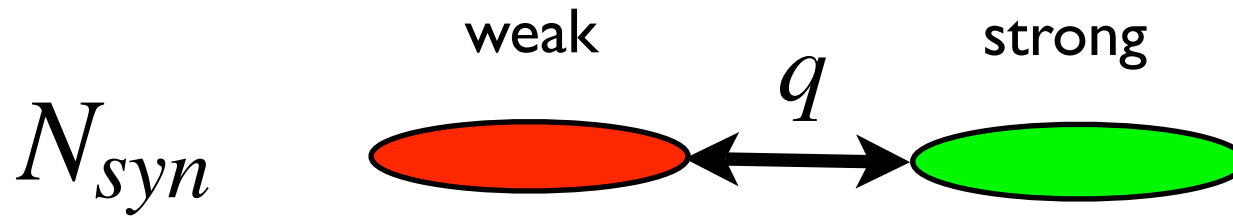


memory storage - high plasticity

memory maintenance - low plasticity

with Stefano Fusi and Patrick Drew

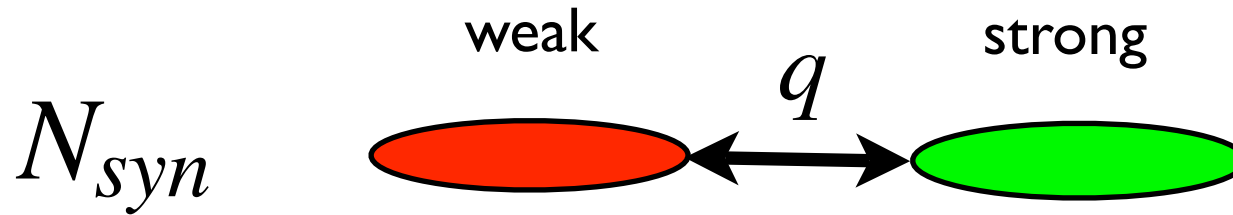


Signal

Noise $\propto \sqrt{N_{\text{syn}}}$

$$\boxed{\frac{S_0}{N_0}}$$

