Dynamics under Velocity Constraints

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Euler Lagrange Formulation for Dynamics

- Principle of least action $L = KE(q, \dot{q}) - PE(q)$

$$\min_{q(t)} \int L(q(t), \dot{q}(t), t)dt$$

- Unconstrained solution

$$\frac{d}{dt}\left(\frac{\partial L}{\partial \dot{q}}\right) - \frac{\partial L}{\partial q} = Q + F_{\text{non-conservative}}$$