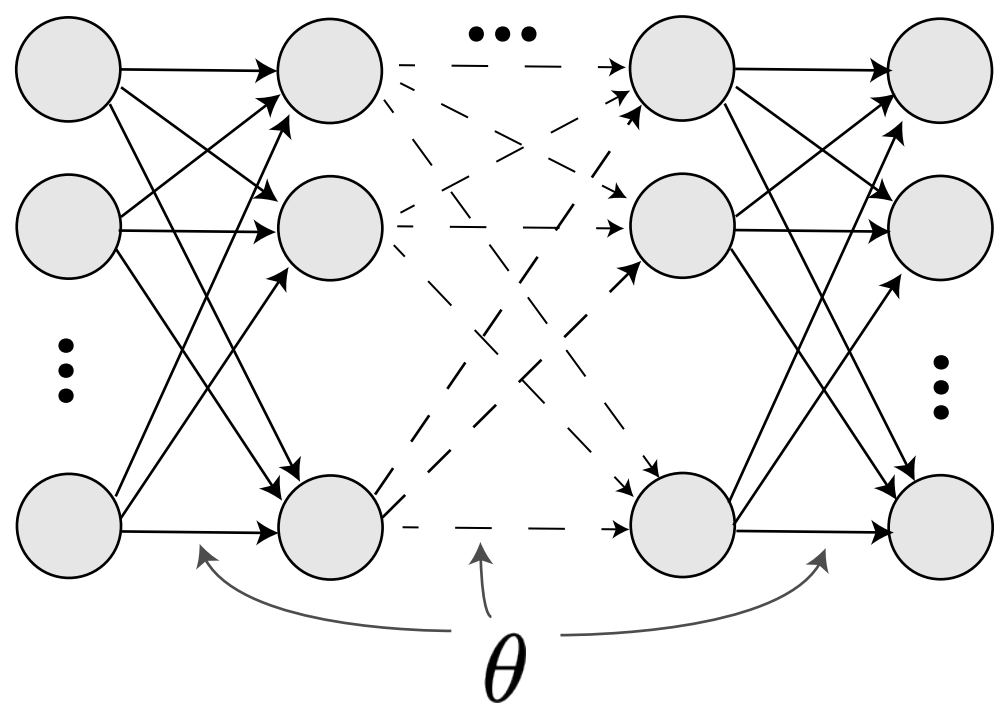


**A**
**biological model**

**network syncing**
**emergent property**

**Emergent property inference (EPI)**
**B**

**C**
**deep probability distribution**
**random input samples**  
 $\omega \sim q_0$ 

**D**

$$\operatorname{argmax}_{q_{\theta} \in \mathcal{Q}} H(q_{\theta}(z))$$

$$\text{s.t. } \underbrace{E_{z \sim q_{\theta}}}_{\text{model parameter samples}} \left[ \underbrace{E_{x \sim p(x|z)}}_{\text{model simulations}} \left[ \underbrace{T(x)}_{\text{emergent property statistics}} \right] \right] = \underbrace{\mu}_{\text{emergent property values}}$$