$$\frac{S}{N} = 1 \longrightarrow \boxed{t_{\text{max}}}$$



$$S = qN_{syn} \exp(-qrt)$$

$$N = \sqrt{N_{syn}}$$

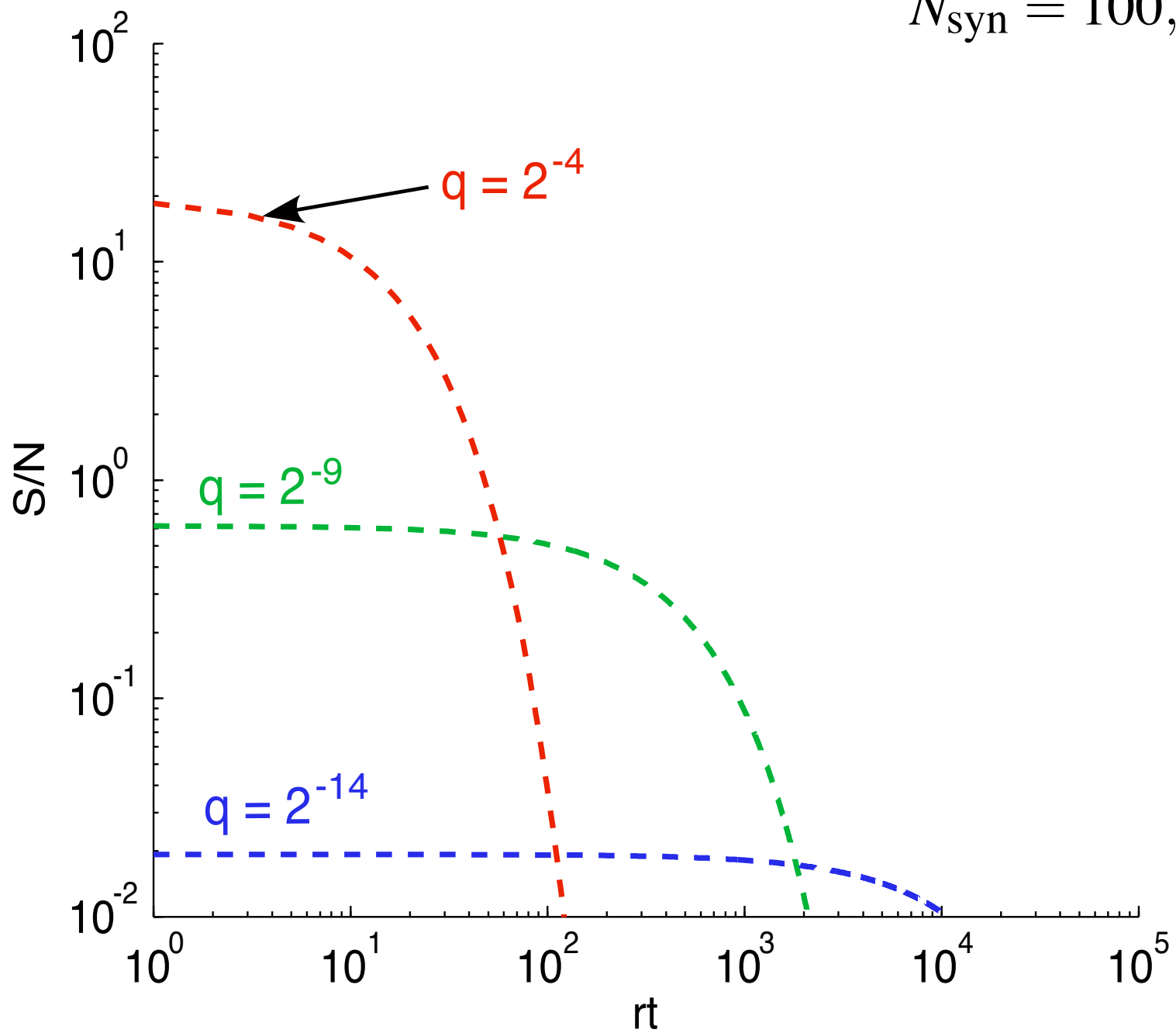
$$\frac{S}{N} = q\sqrt{N_{syn}} \exp(-qrt)$$

$$\frac{S_0}{N_0} = q\sqrt{N_{syn}}$$

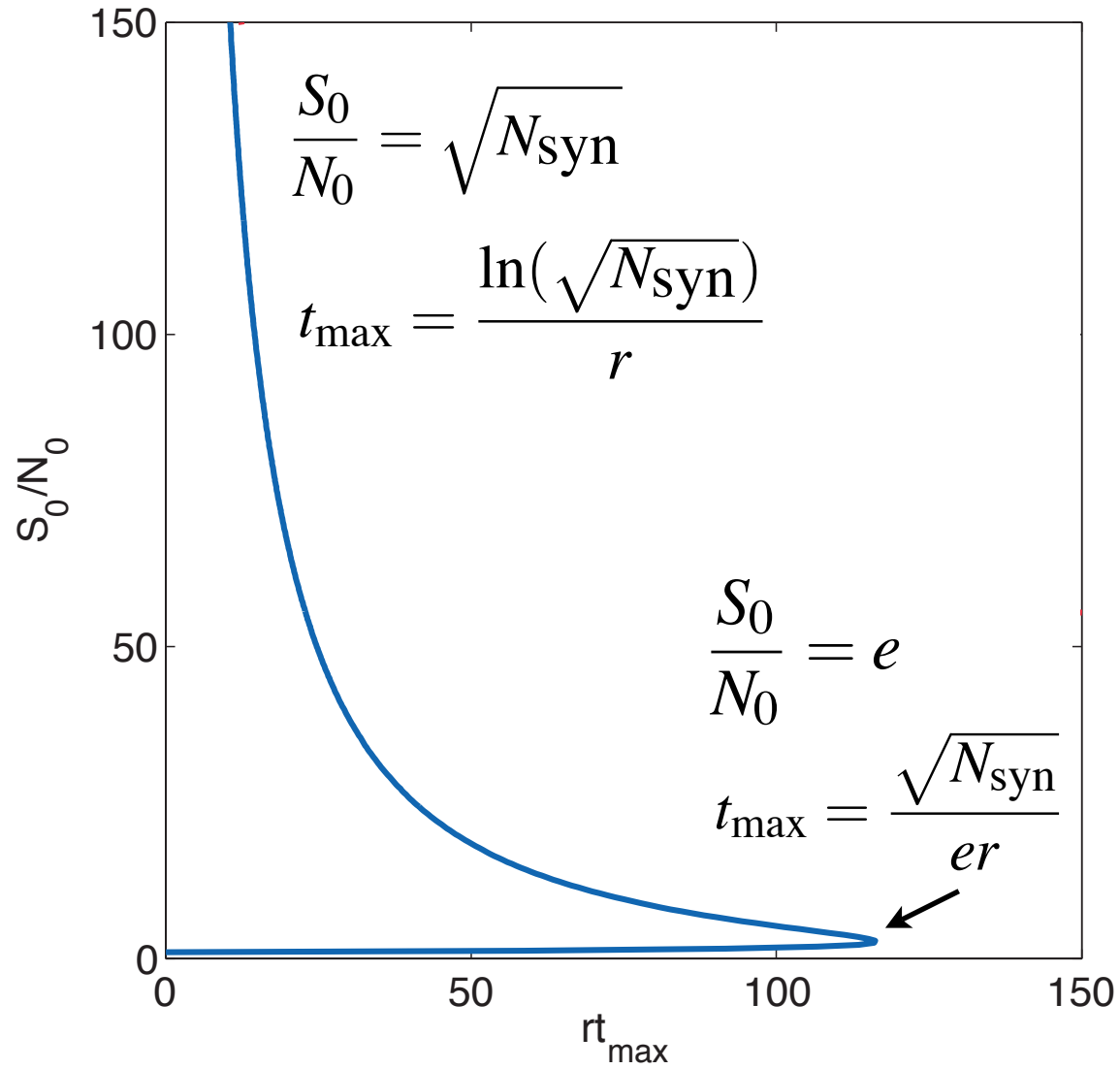
$$t_{\max} = \frac{\ln(q\sqrt{N_{syn}})}{qr}$$

