

$$\begin{aligned} \underbrace{x \partial_\mu \mathcal{L}}_{\mathfrak{H}:\mathfrak{H}} &= 0 \\ \underbrace{x \mathcal{L} \partial^\sigma}_{\mathfrak{H}:\mathfrak{H}} &= \frac{\partial \mathcal{L}}{\partial \sigma^\mathfrak{H}} = 0 \\ \underbrace{x \mathcal{L}^\sigma \partial^\tau}_{\mathfrak{H}:\mathfrak{H}} &= \frac{\partial \mathcal{L}}{\partial \sigma^\tau \mathfrak{H}} = 4 \eta^{\sigma\mu} \eta^{\tau\nu} \overline{\mu\nu \mathfrak{H} - \nu\mu \mathfrak{H}} \end{aligned}$$

$$\begin{aligned} \frac{1}{2} \underbrace{x \mathcal{L}^\sigma \partial^\tau}_{\mathfrak{H}:\mathfrak{H}} &= \frac{\partial \mathcal{L}}{\partial \sigma^\tau \mathfrak{H}} \\ &= \eta^{\sigma\mu} \eta^{\tau\nu} \overline{\mu\nu \mathfrak{H} - \nu\mu \mathfrak{H}} - \eta^{\tau\mu} \eta^{\sigma\nu} \overline{\mu\nu \mathfrak{H} - \nu\mu \mathfrak{H}} + \overline{\alpha\beta \mathfrak{H} - \beta\alpha \mathfrak{H}} \eta^{\alpha\sigma} \eta^{\beta\tau} - \overline{\alpha\beta \mathfrak{H} - \beta\alpha \mathfrak{H}} \eta^{\alpha\tau} \eta^{\beta\sigma} \\ &= \eta^{\sigma\mu} \eta^{\tau\nu} \overline{\mu\nu \mathfrak{H} - \nu\mu \mathfrak{H}} + \eta^{\sigma\nu} \eta^{\tau\mu} \overline{\nu\mu \mathfrak{H} - \mu\nu \mathfrak{H}} + \overline{\alpha\beta \mathfrak{H} - \beta\alpha \mathfrak{H}} \eta^{\sigma\alpha} \eta^{\tau\beta} + \overline{\beta\alpha \mathfrak{H} - \alpha\beta \mathfrak{H}} \eta^{\sigma\beta} \eta^{\tau\alpha} = 4 \eta^{\sigma\mu} \eta^{\tau\nu} \overline{\mu\nu \mathfrak{H} - \nu\mu \mathfrak{H}} \end{aligned}$$

$$\text{motion } \partial^\mu F_{\mu\nu} = \eta^{\mu\sigma} \underbrace{x \overline{\mu\nu \mathfrak{H} - \nu\mu \mathfrak{H}}}_{\sigma} = 0$$

$$\begin{aligned} \underbrace{x \mathcal{L} \partial^\tau}_{\mathfrak{H}} &= \underbrace{x \mathcal{L} \partial^\tau}_{x\mathfrak{H}:x\mathfrak{H}} = 0 \\ \underbrace{x \mathcal{L}^\sigma \partial^\tau}_{\mathfrak{H}} &= \underbrace{x \mathcal{L}^\sigma \partial^\tau}_{x\mathfrak{H}:x\mathfrak{H}} = 4 \eta^{\sigma\mu} \eta^{\tau\nu} \overline{\mu\nu \mathfrak{H} - \nu\mu \mathfrak{H}} \\ \bigwedge_\tau 0 &= \frac{1}{4} \underbrace{x \mathcal{L}^\sigma \partial^\tau}_{\sigma \mathfrak{H}} = \eta^{\sigma\mu} \eta^{\tau\nu} \underbrace{x \overline{\mu\nu \mathfrak{H} - \nu\mu \mathfrak{H}}}_{\sigma} = \eta^{\tau\nu} \eta^{\mu\sigma} \underbrace{x \overline{\mu\nu \mathfrak{H} - \nu\mu \mathfrak{H}}}_{\sigma} \stackrel{\tau \text{ bel}}{\Rightarrow} \eta^{\mu\sigma} \underbrace{x \overline{\mu\nu \mathfrak{H} - \nu\mu \mathfrak{H}}}_{\sigma} = 0 \end{aligned}$$

