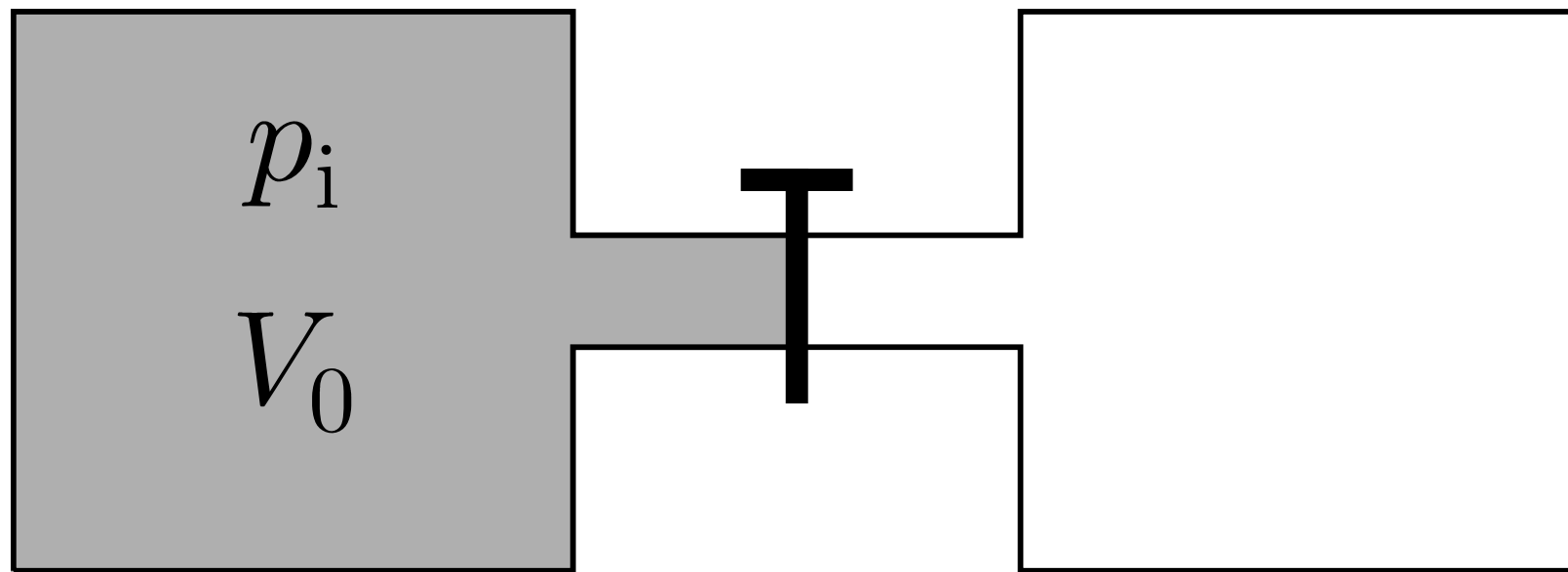


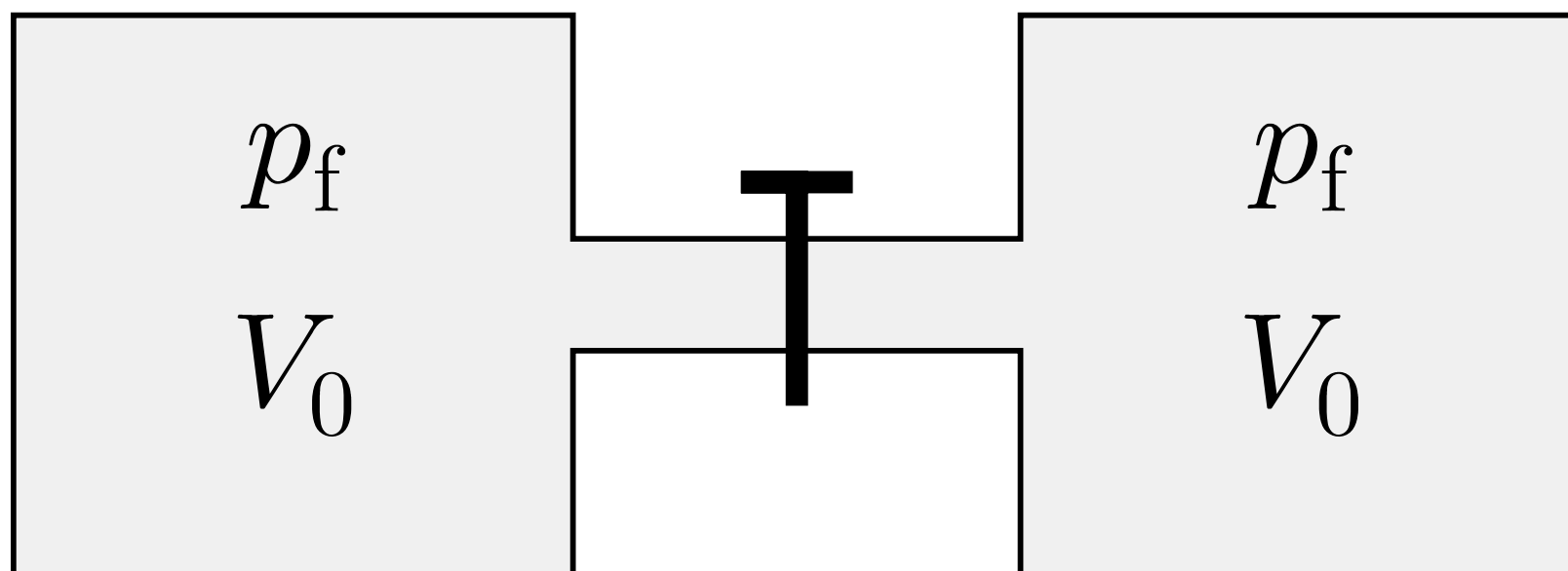
Joule Expansion

(a)



The expansion is a highly non-equilibrium process.

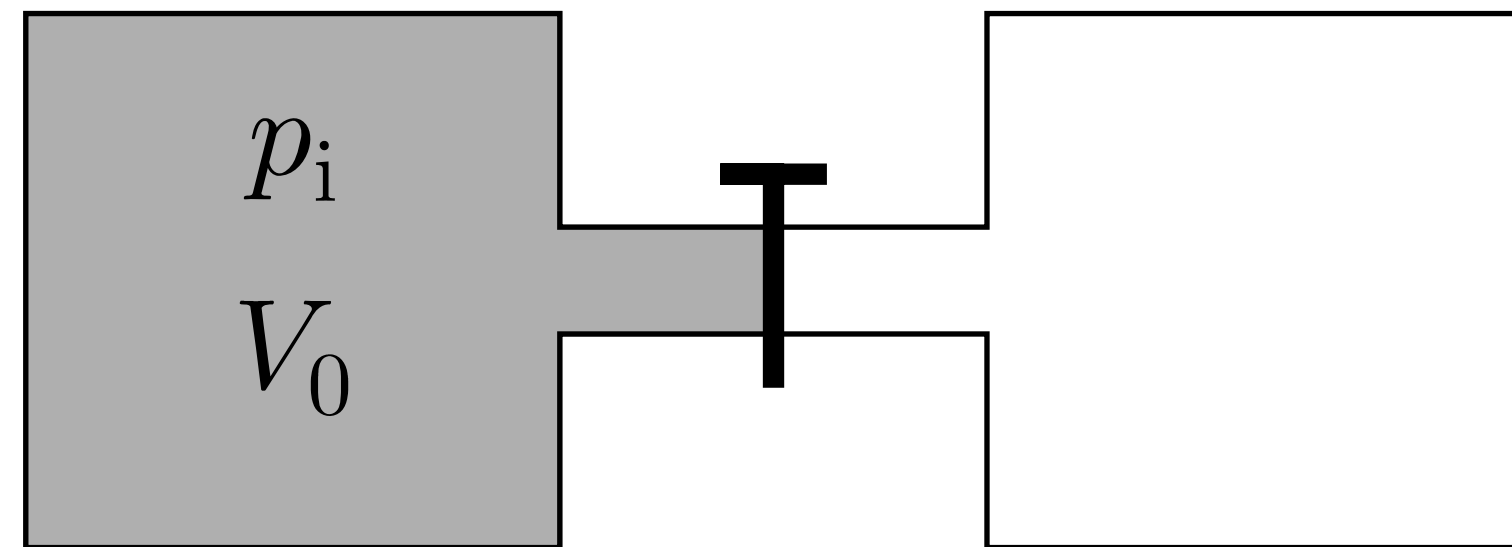
(b)



During the expansion no heat enters the system. Thus the energy initial equals the final energy

Calculating the change in entropy: thermodynamic considerations

(a)



(b)