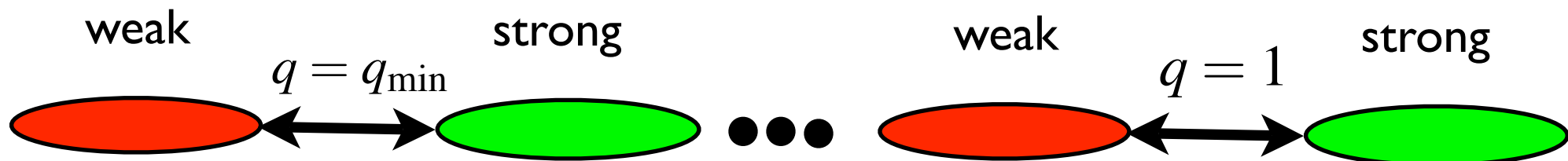
Amit & Fusi (1992)
Fusi (2002)

$N_{\text{syn}} = 100,000$



$$N_{\text{syn}} = 100,000$$

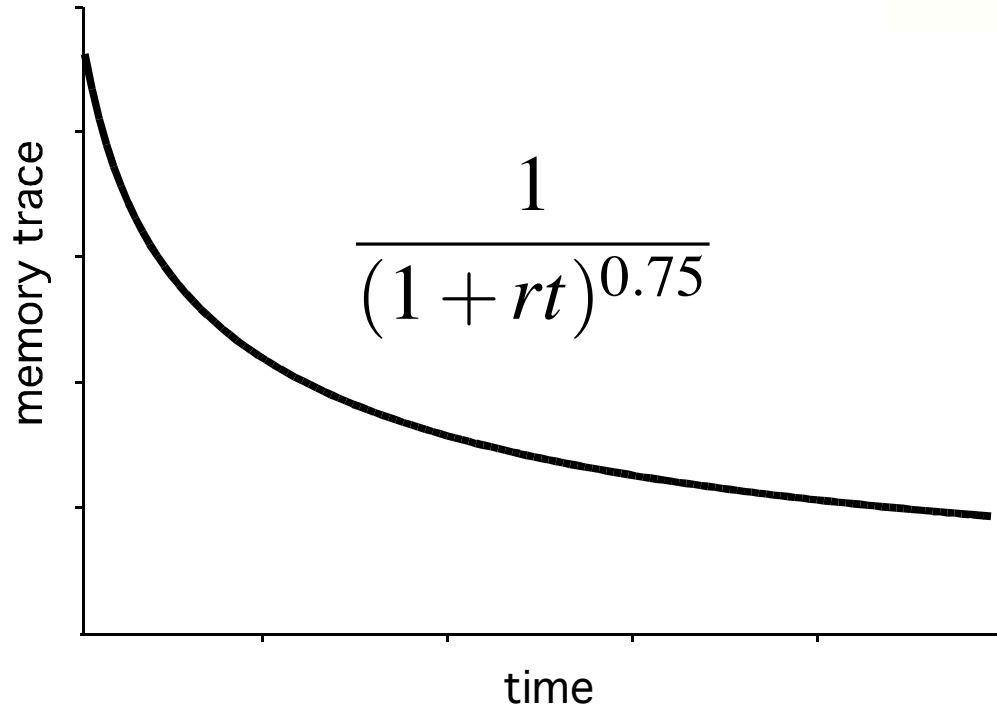




