$$\underline{\text{ћ}} \searrow_{\infty} \text{ћ} \ni \text{ƅ} \Rightarrow {}^{\text{ћ}}\triangle_{\infty}\mathbb{K} \xleftarrow[\text{lin}]{\text{ƅ}\ltimes} {}^{\text{ћ}}\triangle_{\infty}\mathbb{K}$$

$$\text{ƅ} \ltimes \underbrace{\text{ʔ}\acute{\text{ʔ}}} = \underbrace{\text{ƅ} \ltimes \text{ʔ}}\acute{\text{ʔ}} + \text{ʔ}\underbrace{\text{ƅ} \ltimes \acute{\text{ʔ}}}$$

$$\bigwedge_{\text{h} \in \text{ћ}} \text{ƅ}_{\text{h}} \in \underline{\text{ћ}} \times \text{h}$$

$$\mathbb{K} \xleftarrow[\text{der}]{\text{ƅ}_{\text{h}}} {}^{\text{ћ}}_{\text{h}}\triangle_{\infty}\mathbb{K}$$

$${}^{\text{h}}(\text{ƅ} \ltimes \text{ʔ}) = \text{ƅ}_{\text{h}}\, \underset{\sim}{\text{ʔ}}_{\text{h}} = \text{ƅ}_{\text{h}}\, {}^{\text{h}}\underline{\text{ʔ}} \in \mathbb{K} \times \text{ʔ}_{\text{h}} = \mathbb{K}$$

$${}^{\text{h}}\overbrace{\text{ƅ} \ltimes \underbrace{\text{ʔ}\acute{\text{ʔ}}}} = \text{ƅ}_{\text{h}}\, \underbrace{\text{ʔ}\acute{\text{ʔ}}}_{\sim\ \text{h}} = \underbrace{\text{ƅ}_{\text{h}}\text{ʔ}_{\text{h}\sim\text{h}}}\, {}^{\text{h}}\acute{\text{ʔ}} + {}^{\text{h}}\text{ʔ}\, \underbrace{\text{ƅ}_{\text{h}}\acute{\text{ʔ}}_{\text{h}\sim\text{h}}} = {}^{\text{h}}\overbrace{\text{ƅ} \ltimes \text{ʔ}}\, {}^{\text{h}}\acute{\text{ʔ}} + {}^{\text{h}}\text{ʔ}\, {}^{\text{h}}\overbrace{\text{ƅ} \ltimes \acute{\text{ʔ}}} \Rightarrow \text{ƅ} \ltimes \underbrace{\text{ʔ}\acute{\text{ʔ}}} = \underbrace{\text{ƅ} \ltimes \text{ʔ}}\acute{\text{ʔ}} + \text{ʔ}\underbrace{\text{ƅ} \ltimes \acute{\text{ʔ}}} \text{ on } \text{ћ}$$

$$\begin{array}{ccc}
\text{h} \in \text{ћ} & \xrightarrow{\text{ƅ}} & \text{h}:\text{ƅ}_{\text{h}} \in \underline{\text{ћ}} \times \text{ћ} \\
\downarrow b & & \downarrow s \\
\mathbb{K} \ni \text{ƅ}_{\text{h}}\, {}^{\text{h}}\underline{\text{ʔ}} & \xrightarrow{\text{ʔ}} & \underline{\mathbb{K}} \times \mathbb{K} = \mathbb{K} \times \mathbb{K} \ni {}^{\text{h}}\text{ʔ}:\text{ƅ}_{\text{h}}\, {}^{\text{h}}\underline{\text{ʔ}}
\end{array}$$

$$\Rightarrow \text{ƅ} \ltimes \text{ʔ} \in {}^{\text{ћ}}\triangle_{\infty}\mathbb{K}$$

$$\dot{b} \in \underline{h} \triangledown_{\infty} h \Rightarrow \begin{cases} \underbrace{b \ltimes} \times \underbrace{b' \ltimes} = \underbrace{b \times b'} \ltimes \\ b \ltimes \underbrace{b' \ltimes \gamma} - b' \ltimes \underbrace{b \ltimes \gamma} = \underbrace{b \times b'} \ltimes \gamma \quad \bigwedge \gamma \in {}^{h}\triangle_{\infty} \mathbb{K} \end{cases}$$

$$\text{Karte } U{:}\mathcal{V} \Rightarrow \dot{b}_U = \sum_i \dot{b} \ltimes \mathcal{V}^i \frac{\partial}{\partial \mathcal{V}^i}: \quad \dot{b} \ltimes \mathcal{V}^i \in {}^{U}\triangle_{\infty} \mathbb{K}$$

