$$\curlyvee \xrightarrow[G\ \mathrm{inv}]{\Phi} \overset{+}{\mathfrak{g}}$$

$$\rtimes\gamma = \underline{\overset{+}{\Phi}\gamma}$$

$$\mathsf{P}^{m}{}_{m}\lrcorner\, \widehat{\rtimes\gamma}^{m} = \mathsf{P}^{m}\underline{{}_{m}\Phi\gamma} = \underbrace{\mathsf{P}^{m}{}_{m}\underline{\Phi}}\gamma$$

$$\gamma \in \mathfrak{g}$$

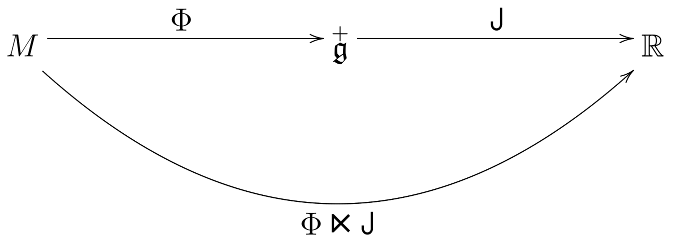
$$m \in \curlyvee \xrightarrow{\Phi\gamma} \mathbb{R} \ni {}_{m}\Phi\,\gamma$$

$$\underline{\curlyvee}^{m} \xrightarrow[{}_{m}\omega]{{}_{m}\underline{\Phi}} \overset{+}{\mathfrak{g}}$$

$$\widehat{\rtimes\gamma}^{m}{}_{m}\lrcorner\, \widehat{\rtimes\gamma}^{m} = {}_{m}\Phi\,\underbrace{\gamma \times \gamma}$$

$${}_{m\rtimes g}\Phi = {}_{m}\Phi \rtimes g \Longrightarrow \widehat{\rtimes\gamma}^{m}{}_{m}\underline{\Phi} = {}_{m}\Phi \rtimes \gamma$$

$$\mathsf{P}^{m} = \widehat{\rtimes\gamma}^{m} \Longrightarrow \text{ LHS } = \underbrace{\widehat{\rtimes\gamma}^{m}{}_{m}\underline{\Phi}}\,\gamma = \underbrace{{}_{m}\Phi \rtimes \gamma}\,\gamma = \text{ RHS}$$



$${}_{{}_{m}\underline{\Phi}}\mathsf{J} \in \mathfrak{g}$$

$$\underline{\Phi \overset{+}{\ltimes} \mathsf{J}}^{m} = \widehat{\rtimes{}_{{}_{m}\underline{\Phi}}\mathsf{J}}^{m}$$

$$\mathsf{P}^{m}{}_{m}\lrcorner\,\underline{\Phi \overset{+}{\ltimes} \mathsf{J}}^{m} = \mathsf{P}^{m}\underline{{}_{m}\Phi \ltimes \mathsf{J}} = \mathsf{P}^{m}{}_{m}\underline{\Phi}\;{}_{{}_{m}\underline{\Phi}}\mathsf{J} = \mathsf{P}^{m}{}_{m}\lrcorner\,\widehat{\rtimes{}_{{}_{m}\underline{\Phi}}\mathsf{J}}^{m}$$

$$M \xrightarrow[\text{Pois}]{\Phi} \overset{+}{\mathfrak{g}} : \quad \overbrace{\Phi \ltimes \mathsf{J}} \times \overbrace{\Phi \ltimes \mathsf{ɟ}} = \Phi \ltimes \overbrace{\mathsf{J} \times \mathsf{ɟ}}$$

$$_{m}\underbrace{\overbrace{\Phi \ltimes \mathsf{J}} \times \overbrace{\Phi \ltimes \mathsf{ɟ}}} = \underline{\Phi \overset{+}{\ltimes} \mathsf{J}}^{m} \; {}_{m}\blacktriangleleft \; \underline{\Phi \overset{+}{\ltimes} \mathsf{ɟ}}^{m} = \overbrace{\rtimes_{{}_{m}\Phi^{-}} \mathsf{J}}^{m} \; {}_{m}\blacktriangleleft \; \overbrace{\rtimes_{{}_{m}\Phi^{-}} \mathsf{ɟ}}^{m} = {}_{m}\Phi \overbrace{{}_{{}_{m}\Phi^{-}}\mathsf{J} \times {}_{{}_{m}\Phi^{-}}\mathsf{ɟ}} = {}_{{}_{m}\Phi}\underbrace{\mathsf{J} \times \mathsf{ɟ}} = {}_{m}\underbrace{\Phi \ltimes \overbrace{\mathsf{J} \times \mathsf{ɟ}}}$$

$$\overset{+}{\mathfrak{g}} \xrightarrow[G \text{ inv}]{\mathsf{J}} \mathbb{R} \Longrightarrow \overbrace{\Phi \ltimes \mathsf{J}} \times \overbrace{\Phi \ltimes {}_{M}\triangledown_{\infty} \overset{+}{\mathfrak{g}}} = 0$$

$$\mathsf{J} \times \mathsf{ɟ} = 0$$