$\exists$ Work done or received $W \neq 0 \Rightarrow \exists$ Change of State ("Displacement", "Deformation") $r \neq 0$:

$$W = \partial A = \partial(E \cdot t) = \partial(p \cdot r) = F_1 \cdot r_1 + p_2 \cdot v_2 = \begin{cases} F \cdot r \\ p \cdot v \end{cases} \tag{1}$$

Geometrical:

$$W = F \cdot r = mr \cdot a = I \cdot \frac{v}{t} = \frac{p}{t} \cdot tv = Ft \cdot v = pv = mv^2 \tag{2}$$

Analytical:

$$W = p \cdot v = \mathcal{L} + \mathcal{H} = (\mathcal{K} - \mathcal{U}) + (\mathcal{K} + \mathcal{U}) = (\mathcal{K} - (\mathcal{V} + \mathcal{Z})) + (\mathcal{K} + \mathcal{U}) = (\mathcal{K} - \mathcal{U}) + E \tag{3}$$

Electro Magnetic:

$$W = \mathcal{L} + \mathcal{H} = \left(\frac{1}{2}mv^2 - q(\Phi - \vec{\mathcal{A}} \cdot \vec{v})\right) + \left(\frac{1}{2}\frac{1}{m}(\vec{p} - q\vec{\mathcal{A}})^2 + q\Phi\right) \tag{4}$$

Relativistic:

$$W = p \cdot v = \frac{v}{c}\sqrt{E^2 - (mc^2)^2} \tag{5}$$

Thermal:

$$W = F \cdot r = PV^{\iota} = T \cdot V^{\frac{f+2}{f}} = T \cdot V^{(\frac{c_P}{c_V} - 1)} = T \cdot V^{\kappa - 1} = T \cdot l \cdot g_0 = T \cdot n \cdot b_0 = T \cdot m \cdot c_0 \tag{6}$$

Thermo Statistical:

$$W = \mathcal{L} + \mathcal{H} = \Delta U - \Delta H = \Delta(T \cdot \Delta S - P \cdot \Delta V) - \Delta(T \cdot S) \tag{7}$$

Quantistic:

$$W = p \cdot v = k \cdot \omega = h\nu k = Ek \tag{8}$$

$$\Delta A = \Delta p \cdot \Delta r = \Delta E \cdot \Delta t \geq \frac{1}{2}\hbar \tag{9}$$

see description of "movement" **?@eq-movement**

acronyms see **?@sec-acroworkenergy**