$$Q \times \underline{Q} \ni q : \dot{q} = q^{\alpha} : \dot{q}^{\alpha}$$

$$\text{tangent functions } \mathbb{R} \times Q \times \underline{Q} \xrightarrow{\mathcal{F}} \mathbb{R} \ni {}^{t}\mathcal{F}_{q:\dot{q}}$$

$$Q \times \underline{Q}^{\sharp} \ni q : \underset{.}{q} = q^{\alpha} : {}_{\alpha}\underset{.}{q}$$

$$\text{cotangent functions } Q \times \underline{Q}^{\sharp} \xrightarrow{\mathsf{J}} \mathbb{R} \ni {}_{q:\underset{.}{q}}\mathsf{J}$$

$$\mathsf{J} \ast \acute{\mathsf{J}} = \underbrace{\dot{\partial}^{\iota}\mathsf{J}}\,\underbrace{\partial_{\iota}\acute{\mathsf{J}}} - \underbrace{\dot{\partial}^{\iota}\acute{\mathsf{J}}}\,\underbrace{\partial_{\iota}\mathsf{J}} \text{ Poisson}$$

$$ {}_{\beta}\underset{.}{q} \in \mathbb{R} \xleftarrow{{}_{\beta}\underset{.}{()}} Q \times \underline{Q}^{\sharp} \xrightarrow{()^{\alpha}} \mathbb{R} \ni q^{\alpha}$$

$$ {}_{\beta}\underset{.}{()} \ast ()^{\alpha} = {}_{\beta}\delta^{\alpha}$$

$$\text{Lagrangian } \mathbb{R} \times Q \times \underline{Q} \xrightarrow{\mathcal{L}} \mathbb{R} \ni {}^{t}\mathcal{L}_{q:\dot{q}}$$