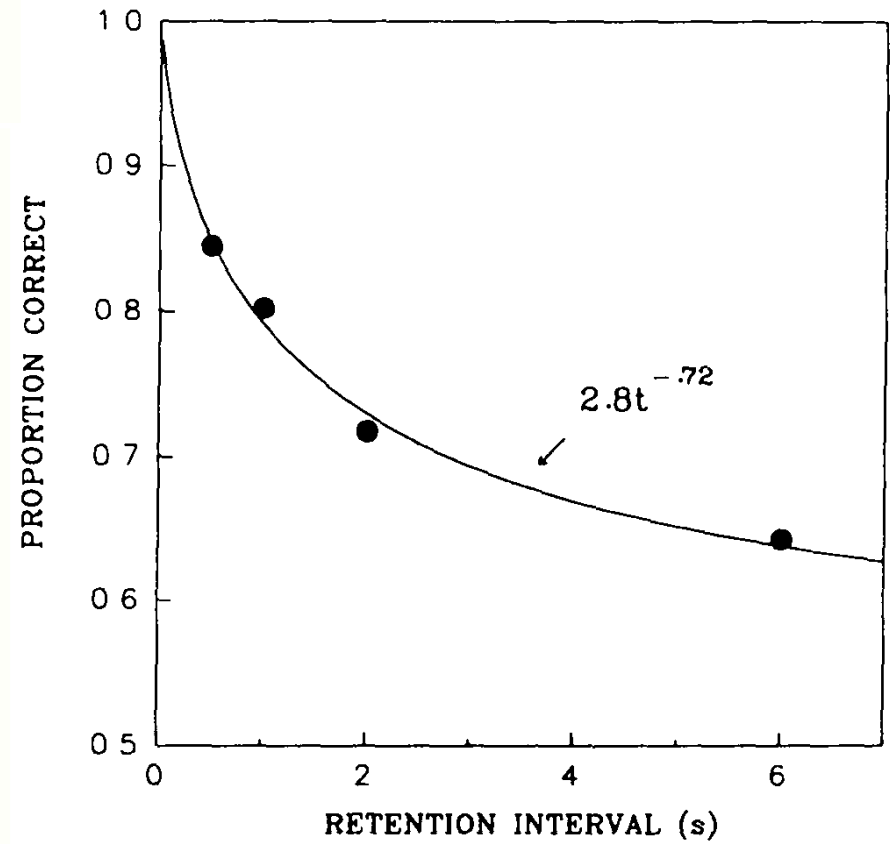
$$\rho \propto q^{-5/4}$$

$$q_{\min} \leq q \leq 1$$

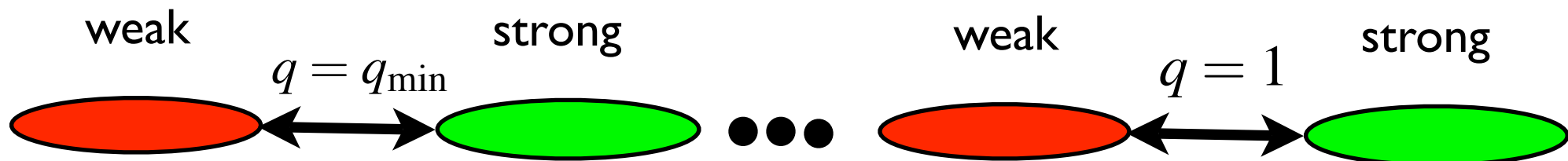
model



pigeons



Wixted & Ebbesen (1991)



