$$\mathsf{L} \overset{\text{bes}}{\supset} \bar{\mathsf{h}} \text{ zush} \implies \underset{\omega}{\mathsf{G}} | \bar{\mathsf{h}} \in \mathbb{R}\overset{\omega}{\triangle} \text{ Lie}$$

$$\underset{\omega}{\mathsf{G}} | \bar{\mathsf{h}} \xrightarrow{\exp} \underset{\omega}{\mathsf{C}} | \bar{\mathsf{h}}$$

$$\begin{cases} \underset{\omega}{C}|\mathfrak{h} \ni \gamma_n & \neq\Leftrightarrow \\ \mathbb{N} \ni m_n & \ni +\infty \end{cases} \Rightarrow m_n\left(\gamma_n - \imath\right) \ni \flat \in {}^{\mathfrak{h}}\underset{\omega}{\triangle}\mathrm{L} \Rightarrow \flat \in \mathrm{aut}\,\mathfrak{h}\ \text{voll int}$$

$$\mathfrak{h}_0 \Subset \mathfrak{h}\ \ \mathfrak{h}_0 \times -r|r \xrightarrow{{}^{\mathfrak{h}}g_t = \exp^{\mathfrak{h}}(t\flat)} \mathfrak{h}$$

$$0 < t \leqslant r \text{ ODE-estimate } \ulcorner {}^{z}g_t - {}^{w}g_t \urcorner \leqslant \ulcorner z - w \urcorner \underbrace{1 + tM}\ (*)$$

$$\text{largest int } q_n = [m_n t] \leqslant m_n t \Rightarrow 0 \leqslant m_n t - q_n < 1 \Rightarrow q_n \ni +\infty \wedge 0 \leqslant m_n - \frac{q_n}{t} < \frac{1}{t} \text{ bes}$$

$$\bigwedge_{\mathfrak{h}}^{\mathfrak{h}_0} \frac{d\,{}^{\mathfrak{h}}g_t}{dt}_{t=0} = \flat_{{}^{\mathfrak{h}}g_0} = \flat_{\mathfrak{h}} \Rightarrow \frac{{}^{\mathfrak{h}}g_t - \mathfrak{h}}{t} - \flat_{\mathfrak{h}}$$

$$\flat - \frac{q_n}{t}\left(\gamma_n - \imath\right) = \underbrace{\flat - m_n\left(\gamma_n - \imath\right)} + \underbrace{m_n - \frac{q_n}{t}}\underbrace{\gamma_n - \imath}$$

$$\gamma_n = \begin{cases} \gamma_n \\ g_{t/q_n} \end{cases} \Rightarrow \bigwedge_{1 \leqslant p \leqslant q_n} \begin{cases} \gamma_n^p \text{ def on } {}^{o\leqslant r}\mathrm{L} \\ {}^{o\leqslant r}_{\mathrm{L}}\ulcorner \overset{\bullet}{\gamma_n^p - \imath} \urcorner \leqslant \dfrac{rp}{q_n} \leqslant r \end{cases}$$

$$p = 1\colon \quad {}^{K}\ulcorner \overset{\bullet}{\gamma_n - \imath} \urcorner \leqslant \frac{tM}{q_n} < \frac{r}{q_n}$$

$$1 \leqslant p - 1 \curvearrowright p \leqslant q_n\colon \quad \mathfrak{h} \in {}^{o\leqslant r}\mathrm{L} \Rightarrow \ulcorner {}^{\mathfrak{h}}\gamma_n^p - \mathfrak{h} \urcorner \leqslant \overbrace{\ulcorner {}^{{}^{\mathfrak{h}}\gamma_n^{p-1}}\gamma_n - {}^{\mathfrak{h}}\gamma_n^{p-1} \urcorner}^{\leqslant r/q_n} + \overbrace{\ulcorner {}^{\mathfrak{h}}\gamma_n^{p-1} - \mathfrak{h} \urcorner}^{\leqslant (p-1)\, r/q_n} \leqslant \frac{rp}{q_n}$$

$$\begin{cases} z_p & = {}^{\mathfrak{h}}\gamma_n^p \\ w_p & = {}^{\mathfrak{h}}g_{tp/q_n} \end{cases} \Rightarrow \bigwedge_{1 \leqslant p \leqslant q_n} \Rightarrow \ulcorner z_p - w_p \urcorner \leqslant \frac{p\delta_n}{q_n} \overbrace{1 + \frac{Mt}{q_n}}^{p}$$

$$p = 1\colon \quad \ulcorner z_1 - w_1 \urcorner = \ulcorner {}^{\mathfrak{h}}\gamma_n - {}^{\mathfrak{h}}g_{t/q_n} \urcorner \leqslant \frac{\delta_n}{q_n}$$

