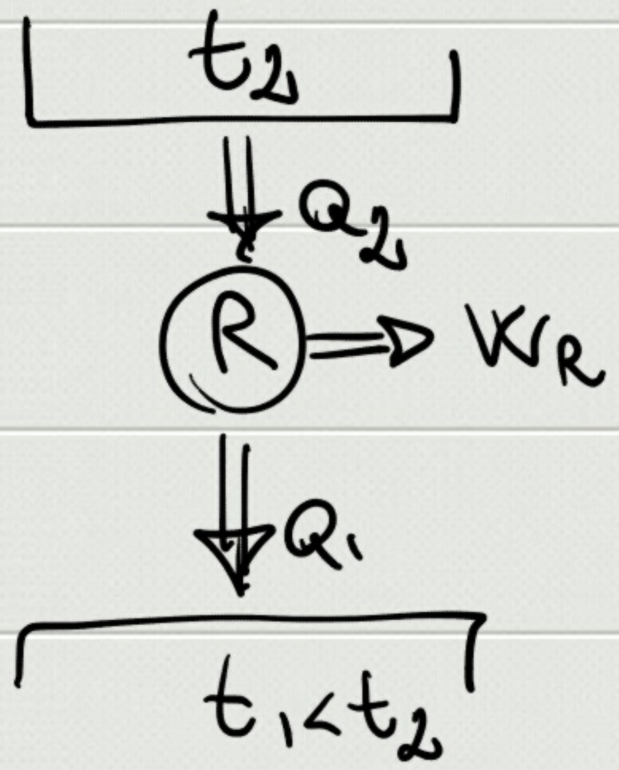
Termometri $\Rightarrow$ temperatura $= f$ (materiali)

