

$$\mathbb{K}_n \xrightarrow[m]{\nabla} = \frac{\Gamma \sqsubset \mathbb{K}_n}{\dim \Gamma = m}$$

$$\text{cpt } {}^m \mathbb{K}_n^U \xrightarrow[\text{surj}]{\quad} \mathbb{K}_n \xrightarrow[m]{\nabla} \text{quo-top cpt}$$

$$\mathbb{K}_n \xrightarrow[m]{\nabla} \supset U_I = \frac{\mathbb{K} [\Gamma_1 \cdots \Gamma_n]}{\Gamma_i \neq 0} \xleftarrow[\iota \mathbf{v}_I]{\mathbf{v}_i} {}^I \mathbb{K}_{n \sqcup I} \in \mathbb{K} \Delta \Rightarrow \mathbf{v}_I \mathbf{v}^I = \iota|U_I$$

$$\begin{bmatrix} \Gamma_1 & \hat{\Gamma}_i & \Gamma_n \end{bmatrix} {}^i \mathbf{v} \mathbf{v}_i = (\mathbb{K} [\Gamma_1 \cdots \Gamma_n]) \mathbf{v}_i = \begin{bmatrix} \begin{cases} \Gamma_1 & \hat{1} \\ 1 & 1 \end{cases} & \begin{cases} \Gamma_n \\ 1 \end{cases} \end{bmatrix} = \begin{bmatrix} \Gamma_1 & \hat{\Gamma}_i & \Gamma_n \end{bmatrix} \Rightarrow {}^I \mathbf{v} \mathbf{v}_I = \iota$$

$$\frac{(U_I; \mathbf{v}_I)}{\begin{bmatrix} n \\ m \end{bmatrix}} \text{Atlas } \mathbb{K}_n \xrightarrow[m]{\nabla} \in \mathbb{K} \Delta$$

$$\text{overdeck } U_I \text{ of } \mathbb{K}_n \xrightarrow[m]{\nabla}$$

overlap

$$\begin{array}{ccc} U_I \cap U_{\tilde{J}} | \mathbf{v}_I \subset {}^I \mathbb{K}_{n \sqcup I} & & \\ \nearrow {}^I \mathbf{v}_J \quad \searrow \mathbf{v}_I & & \downarrow \\ U_I \cap U_J | \mathbf{v}_J \subset {}^J \mathbb{K}_{n \sqcup J} & & \end{array}$$

$$\frac{\begin{array}{c|cc} I^\# \cap J & I^\# \cap J^\# \\ \hline I \cap J^\# & u & v \end{array}}{\begin{array}{c|c} I \cap J & \vee \end{array}} = \mathfrak{J} \mapsto \mathfrak{J} {}^I \mathbf{v}_J = \frac{\begin{array}{c|cc} J^\# \cap I & J^\# \cap I^\# \\ \hline J \cap I^\# & u^{-1} & u^{-1}v \end{array}}{\begin{array}{c|c} J \cap I & -\vee u^{-1} \end{array}} \frac{\begin{array}{c|c} J^\# \cap I^\# \\ \hline w - \vee u^{-1} \mathbf{v} \end{array}}$$

$$\mathbb{F} \xrightarrow[0]{\Gamma} \mathbb{F} \stackrel{=}{\sim} \frac{\Gamma \supset \mathbb{F} \times \Gamma}{\Gamma \sim \mathbb{F} \times 0} \supset \mathbb{F} \xrightarrow[0]{\Gamma}$$

$$\Gamma\left(1:\P\right)\hookleftarrow\P$$

$${}^m_{\bigcirc}\mathbb{K}_n=\frac{\Gamma\supset\mathbb{K}_{m+n}}{\Gamma\sim\mathbb{K}_m\times 0}\supset{}^m\mathbb{K}_n$$

$$\mathbb{K}_m\left(1:\P\right)\hookleftarrow\P$$

$$\P S_0=-\P$$

$$S_0 = \text{ Int } \mathsf{U}$$

$$\mathsf{U}=\begin{array}{c|c}1&0\\0&-1\end{array}$$