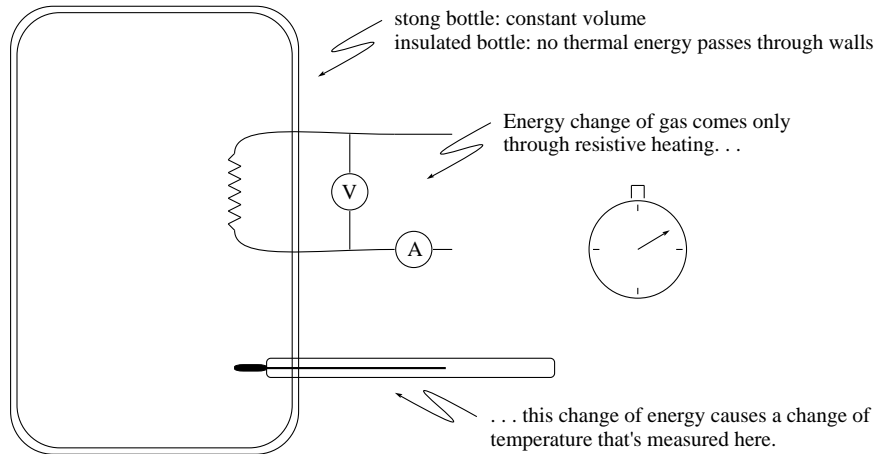


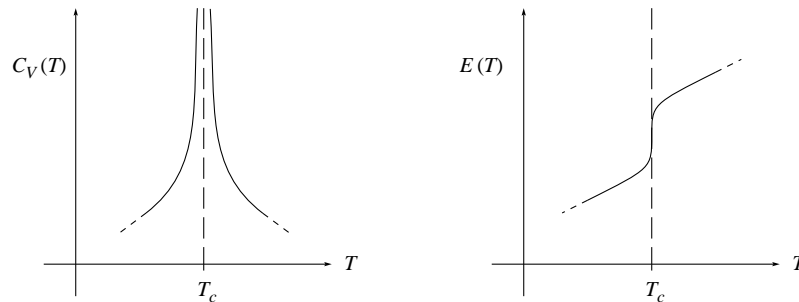
## Heat capacity as a susceptibility

a.



The energy change is  $\Delta E = IV\Delta t$  so  $C_V = \frac{\Delta E}{\Delta T} = \frac{IV\Delta t}{\Delta T}$ .

b.



$C_V$  goes to infinity at  $T = T_c$ , so  $E(T)$  has infinite slope there.

c. Cause: change in  $T$       Result: change in  $E$

If  $C_V$  is large, then a given change in  $T$  will result in a large change in  $E$ . The  $E$  of the system is highly susceptible to change through changing  $T$ . Conversely, if  $C_V$  is small, then a given change in  $T$  will result in a small change in  $E$ . The  $E$  of the system is relatively insusceptible to change through changing  $T$ .

d. Cause: change in  $p$       Result: change in  $V$

The text is exactly the same as above, except changing  $C_V$  to  $\kappa_T$ ,  $T$  to  $p$ , and  $E$  to  $V$ .