Macchina di Carnot

Temperatura empirica t

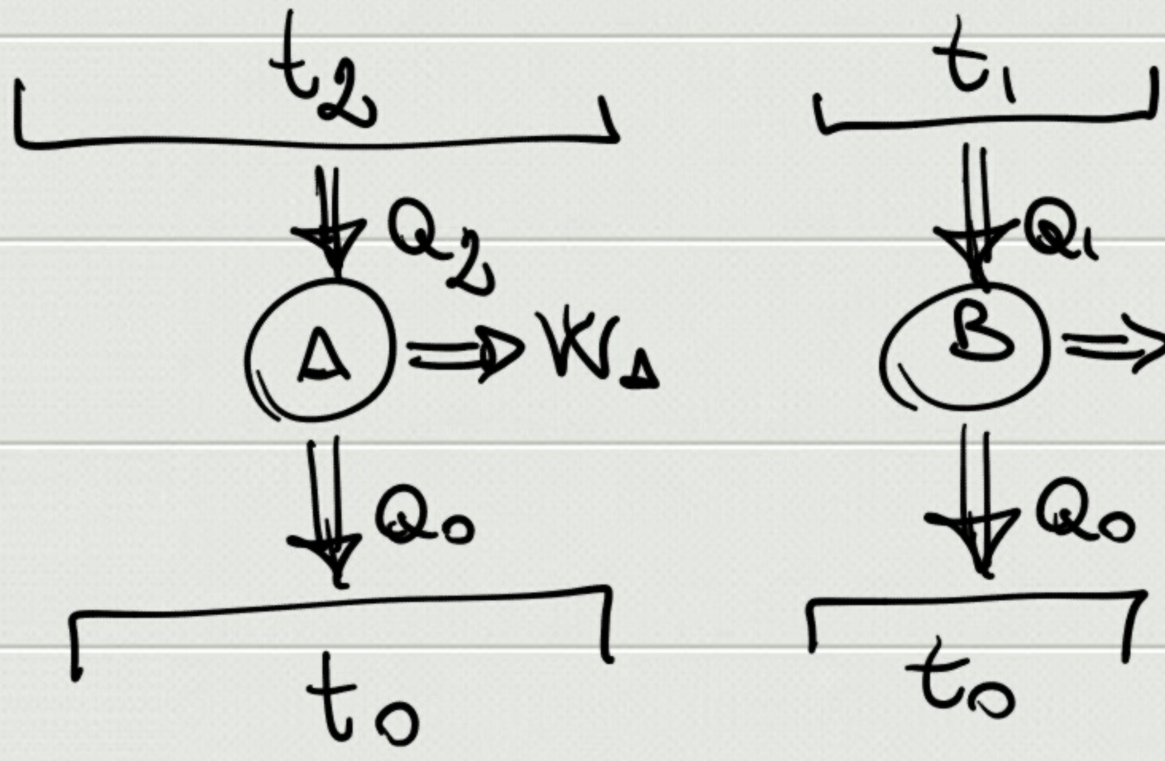


$$\eta_R = \frac{W}{Q_{1SS}} = \frac{Q_1 + Q_2}{Q_2} = 1 + \frac{Q_1}{Q_2} =$$

$$= 1 - \left|\frac{Q_1}{Q_2}\right|$$

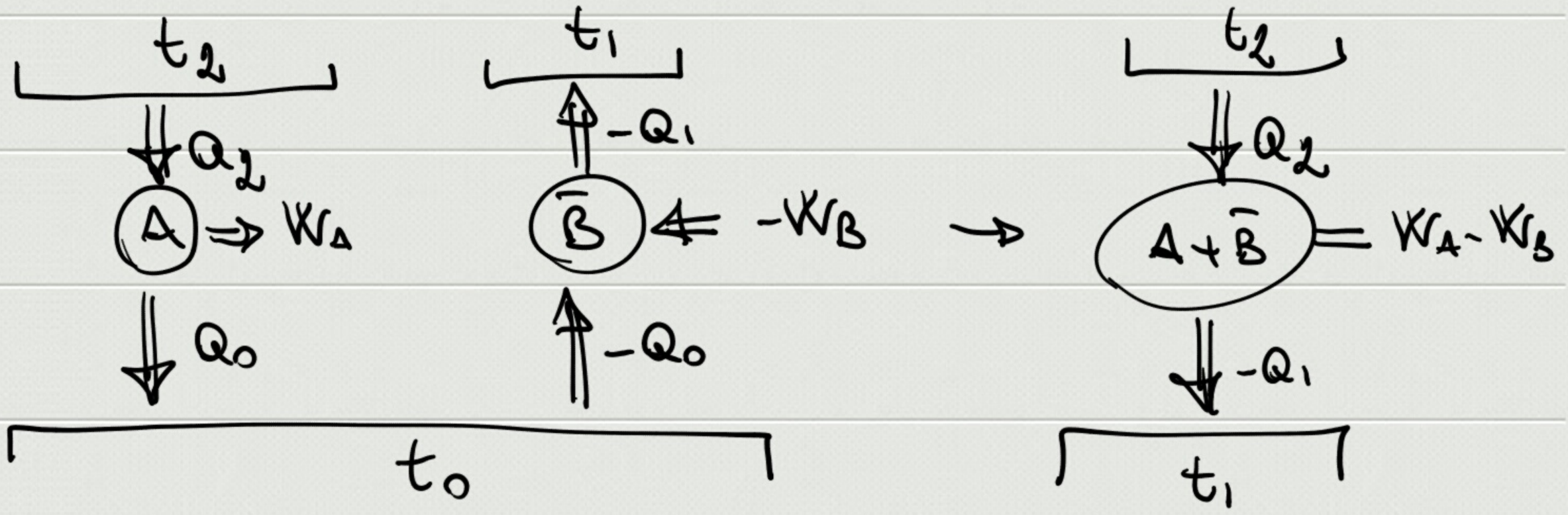
$$\eta_R = f(t_1, t_2)$$

$$\left\{ \boxed{\left|\frac{Q_2}{Q_1}\right| = f(t_1, t_2)} \right.$$



A: $\left|\frac{Q_2}{Q_0}\right| = f(t_0, t_2)$

