$$\overset{+}{\mathfrak{g}} \rtimes \mathfrak{g} \to \overset{+}{\mathfrak{g}}$$

$$\underbrace{\ell \rtimes \gamma}\,\bar{\gamma} = \ell\,\underbrace{\gamma \times \bar{\gamma}}$$

$$\ell \in \overset{+}{\mathfrak{g}} \xrightarrow{J} \mathbb{R} \ni {}_{\ell}J$$

$${}_{\ell}\underset{-}{J} \in \mathfrak{g}$$

$${}_{\ell}\underbrace{\overset{+}{\underset{-}{J}} \ltimes \bar{J}} = {}_{\ell}\underbrace{J \times \bar{J}} = \ell\,\overbrace{{}_{\ell}\underset{-}{J} \times {}_{\ell}\underset{-}{\bar{J}}} = \overbrace{\ell \rtimes {}_{\ell}\underset{-}{J}}\,{}_{\ell}\underset{-}{\bar{J}}$$

$$\overset{+}{\mathfrak{g}} \xrightarrow[G\ \text{inv}]{J} \mathbb{R} \Longrightarrow \ell\,\overbrace{\mathfrak{g} \times {}_{\ell}\underset{-}{J}} = 0$$

$${}_{\ell}J = {}_{\ell \rtimes g}J \Longrightarrow 0 = \underbrace{\ell \rtimes \gamma}\,{}_{\ell}\underset{-}{J} = \ell\,\overbrace{\gamma \times {}_{\ell}\underset{-}{J}}$$

$$\overset{+}{\mathfrak{g}} \xrightarrow[G\ \text{inv}]{J} \mathbb{R} \Longrightarrow J \times {}_{\overset{+}{\mathfrak{g}}}\nabla_{\infty}\mathbb{R} = 0$$

$${}_{\ell}\underbrace{J \times \bar{J}} = \ell\,\overbrace{{}_{\ell}\underset{-}{J} \times \underbrace{{}_{\ell}\underset{-}{\bar{J}}}_{\in\mathfrak{g}}} = 0$$