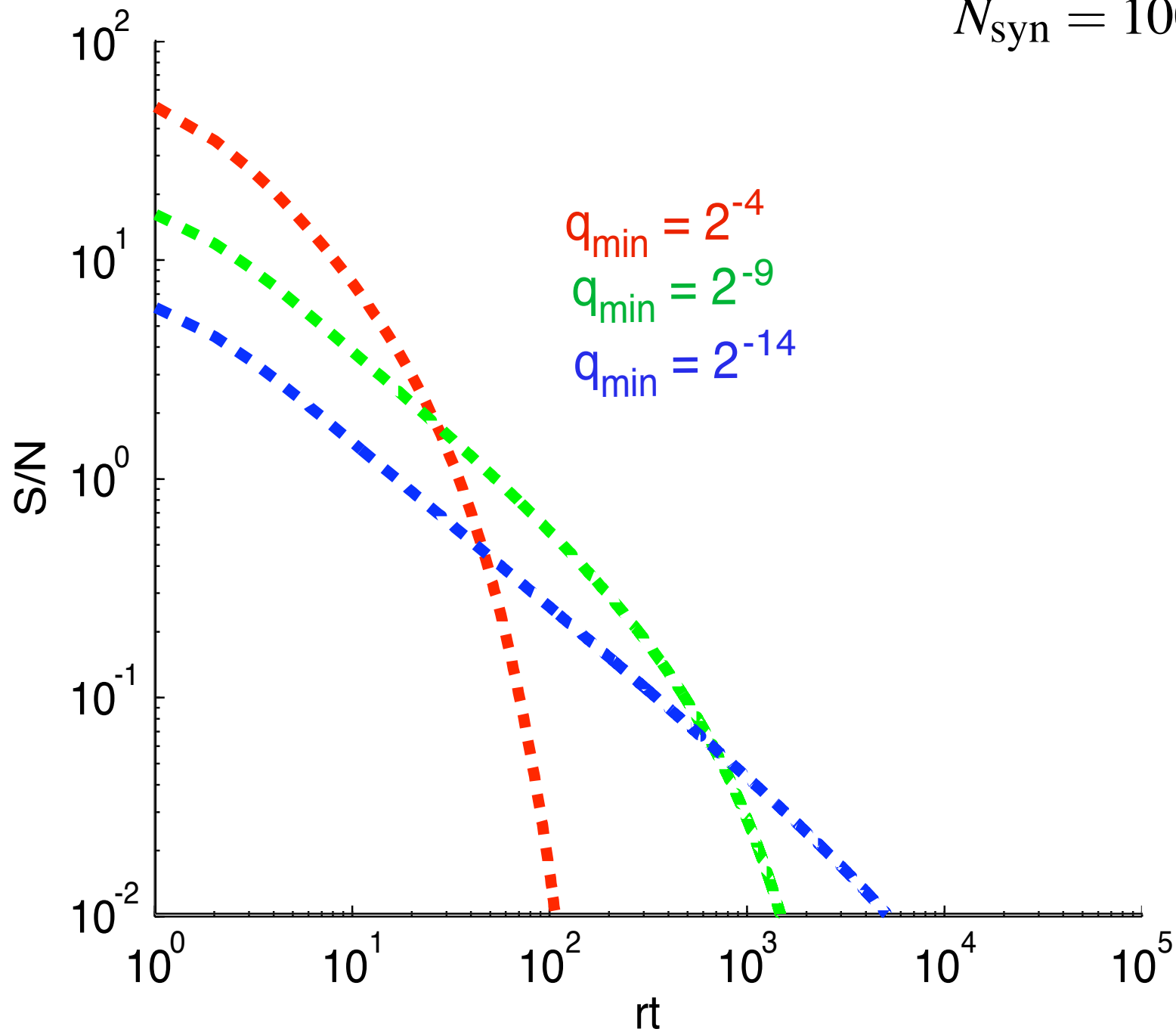
$$\rho \propto q^{-5/4}$$

$$q_{\min} \leq q \leq 1$$

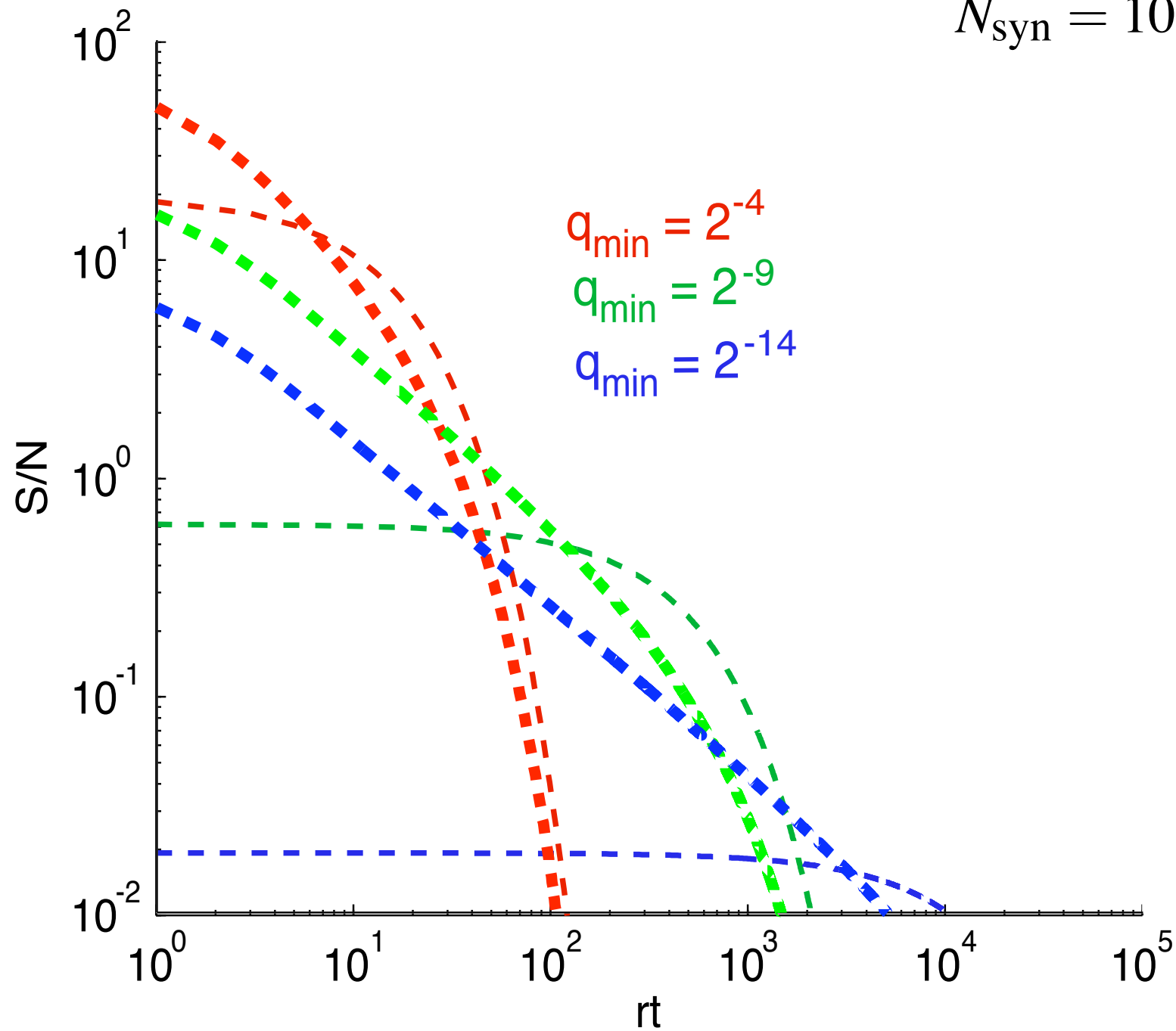
$$\frac{S_0}{N_0} \propto q_{\min}^{1/4} \sqrt{N_{\text{syn}}}$$

$$t_{\max} \propto \frac{1}{q_{\min}} \leq \sqrt{N_{\text{syn}}}$$

$N_{\text{syn}} = 100,000$

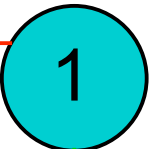
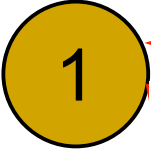


