A sample presentation

With ramblings from a madman

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Title

The quick brown fox jumps over the lazy dog [1].

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$$\boxed{i\hbar\partial_t \left|\Psi\right\rangle = \hat{\mathrm{H}} \left|\Psi\right\rangle} \tag{1}$$

What

What

- One.

What

- One.
- Two.

What

- One.
- Two.
- Three.

The state of the world

Théorème 1.1 : Birb

Birbs exist.

Colorbox test

A very important result.

A test of what the box environment looks like

This is the fundamental theorem of calculus :

$$\int_a^b f(t)\,\mathrm{d}t = F(b) - F(a) \tag{2}$$

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Notice :

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- another thing to say ;
- consider $\mathbf{F} = m\ddot{\mathbf{x}}$.

A simple derivation

Extremization of the action entails :

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A simple derivation

Extremization of the action entails :

$$
\begin{aligned}
\boxed{0 = \delta\mathcal{S}} &= \int_{t_i}^{t_f} \mathrm{d}t\, \delta\mathcal{L} \\
&= \int_{t_i}^{t_f} \mathrm{d}t \left[\frac{\delta\mathcal{L}}{\delta q}\delta q + \frac{\delta\mathcal{L}}{\delta\dot{q}}\delta\dot{q}\right] \\
&= \int_{t_i}^{t_f} \mathrm{d}t \left[\frac{\delta\mathcal{L}}{\delta q} - \frac{\mathrm{d}}{\mathrm{d}t}\frac{\delta\mathcal{L}}{\delta\dot{q}}\right]\delta q + \underbrace{\int_{t_i}^{t_f} \mathrm{d}t \frac{\mathrm{d}}{\mathrm{d}t}\left(\frac{\delta\mathcal{L}}{\delta\dot{q}}\delta q\right)}_{\text{vanishes (B.C.s)}}
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$$

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&= \int_{t_i}^{t_f} \mathrm{d}t \left[\frac{\delta\mathcal{L}}{\delta q} - \frac{\mathrm{d}}{\mathrm{d}t}\frac{\delta\mathcal{L}}{\delta \dot{q}} \right] \delta q + \underbrace{\int_{t_i}^{t_f} \mathrm{d}t \frac{\mathrm{d}}{\mathrm{d}t}\left(\frac{\delta\mathcal{L}}{\delta \dot{q}}\delta q \right)}_{\text{vanishes (B.C.s)}} \\
&\Rightarrow \boxed{\frac{\delta\mathcal{L}}{\delta q} - \frac{\mathrm{d}}{\mathrm{d}t}\frac{\delta\mathcal{L}}{\delta \dot{q}} = 0}
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\Rightarrow &\boxed{\frac{\delta\mathcal{L}}{\delta q} - \frac{\mathrm{d}}{\mathrm{d}t}\frac{\delta\mathcal{L}}{\delta \dot{q}} = 0}
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The converse is equally true, hence :

A simple derivation

Extremization of the action entails :

$$\boxed{0 = \delta\mathcal{S}} = \int_{t_i}^{t_f} \mathrm{d}t\,\delta\mathcal{L}$$

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$$= \int_{t_i}^{t_f} \mathrm{d}t \left[\frac{\delta\mathcal{L}}{\delta q} - \frac{\mathrm{d}}{\mathrm{d}t}\frac{\delta\mathcal{L}}{\delta\dot{q}}\right]\delta q + \underbrace{\int_{t_i}^{t_f} \mathrm{d}t\frac{\mathrm{d}}{\mathrm{d}t}\left(\frac{\delta\mathcal{L}}{\delta\dot{q}}\delta q\right)}_{\text{vanishes (B.C.s)}} \tag{3}$$

$$\Rightarrow \boxed{\frac{\delta\mathcal{L}}{\delta q} - \frac{\mathrm{d}}{\mathrm{d}t}\frac{\delta\mathcal{L}}{\delta\dot{q}} = 0}$$

The converse is equally true, hence :

$$\boxed{\delta\mathcal{S} = 0 \text{ \& B.C.s} \Longleftrightarrow \frac{\delta\mathcal{L}}{\delta q} - \frac{\mathrm{d}}{\mathrm{d}t}\frac{\delta\mathcal{L}}{\delta\dot{q}} = 0} \tag{4}$$

Testing columns

This is a Woodcock. Its features are :

Testing columns

This is a Woodcock. Its features are :

- A beak

Testing columns

This is a Woodcock. Its features are :

- A beak
- Wings

Testing columns

This is a Woodcock. Its features are :

- A beak
- Wings
- A brain (barely)

Testing columns

This is a Woodcock. Its features are :

- A beak
- Wings
- A brain (barely)
- Camouflage

Questions (2 minutes)

Thank You!

J. Hubbard et Brian Hilton Flowers.
Electron correlations in narrow energy bands.
Proceedings of the Royal Society of London. Series A. Mathematical and Physical Sciences **276**(1365), 238–257 (1963).
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