$$\gamma \in {}^{h}\triangle_{\infty} \mathbb{K} \Rightarrow \frac{\partial^2 \gamma}{\partial \mathcal{V}^i \partial \mathcal{V}^j} = \frac{\partial^2 \gamma}{\partial \mathcal{V}^j \partial \mathcal{V}^i}$$

$$\Rightarrow U | b \ltimes \underbrace{b' \ltimes \gamma} - b' \ltimes \underbrace{b \ltimes \gamma} = \sum_{ij} \underbrace{b \ltimes \mathcal{V}^i \frac{\partial}{\partial \mathcal{V}^i} b' \ltimes \mathcal{V}^j \frac{\partial \gamma}{\partial \mathcal{V}^j} - b' \ltimes \mathcal{V}^j \frac{\partial}{\partial \mathcal{V}^j} b \ltimes \mathcal{V}^i \frac{\partial \gamma}{\partial \mathcal{V}^i}}$$

$$= \sum_{ij} \underbrace{b \ltimes \mathcal{V}^i \frac{\partial b' \ltimes \mathcal{V}^j}{\partial \mathcal{V}^i} \frac{\partial \gamma}{\partial \mathcal{V}^j} + b \ltimes \mathcal{V}^i b' \ltimes \mathcal{V}^j \frac{\partial^2 \gamma}{\partial \mathcal{V}^i \partial \mathcal{V}^j} - b' \ltimes \mathcal{V}^j \frac{\partial b \ltimes \mathcal{V}^i}{\partial \mathcal{V}^j} \frac{\partial \gamma}{\partial \mathcal{V}^i} - b' \ltimes \mathcal{V}^j b \ltimes \mathcal{V}^i \frac{\partial^2 \gamma}{\partial \mathcal{V}^j \partial \mathcal{V}^i}}$$

$$= \sum_{ij} \underbrace{b \ltimes \mathcal{V}^i \frac{\partial b' \ltimes \mathcal{V}^j}{\partial \mathcal{V}^i} - b' \ltimes \mathcal{V}^i \frac{\partial b \ltimes \mathcal{V}^j}{\partial \mathcal{V}^i}} \frac{\partial \gamma}{\partial \mathcal{V}^j} = U | \underbrace{b \times b'} \ltimes \gamma$$

$$\bigwedge \delta \in \text{ Der } | {}^{h}\triangle_{\infty} \mathbb{K} = \frac{{}^{h}\triangle_{\infty} \mathbb{K} \xleftarrow[\text{lin}]{\delta} {}^{h}\triangle_{\infty} \mathbb{K}}{\delta \underbrace{\gamma \gamma'} = \delta \underbrace{\gamma} \gamma' + \gamma \delta \underbrace{\gamma'}} \Rightarrow \begin{cases} \bigvee^{\text{eind}} b \in \underline{h} \triangledown_{\infty} h \\ b \ltimes \gamma = \delta \gamma \qquad \bigwedge \gamma \in {}^{h}\triangle_{\infty} \mathbb{K} \end{cases}$$

$$\text{Trg } \gamma = \frac{h \in h}{{}^{h}\gamma \neq 0}^{-} \subset h$$

$$\text{Trg } \delta \text{ʔ} \subset \text{ Trg } \text{ʔ} \text{ supp-decr}$$

$$\mathsf{h} \in \hbar\llcorner \text{ Trg } \text{ʔ} \Longrightarrow \bigvee_{U:\text{ʋ}}^{\text{Karte}} \hbar\llcorner \text{ Trg } \supset U \ni \mathsf{h} \Longrightarrow \bigvee^{\text{bump}} \begin{cases} {}^{U}\text{ʋ} \xrightarrow[\text{smooth}]{\chi} 0|1 \\ {}^{\mathsf{h}|\text{ʋ}}\chi = 1 \end{cases}$$

$$\text{cpt Trg } \chi \subset {}^{U}\text{ʋ} \Longrightarrow \begin{cases} U \xrightarrow[\text{smooth}]{\text{ʋ} \ltimes \chi} 0|1 \\ {}^{\mathsf{h}}(\text{ʋ} \ltimes \chi) = 1 \end{cases}$$

$$\text{cpt Trg } \text{ʋ} \ltimes \chi \subset U \Longrightarrow \begin{cases} \hbar \xrightarrow[\text{smooth}]{\overbrace{\text{ʋ} \ltimes \chi} \text{ triv ext}} 0|1 \\ {}^{\mathsf{h}}\overbrace{\text{ʋ} \ltimes \chi} = 1 \end{cases}$$

$$\text{cpt Trg } \overbrace{\text{ʋ} \ltimes \chi} \subset U \Longrightarrow \text{ʔ}\overbrace{\text{ʋ} \ltimes \chi} = 0 \Longleftarrow U|\text{ʔ} = 0$$