B: $\left|\frac{Q_1}{Q_0}\right| = f(t_0, t_1)$



$$A+\bar{B}: \quad \left|\frac{Q_2}{-Q_1}\right| = f(t_1, t_2)$$

$$f(t_1,t_2) = \frac{Q_2}{Q_1} = \left|\frac{Q_2}{Q_1}\right| = \frac{|Q_2/Q_0|}{|Q_1/Q_0|} = \frac{f(t_0,t_2)}{f(t_0,t_1)} \quad (*)$$

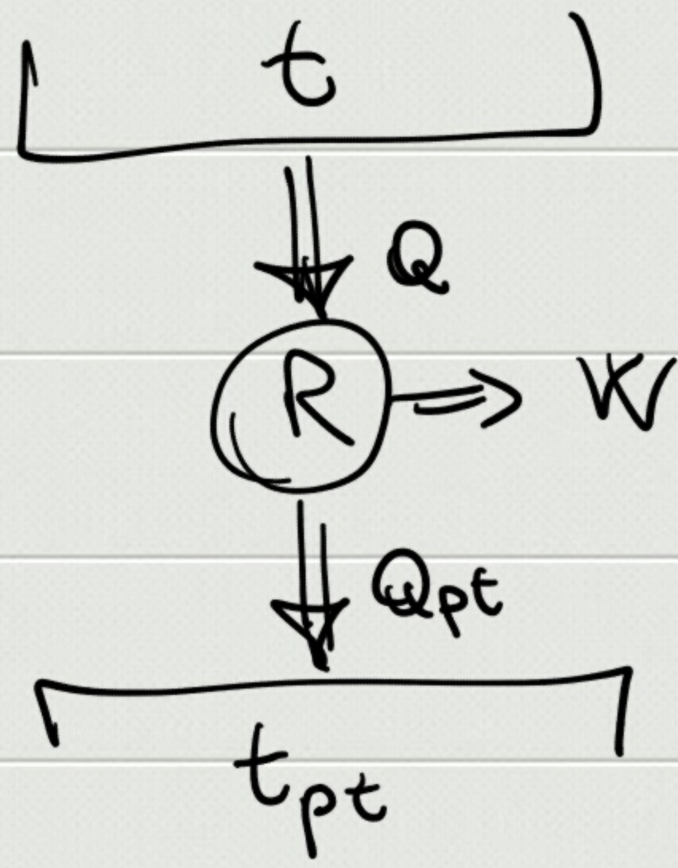
$$f(t,t^*) = h(t)\,g(t^*)$$

$$\Rightarrow (*) \quad f(t_1,t_2) = \frac{\cancel{h(t_0)}\,g(t_2)}{\cancel{h(t_0)}\,g(t_1)} = \frac{g(t_2)}{g(t_1)}$$

