$$\hbar \xrightarrow{\;\eta\;} \mathbb{R}$$

$$M \xrightarrow{\;\mathcal{S}\;} M$$

$$\mathcal{S} = I + \pi \bowtie \underline{\eta}: \quad {}_{m}\mathcal{S} = m + {}^{q}\underline{\eta} = m\,\mathfrak{t}_{q_{\underline{\eta}}}$$

$$\mathcal{S} \bowtie \mathfrak{d} = \mathfrak{d} + \pi \bowtie \underline{d\eta}$$

$$\hbar \xrightarrow{\;\varphi\;} M$$

$${}^{q}\varphi = {}^{q}\underline{\eta} \in \underline{\hbar}^{\pm}_{q}$$

$${}_{m}\mathcal{S} = m + {}^{m\pi}\underline{\eta} = m + {}_{m}\underbrace{\pi \bowtie \varphi} = m + {}^{q}\varphi = m + {}^{q}\underline{\eta}$$

$$\mathsf{P}^{m}{}_{m}\underline{\mathcal{S}} = \mathsf{P}^{m} + \mathsf{P}^{m}{}_{m}\underline{\pi \bowtie \varphi} = \mathsf{P}^{m} + \mathsf{P}^{m}{}_{m}\underline{\pi}\,{}^{q}\underline{\varphi}$$

$$\mathsf{P}^{m}{}_{m}\underline{\mathcal{S} \bowtie \mathfrak{d}} = \underbrace{\mathsf{P}^{m}{}_{m}\underline{\mathcal{S}}}_{m\mathcal{S}}\mathfrak{d} = \overbrace{\mathsf{P}^{m} + \mathsf{P}^{m}{}_{m}\underline{\pi}{}^{q}\underline{\varphi}}^{m + {}^{q}\underline{\eta}}\mathfrak{d}$$

$$= \mathsf{P}^{m}{}_{m}\mathfrak{d} + \overbrace{\mathsf{P}^{m}{}_{m}\underline{\pi}{}^{q}\underline{\varphi}}^{}{}_{q_{\underline{\eta}}}\mathfrak{d} = \mathsf{P}^{m}{}_{m}\mathfrak{d} + \overbrace{\mathsf{P}^{m}{}_{m}\underline{\pi}{}^{q}\underline{\varphi}_{q_{\underline{\eta}}}\pi}^{}\,{}^{q}\underline{\eta}$$

$$= \mathsf{P}^{m}{}_{m}\mathfrak{d} + \overbrace{\mathsf{P}^{m}{}_{m}\underline{\pi}{}^{q}\underline{\varphi \bowtie \pi}}^{}\,{}^{q}\underline{\eta} = \mathsf{P}^{m}{}_{m}\mathfrak{d} + \overbrace{\mathsf{P}^{m}{}_{m}\underline{\pi}}^{}\,{}^{q}\underline{\eta} = \mathsf{P}^{m}\overbrace{{}_{m}\mathfrak{d} + {}_{m}\underline{\pi \bowtie d\eta}}^{}$$