$$\hbar\llcorner U|\overbrace{\text{ʋ} \ltimes \chi} = 0 \Longrightarrow 0 = {}^{\mathsf{h}}\overbrace{\delta \underbrace{\text{ʔ}\overbrace{\text{ʋ} \ltimes \chi}}} = {}^{\mathsf{h}}\overbrace{\delta \text{ʔ}}\, {}^{\mathsf{h}}\overbrace{\text{ʋ} \ltimes \chi} + {}^{\mathsf{h}}\text{ʔ}\, {}^{\mathsf{h}}\overbrace{\delta \underbrace{\text{ʋ} \ltimes \chi}} = {}^{\mathsf{h}}\overbrace{\delta \text{ʔ}}$$

$$\Longrightarrow \hbar\llcorner \text{ Trg } \text{ʔ}|\delta \text{ʔ} = 0 \Longrightarrow \text{ Trg } \delta \text{ʔ} \subset \text{ Trg } \text{ʔ}$$

$$\underset{\sim}{\jmath}_{\mathsf h} \in {}^{\bar{\mathsf h}}_{\mathsf h}\underset{\infty}{\triangle}\mathbb K \xleftarrow[\text{surj}]{\text{germ}} {}^{\bar{\mathsf h}}\underset{\infty}{\triangle}\mathbb K \ni \eta$$

$$\iota \in {}^{\bar{\mathsf h}}_{\mathsf h}\underset{\infty}{\triangle}\mathbb K \Rightarrow \bigvee \begin{cases} \mathsf h \in U \subset \bar{\mathsf h} \\ \eta \in {}^{U}\underset{\infty}{\triangle}\mathbb K \end{cases} \quad \underset{\sim}{\jmath}_{\mathsf h} = \iota \underset{\text{OE}}{\Rightarrow} U{:}\psi \text{ Karte } \Rightarrow \bigvee \mathsf h \in V \underset{\text{off}}{\Subset} U \Rightarrow {}^{V}\psi \underset{\text{off}}{\Subset} {}^{U}\psi$$

$$\Rightarrow \overset{\text{bump}}{\bigvee} \begin{cases} {}^{U}\psi \xrightarrow[\text{smooth}]{\chi} 0|1 \\ {}^{V}\psi\chi = 1 \end{cases}$$

$$\text{cpt Trg } \chi \subset {}^{U}\psi \Rightarrow \begin{cases} U \xrightarrow[\text{smooth}]{\psi \ltimes \chi} 0|1 \\ {}^{V}(\psi \ltimes \chi) = 1 \end{cases}$$

$$\text{cpt Trg } \psi \ltimes \chi \subset U \Rightarrow \begin{cases} \bar{\mathsf h} \xrightarrow[\text{smooth}]{\overbrace{\psi \ltimes \chi} \text{ triv forts}} 0|1 \\ {}^{V}\overbrace{\psi \ltimes \chi} = 1 \end{cases}$$

$$\text{cpt Trg } \overbrace{\psi \ltimes \chi} \subset U \Rightarrow \eta\overbrace{\psi \ltimes \chi} \in {}^{\bar{\mathsf h}}\underset{\infty}{\triangle}\mathbb K$$

$${}^{V}\left(\eta\overbrace{\psi \ltimes \chi}\right) = {}^{V}\eta \Rightarrow \underset{\sim}{\left(\eta\overbrace{\psi \ltimes \chi}\right)}_{\mathsf h} = \underset{\sim}{\jmath}_{\mathsf h} = \flat$$

$$\text{ƀ}_{\text{h}}\text{ɭ} = {}^{\text{h}}(\delta\text{ʅ}) \begin{cases} \text{ɭ} = \underset{\sim}{\text{ʅ}}_{\text{h}} \\ \text{ʅ} \in {}^{\text{ħ}}\triangle_{\infty}\mathbb{K} \end{cases} \implies \text{well-def } \text{ƀ}_{\text{h}} \in \underline{\text{ħ}}_{\text{h}}$$

$$\begin{cases} \dot{\text{ʅ}} \in {}^{\text{ħ}}\triangle_{\infty}\mathbb{K} \\ \underset{\sim}{\text{ʅ}}_{\text{h}} = \underset{\sim}{\acute{\text{ʅ}}}_{\text{h}} \end{cases} \implies \bigvee_{\text{h} \in U \subset \text{ħ}} U|\text{ʅ} = U|\acute{\text{ʅ}} \implies U|\underbrace{\text{ʅ} - \acute{\text{ʅ}}} = 0 \implies \text{Trg } \underbrace{\text{ʅ} - \acute{\text{ʅ}}} \subset \text{ħ}\llcorner U \underset{1}{\implies}$$

