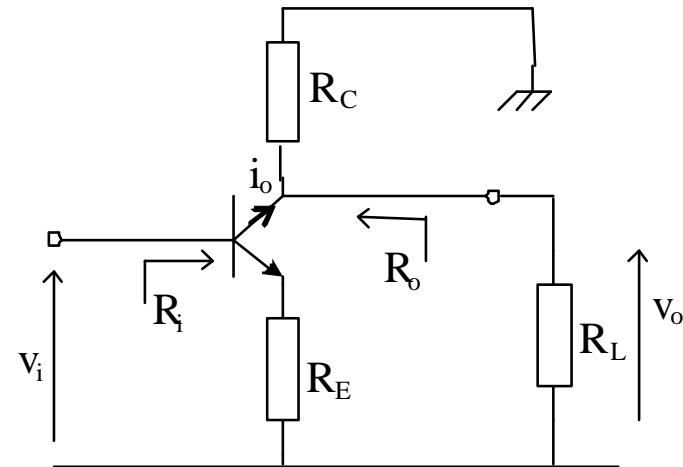
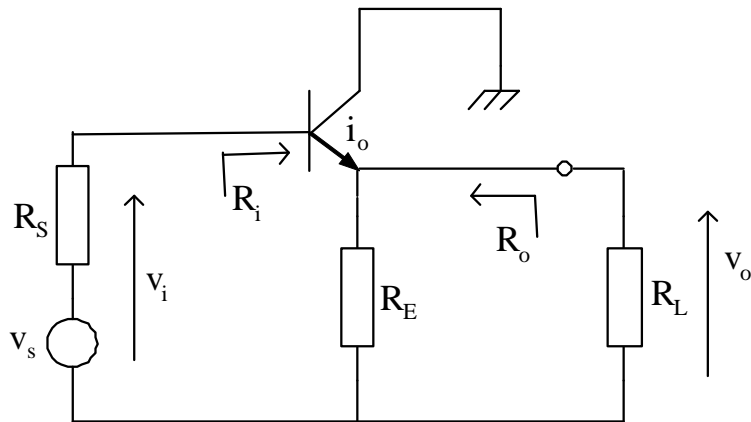


Exercises

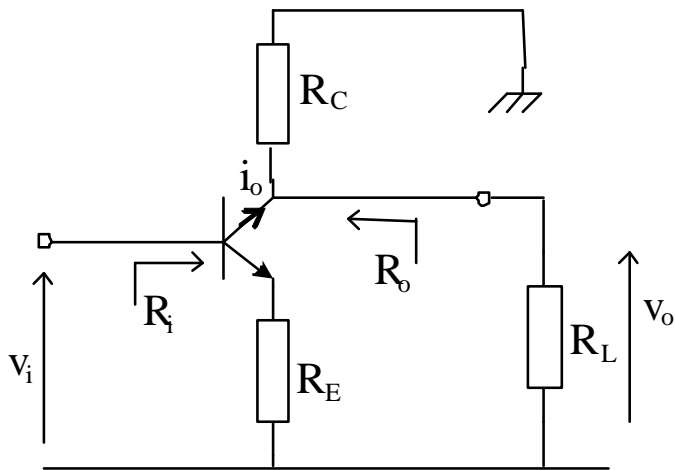
These two familiar circuits have feedback!



See VITAL for: 'Problems Sheet 2'

Solutions also! - but try the problems yourself first!!

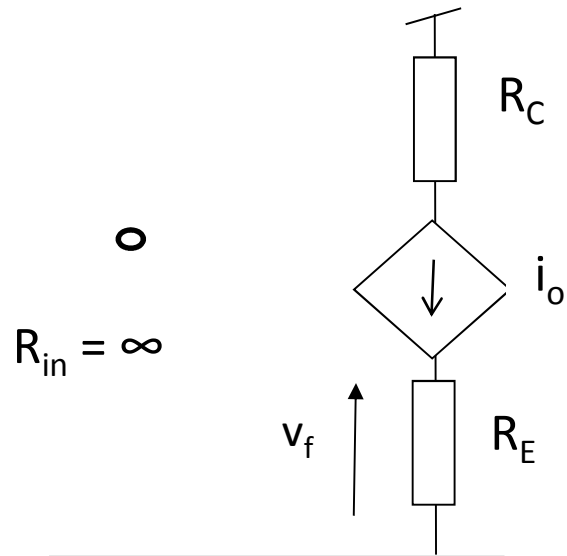
Apply the method to CE-ED



R_E - samples the output current!

