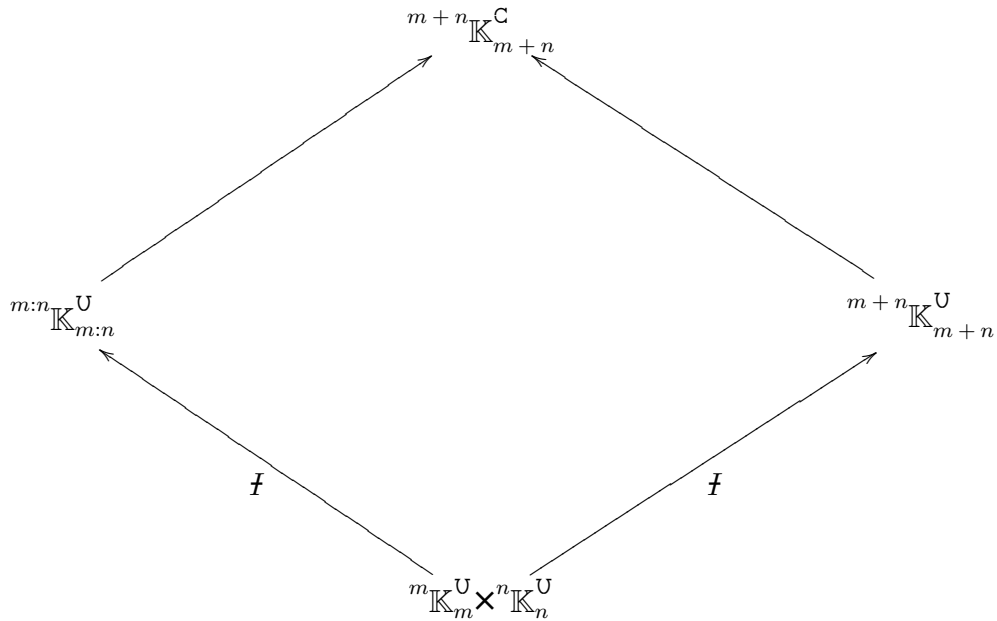


$$\text{unit Grass } \mathbb{U}_{i:j}^{\mathbb{K}} \times \mathbb{U}_{p:q}^{\mathbb{K}} \sqsubset \mathbb{U}_{i+p:j+q}^{\mathbb{K}}$$

$${}_{p:q} \mathbb{K}_{p:q}^{\mathbb{U}} / {}_{p':q'} \mathbb{K}_{p':q'}^{\mathbb{U}} \times {}_{p'':q''} \mathbb{K}_{p'':q''}^{\mathbb{U}} \begin{cases} {}_{p:q} \mathbb{R}_{p:q}^{\mathbb{U}} / {}_{p':q'} \mathbb{R}_{p':q'}^{\mathbb{U}} \times {}_{p'':q''} \mathbb{R}_{p'':q''}^{\mathbb{U}} \\ {}_{p:q} \mathbb{C}_{p:q}^{\mathbb{U}} / {}_{p':q'} \mathbb{C}_{p':q'}^{\mathbb{U}} \times {}_{p'':q''} \mathbb{C}_{p'':q''}^{\mathbb{U}} \\ {}_{p:q} \mathbb{H}_{p:q}^{\mathbb{U}} / {}_{p':q'} \mathbb{H}_{p':q'}^{\mathbb{U}} \times {}_{p'':q''} \mathbb{H}_{p'':q''}^{\mathbb{U}} \end{cases}$$



$${}_{p:q} \mathbb{K}_p^{\mathbb{U}} \times {}_{q:r} \mathbb{K}_q^{\mathbb{U}} \sqsubset {}_{p+q} \mathbb{K}_{p+q}^{\mathbb{U}}$$

$${}_{p+q} \mathbb{K}_{p+q}^{\mathbb{U}} \ni z = \tilde{z} = \frac{x \mid u}{\tilde{u} \mid y} \begin{cases} \tilde{x} = x \\ \tilde{y} = y \end{cases}$$

$$f = \frac{1 \mid 0}{0 \mid -1}$$

$$\tilde{z} = z$$

$$\frac{x \mid u}{\tilde{u} \mid y} f = -f \frac{x \mid u}{\tilde{u} \mid y} \Leftrightarrow \frac{x \mid u}{\tilde{u} \mid y} = \frac{0 \mid u}{\tilde{u} \mid 0}$$