$$\Rightarrow \boxed{\left|\frac{Q_2}{Q_1}\right| = \frac{g(t_2)}{g(t_1)}}$$

température $\boxed{T = g(t)}$

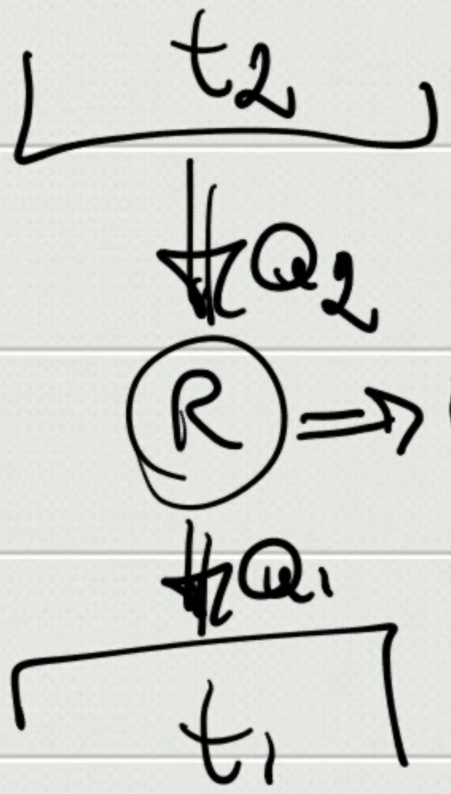
Termometro



$$\left|\frac{Q}{Q_{pt}}\right| = \frac{g(t)}{g(t_{pt})} \Rightarrow \boxed{T = g(t) = g(t_{pt}) \left|\frac{Q}{Q_{pt}}\right|}$$

$$T_{pt} = g(t_{pt}) = 273.16 \quad K$$

$$\Rightarrow \boxed{T = 273.16 \left|\frac{Q}{Q_{pt}}\right|}$$



$$\eta_R = 1 - \left|\frac{Q_1}{Q_2}\right| = 1 - \frac{t_1}{t_2}$$

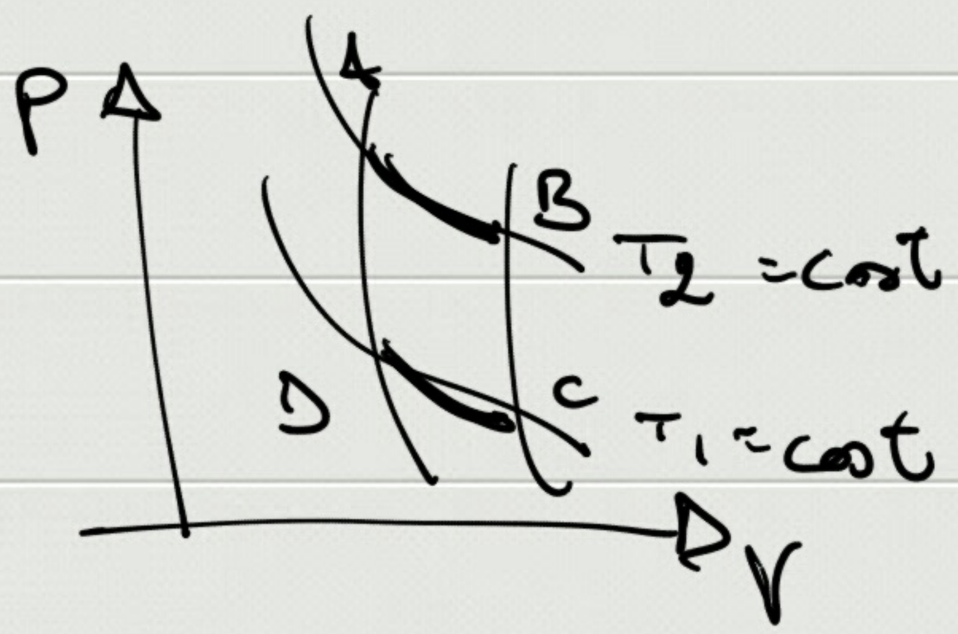
$$\left|\frac{Q_1}{Q_2}\right| = \frac{t_1}{t_2} = \frac{f(t_1)}{f(t_2)} \nearrow T_1 \Rightarrow T_2$$

$$\Rightarrow \frac{t_1}{t_2} = \frac{T_1}{T_2} \Rightarrow \boxed{T \propto t_{gas}}$$

$$t_{pt} = T_{pt} \Rightarrow \boxed{T \equiv t_{gas}}$$

$$= 273.16 \text{ K}$$

Definizione di Kelvin $\quad \Delta T = 1\,K = \frac{1}{273.16} T_{pt}$



$Q_{AB} > 0$

$Q_{CD} < 0$

$$T = 0\,K = 273.16 \left|\frac{Q_0}{Q_{pt}}\right|$$

$$\Rightarrow \boxed{Q_0 = 0}$$