$$\text{Trg } \delta\underbrace{\text{ʅ} - \acute{\text{ʅ}}} \subset \text{ħ}\llcorner U \implies 0 = {}^{\text{h}}\overbrace{\delta\underbrace{\text{ʅ} - \acute{\text{ʅ}}}} = {}^{\text{h}}\overbrace{\delta\text{ʅ} - \delta\acute{\text{ʅ}}} = {}^{\text{h}}\overbrace{\delta\text{ʅ}} - {}^{\text{h}}\overbrace{\delta\acute{\text{ʅ}}} \implies {}^{\text{h}}\overbrace{\delta\text{ʅ}} = {}^{\text{h}}\overbrace{\delta\acute{\text{ʅ}}}$$

$$\text{ƀ}_{\text{h}} \in \underline{\text{ħ}} \times \text{h}: \dot{\text{ɭ}} \in {}^{\text{ħ}}_{\text{h}}\triangle_{\infty}\mathbb{K} \underset{\text{OE}}{\implies} \bigvee \dot{\text{ʅ}} \in {}^{\text{ħ}}\triangle_{\infty}\mathbb{K}\ \text{ɭ} = \underset{\sim}{\dot{\text{ʅ}}}_{\text{h}}$$

$$\text{ƀ}_{\text{h}}\underbrace{\text{ɭ}\acute{\text{ɭ}}} = \text{ƀ}_{\text{h}}\underbrace{\overbrace{\text{ʅ}\acute{\text{ʅ}}}}_{\sim\ \text{h}} = {}^{\text{h}}\overbrace{\delta\underbrace{\text{ʅ}\acute{\text{ʅ}}}} = {}^{\text{h}}\overbrace{\underbrace{\delta\text{ʅ}}\acute{\text{ʅ}} + \text{ʅ}\underbrace{\delta\acute{\text{ʅ}}}} = {}^{\text{h}}\overbrace{\delta\text{ʅ}}\,{}^{\text{h}}\acute{\text{ʅ}} + {}^{\text{h}}\text{ʅ}\,{}^{\text{h}}\overbrace{\delta\acute{\text{ʅ}}} = \underbrace{\text{ƀ}_{\text{h}}\text{ɭ}}\,{}^{\text{h}}\acute{\text{ʅ}} + {}^{\text{h}}\text{ʅ}\,\underbrace{\text{ƀ}_{\text{h}}\acute{\text{ɭ}}}$$

$$\bigwedge_{\text{ʅ} \in {}^{\text{ħ}}\triangle_{\infty}\mathbb{K}} \delta\text{ʅ} = \text{ƀ} \ltimes \text{ʅ} \impliedby {}^{\text{h}}\overbrace{\delta\text{ʅ}} = \text{ƀ}_{\text{h}}\underset{\sim}{\text{ʅ}}_{\text{h}} = {}^{\text{h}}\overbrace{\text{ƀ} \ltimes \text{ʅ}}$$

$$\text{ħ} \xrightarrow[\text{glatt}]{\text{ƀ}} \underline{\text{ħ}} \times \text{ħ}$$

$$U{:}\text{ϑ} \text{ Karte} \implies \bigvee \text{h} \in V \underset{\text{off}}{\Subset} U \begin{cases} U \xrightarrow[\text{smooth}]{\chi} 0|1 \\ {}^{V}\chi = 1 \end{cases}$$

$$\text{cpt Trg } \chi \subset U \implies \begin{cases} \text{ħ} \xrightarrow[\text{smooth}]{\widehat{\chi}\text{ triv ext}} 0|1 \\ {}^{V}\widehat{\chi} = 1 \end{cases} \quad \text{cpt Trg } \widehat{\chi} \subset U$$

$$\text{ħ} \supset \xrightarrow[\text{glatt}]{\dot{\text{ϑ}} = \text{ϑ}^1 \cdots \text{ϑ}^n} \mathbb{R}^n \implies \text{ϑ}^i \in {}^{U}\triangle_{\infty}\mathbb{K} \implies \begin{cases} \widehat{\chi}\text{ϑ}^i \in {}^{\text{ħ}}\triangle_{\infty}\mathbb{K} \\ \widehat{\chi}^{V}\text{ϑ}^i = {}^{V}\text{ϑ}^i \end{cases}$$

$$\implies \text{ƀ}_V = \sum_{1 \leqslant i \leqslant n} {}^{V}\left(\delta\widehat{\chi}\text{ϑ}^i\right)\frac{\partial}{\partial\text{ϑ}^i} = \sum_{1 \leqslant i \leqslant n} {}^{V}\left(\delta\widehat{\chi}\text{ϑ}^i\right)\,{}_{i}\underline{\text{ϑ}} \implies V \xrightarrow[\text{glatt}]{\text{ƀ}_V} \underline{V} \times V \implies \text{ħ} \xrightarrow[\text{glatt}]{\text{ƀ}} \underline{\text{ħ}} \times \text{ħ}$$