Input voltage summing

So the amplifier is a stabilised transconductance amplifier!

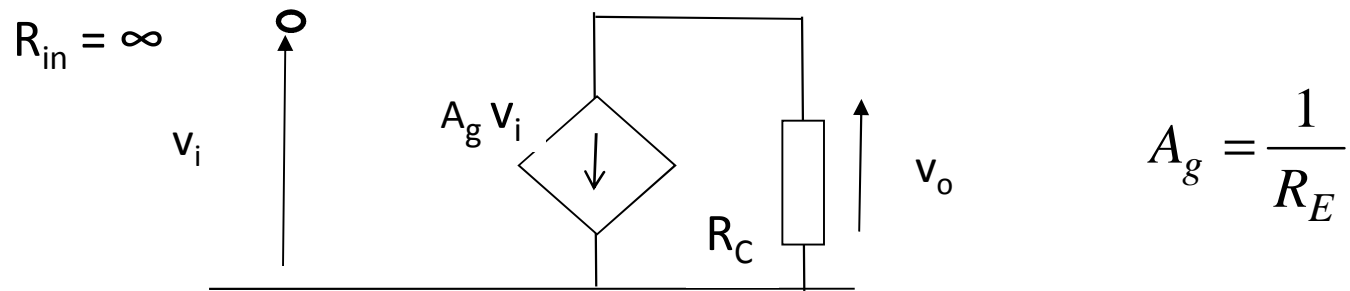


$$\beta_g = \frac{v_f}{i_o} = R_E$$

$$A_g = \frac{1}{\beta_g} = \frac{1}{R_E}$$

Exercise: show that the voltage gain can be estimated as $-R_C / R_E$

Estimate the voltage gain of CE-ED

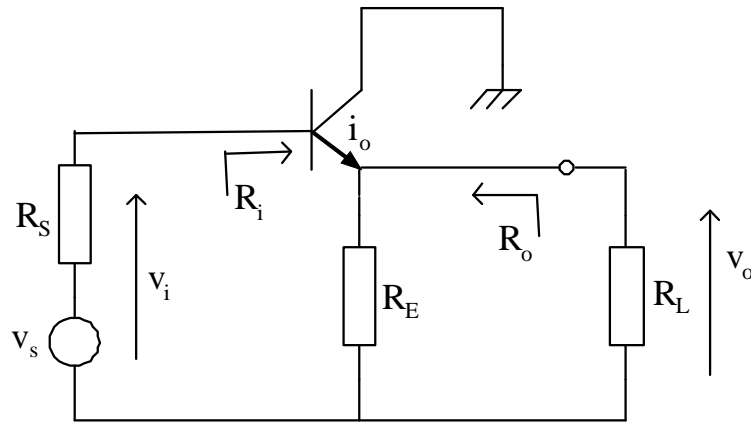


$$v_o = -A_g v_i R_C$$

$$v_o = -\frac{1}{R_E} v_i R_C$$

$$\frac{v_o}{v_i} \approx -\frac{R_C}{R_E}$$

Apply the method to CC

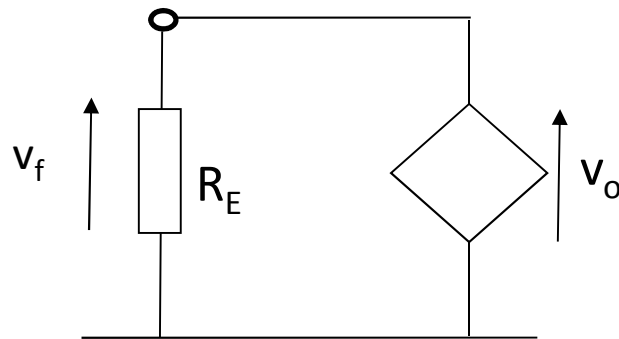


R_E - samples the output voltage!

Input voltage summing

So the amplifier is a stabilised voltage amplifier!

$$R_{in} = \infty$$



$$\beta_v = \frac{v_f}{v_o} = 1$$