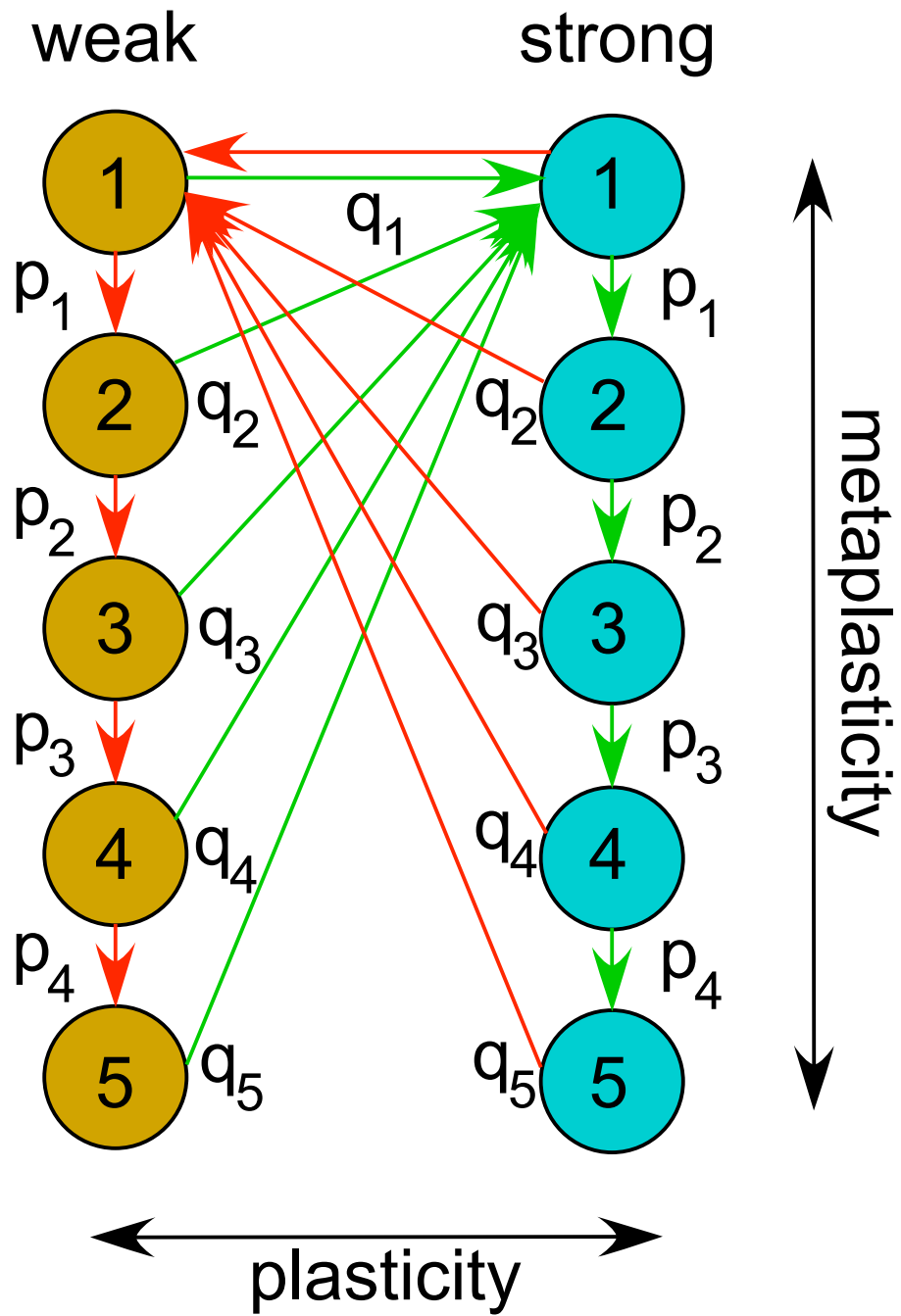
$N_{\text{syn}} = 100,000$



weak

strong



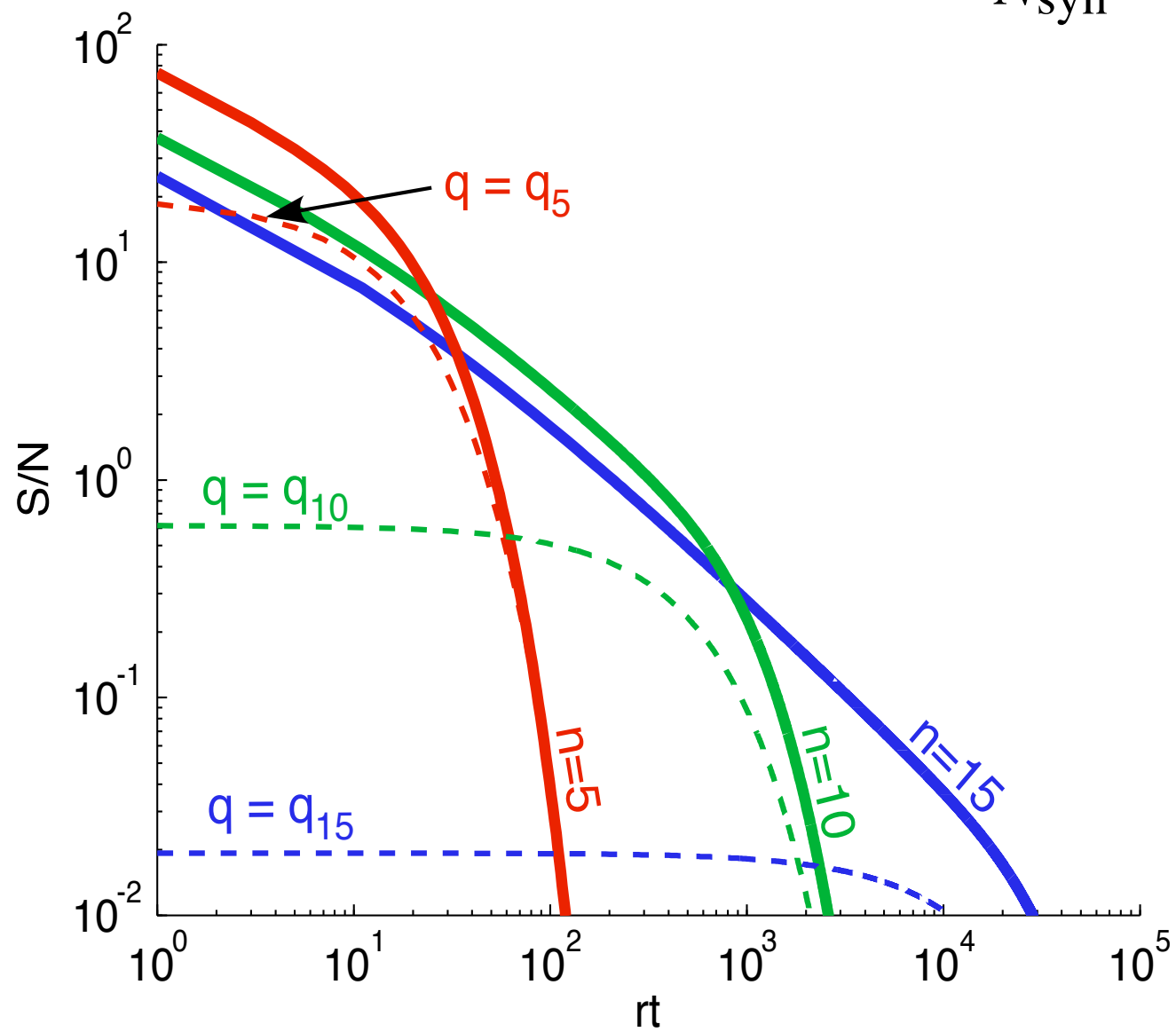


cascade

$$\frac{S_0}{N_0} \propto \frac{\sqrt{N_{\text{syn}}}}{n}$$

$$t_{\text{max}} \propto 2^n \leq \sqrt{N_{\text{syn}}}$$

$N_{\text{syn}} = 100,000$



$N_{\text{syn}} = 100,000$