$$1 \leqslant p \curvearrowright p + 1 \leqslant q_n\colon \quad \ulcorner z_{p+1} - w_{p+1} \urcorner = \ulcorner {}^{z_p}\gamma_n - {}^{w_p}g_{t/q_n} \urcorner \leqslant \ulcorner {}^{z_p}\gamma_n - {}^{z_p}g_{t/q_n} \urcorner + \ulcorner {}^{z_p}g_{t/q_n} - {}^{w_p}g_{t/q_n} \urcorner$$

$$\underset{\text{Ind}}{\overset{*}{\leqslant}} \frac{\delta_n}{q_n} + \ulcorner z_p - w_p \urcorner \underbrace{1 + \frac{t}{q_n}M} \underset{\text{Ind}}{\leqslant} \frac{\delta_n}{q_n} + \frac{p\delta_n}{q_n}\overbrace{1 + \frac{Mt}{q_n}}^{p} \underbrace{1 + \frac{Mt}{q_n}} = \frac{\delta_n}{q_n} \underbrace{1 + p\overbrace{1 + \frac{Mt}{q_n}}^{p+1}} \leqslant \frac{(p+1)\,\delta_n}{q_n} \overbrace{1 + \frac{Mt}{q_n}}^{p+1}$$

$$\Rightarrow \ulcorner {}^{\mathfrak{h}}g_t - {}^{\mathfrak{h}}\gamma_n^{q_n} \urcorner = \ulcorner z_{q_n} - w_{q_n} \urcorner \leqslant \delta_n \overbrace{1 + \frac{Mt}{q_n}}^{q_n} \leqslant \delta_n\, e^{Mt} \Rightarrow \gamma_n^{q_n} \rightsquigarrow g_t \text{ glm on } {}^{o\leqslant r}\mathrm{L}$$

$$\underset{\omega}{\mathfrak{G}}|\hbar = \frac{\flat \in \underset{\omega}{L \triangledown} \hbar}{\flat \text{ voll}} = \text{aut}\,\hbar$$

$$\flat+\natural_{\mathfrak{e}} \backsim \overbrace{\flat/n_{\mathfrak{e}}\natural/n_{\mathfrak{e}}}^{n} \Longrightarrow n^{\overbrace{\flat/n_{\mathfrak{e}}\natural/n_{\mathfrak{e}} - \imath}} \rightsquigarrow \flat + \natural \in \underset{\omega}{\mathfrak{G}}|\hbar$$

$$\flat\times\natural_{\mathfrak{e}} \backsim \overbrace{\flat/n_{\mathfrak{e}}\natural/n_{\mathfrak{e}}{-\flat/n}_{\mathfrak{e}}{-\natural/n}_{\mathfrak{e}}}^{n^2} \Longrightarrow n^{2\,\overbrace{\flat/n_{\mathfrak{e}}\natural/n_{\mathfrak{e}}{-\flat/n}_{\mathfrak{e}}{-\natural/n}_{\mathfrak{e}} - \imath}} \rightsquigarrow \flat \times \natural \in \underset{\omega}{\mathfrak{G}}|\hbar$$

$$\flat \in \underset{\omega}{\mathfrak{G}}|\hbar \Longrightarrow t\flat \in \underset{\omega}{\mathfrak{G}}|\hbar$$

$$\dim \underset{\omega}{\mathfrak{G}}|\hbar < \infty \text{ sogar } \dim \underset{\omega}{\mathfrak{G}}|\hbar \leqslant n\,(n+2)$$

$$\text{free } {}_1\urcorner \cdots {}_m\urcorner \in \underset{\omega}{\mathfrak{G}}|\hbar\mathbb{T} \sqcup \hbar_0 \times (-\overset{m}{r}|r) \xrightarrow{F} \hbar$$

$${}^zF_{\llcorner} = {}^{z}\overbrace{\exp\sum_i \llcorner^i\,{}_i\urcorner}$$

$$\frac{\partial F\,(t\llcorner{:}z)}{\partial t} = \sum_i \llcorner^i\,{}_i\urcorner_{F\,(t\llcorner:z)}$$

$$F\,(0{:}z) = z \Longrightarrow \frac{\partial F\,(\llcorner{:})}{\partial \llcorner} = \imath \Longrightarrow \llcorner \xrightarrow[\text{inj}]{} F\,(\llcorner{:})$$

$$F_{\llcorner} = \exp\left(\sum_i \llcorner^i\,{}_i\urcorner\right) \Longrightarrow (-\overset{m}{r}|r) \xrightarrow[\text{inj}]{F} \underset{\omega}{\mathfrak{C}}|\hbar$$

$$\text{stet co-top} \underset{\text{CUT}}{\Longrightarrow} m \leqslant \dim \underset{\omega}{\mathfrak{C}}|\hbar \leqslant 2n\,(n+1)$$