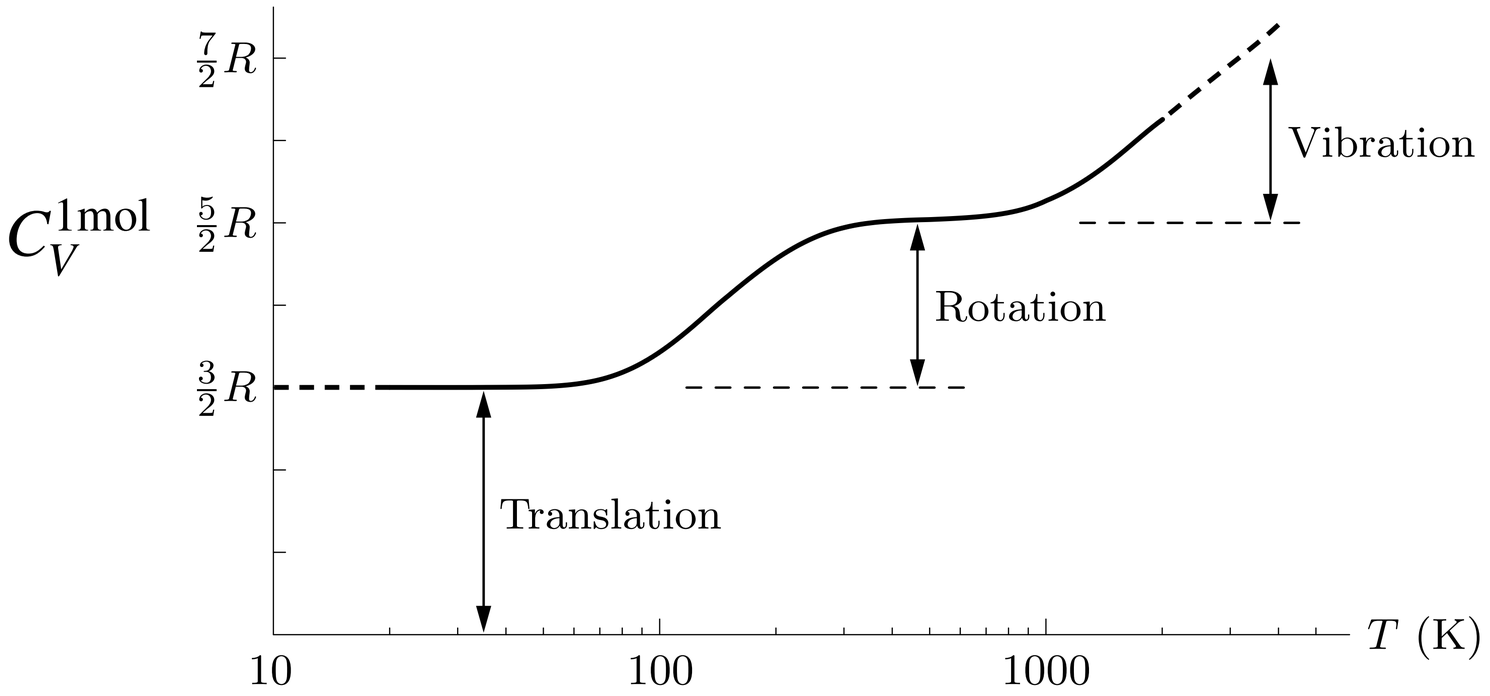
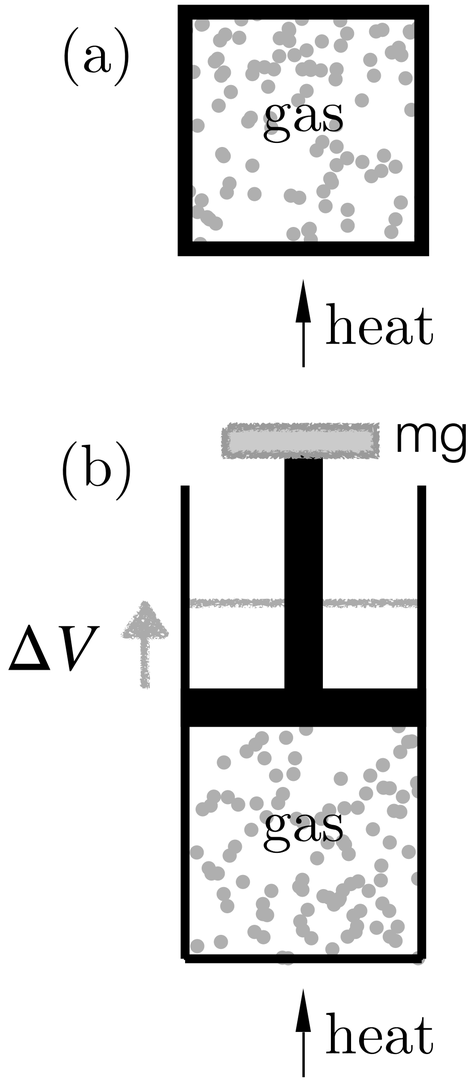
Energy of one mole of diatomic hydrogen H_2

$$C_V^{1\text{mol}} \equiv \frac{\partial U^{1\text{mol}}}{\partial T}$$



Specific heats at constant volume and pressure



Constant volume: add heat,
and temperature goes up

$$C_v = \left(\frac{đQ}{dT} \right)_V$$

Constant pressure: add heat,
the gas expands doing work, and
temperature goes up, but not as much

$$C_p = \left(\frac{đQ}{dT} \right)_p$$