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$$\begin{aligned}
\underbrace{x \partial_\mu \mathcal{L}}_{\mathfrak{q}; \mathfrak{q}} &= 0 \\
\underbrace{x \mathcal{L} \partial^\sigma}_{\mathfrak{q}; \mathfrak{q}} &= \frac{\partial \mathcal{L}}{\partial \sigma^\mathfrak{q}} = 0 \\
\underbrace{x \mathcal{L}^\lambda \partial^\sigma}_{\mathfrak{q}; \mathfrak{q}} &= \frac{\partial \mathcal{L}}{\partial \lambda_\sigma \mathfrak{q}} = 4 \underbrace{\mu \mathfrak{q} - \nu \mathfrak{q}} \eta^{\mu\lambda} \eta^{\nu\sigma}
\end{aligned}$$

$$\begin{aligned}
\frac{1}{2} \underbrace{x \mathcal{L}^\lambda \partial^\sigma}_{\mathfrak{q}; \mathfrak{q}} &= \underbrace{\mu \mathfrak{q} - \nu \mathfrak{q}} \eta^{\mu\alpha} \eta^{\nu\beta} \underbrace{\lambda \delta_\beta^\sigma - \beta \delta_\alpha^\sigma}_{\mathfrak{q}} = \underbrace{\mu \mathfrak{q} - \nu \mathfrak{q}} \underbrace{\eta^{\mu\lambda} \eta^{\nu\sigma} - \eta^{\mu\sigma} \eta^{\nu\lambda}} \\
&= \underbrace{\mu \mathfrak{q} - \nu \mathfrak{q}} \eta^{\mu\lambda} \eta^{\nu\sigma} + \underbrace{\nu \mathfrak{q} - \mu \mathfrak{q}} \eta^{\nu\lambda} \eta^{\mu\sigma} = 2 \underbrace{\mu \mathfrak{q} - \nu \mathfrak{q}} \eta^{\mu\lambda} \eta^{\nu\sigma}
\end{aligned}$$

$$0 = \underbrace{x \mathcal{L}^\lambda \partial^\sigma}_{\lambda \mathfrak{q}} = \underbrace{x \mu \mathfrak{q} - x \nu \mathfrak{q}}_{\lambda \mathfrak{q}} \eta^{\mu\lambda} \eta^{\nu\sigma} = \underbrace{x \mu \mathfrak{q}}_{\lambda \mu \mathfrak{q}} - \underbrace{x \nu \mathfrak{q}}_{\lambda \nu \mathfrak{q}} \eta^{\mu\lambda} \eta^{\nu\sigma}$$

$$0 = \underbrace{x \mu \mathfrak{q}}_{\lambda \mu \mathfrak{q}} - \underbrace{x \nu \mathfrak{q}}_{\lambda \nu \mathfrak{q}} \eta^{\mu\lambda}$$

$$\underbrace{x \mathcal{L} \partial^\sigma}_{\mathfrak{q}} = \underbrace{x \mathcal{L} \partial^\sigma}_{x \mathfrak{q}; x \mathfrak{q}} = 0$$

$$\frac{1}{4} \underbrace{x \mathcal{L}^\lambda \partial^\sigma}_{\mathfrak{q}} = \frac{1}{4} \underbrace{x \mathcal{L}^\lambda \partial^\sigma}_{x \mathfrak{q}; x \mathfrak{q}} = \underbrace{\mu \mathfrak{q} - \nu \mathfrak{q}} \eta^{\mu\lambda} \eta^{\nu\sigma}$$