$$\frac{0}{z} \Big| \frac{z}{0} \mathbf{c} = \frac{\overbrace{1 - z^*}^{-1} \overbrace{1 + z^*}^{-1}}{-2 \overbrace{z^*}^{-1} \overbrace{1 + z^*}^{-1}} \Big| \frac{-2z \overbrace{1 + z^*}^{-1}}{\overbrace{z^* z - 1}^{-1} \overbrace{1 + z^*}^{-1}}$$

$$\begin{aligned} \text{LHS} &= \frac{1}{0} \Big| \frac{0}{-1} \underbrace{\frac{1}{0} \Big| \frac{0}{-1} + \frac{0}{z^*} \Big| \frac{z}{0}}_{-1} \underbrace{\frac{1}{0} \Big| \frac{0}{-1} - \frac{0}{z^*} \Big| \frac{z}{0}}_{-1} = \frac{1}{0} \Big| \frac{0}{-1} \frac{1}{z^*} \Big| \frac{z}{-1} \frac{1}{-z^*} \Big| \frac{-z}{-1} \\ &= \frac{1}{0} \Big| \frac{0}{-1} \frac{\overbrace{1 + z^*}^{-1}}{z^* \overbrace{1 + z^*}^{-1}} \Big| \frac{\overbrace{z 1 + z^* z}^{-1}}{-\overbrace{1 + z^*}^{-1}} \frac{1}{-z^*} \Big| \frac{-z}{-1} = \text{RHS} \end{aligned}$$

$$i|j \frac{z^*}{\mathbb{K}_{k|\ell}} = i|j \mathbb{K}_{i|j}^{\mathbb{U}} \times k|\ell \mathbb{K}_{k|\ell}^{\mathbb{U}} \neg \begin{cases} j+k|i+\ell \mathbb{K}_{j+k|i+\ell}^{\mathbb{U}} \\ i+k|j+\ell \mathbb{K}_{i+k|j+\ell}^{\mathbb{U}} \end{cases} = \begin{cases} q \in \frac{i+k|j+\ell \mathbb{K}_{i+k|j+\ell}^{\mathbb{U}}}{jqj^* = q^{-1}} \\ q \in \frac{j+k|i+\ell \mathbb{K}_{j+k|i+\ell}^{\mathbb{U}}}{jqj^* = q^{-1}} \end{cases}$$

$$p \frac{z^*}{\mathbb{K}_q} = p \mathbb{K}_p^{\mathbb{U}} \times q \mathbb{K}_q^{\mathbb{U}} \neg \begin{cases} p+q \mathbb{K}_{p+q}^{\mathbb{U}} \\ p|q \mathbb{K}_{p|q}^{\mathbb{U}} \end{cases} = \begin{cases} q \in \frac{p+q \mathbb{K}_{p+q}^{\mathbb{U}}}{jqj^* = q^{-1}} \\ q \in \frac{p|q \mathbb{K}_{p|q}^{\mathbb{U}}}{jqj^* = q^{-1}} \end{cases}$$

$$z = \frac{0}{v^*} \Big| \frac{v}{0}$$

$$c = \frac{1}{0} \Big| \frac{0}{0}$$

$$2c - J = 1$$

$$J = \frac{1}{0} \Big| \frac{0}{-1}$$

$$p_v = \frac{\overbrace{1 + v^*}^{-1}}{\overbrace{v^* 1 + v^*}^{-1}} \Big| \frac{\overbrace{1 + v^* v}^{-1}}{\overbrace{v^* 1 + v^* v}^{-1}} = c + z^J$$

$$s_v = 2p_v - 1 = J + 2z^J$$

$$\begin{array}{c}
\frac{0}{-\bar{v}^*} \mid \frac{v}{0} \in \frac{0}{-*} \mid \frac{{}^p\mathbb{K}_q}{0} \longrightarrow {}^p\mathbb{K}_p^U \times {}^q\mathbb{K}_q^U \neg {}^{p+q}\mathbb{K}_{p+q}^U \cong \frac{\overbrace{1-z\bar{z}}^{-1} \overbrace{1+z\bar{z}}^{-1}}{-2\bar{z} \underbrace{1+z\bar{z}}_{-1}} \mid \frac{-2z \overbrace{1+\bar{z}z}^{-1}}{\underbrace{\bar{z}z-1}_{-1} \underbrace{1+\bar{z}z}_{-1}} \\
{}^{p+q}\mathbb{K}_{p+q} \xrightarrow{\overbrace{f-z}^{-1} \underbrace{f+z}} {}^{p+q}\mathbb{K}_{p+q}^G
\end{array}$$

$$\frac{0}{\bar{v}^*} \mid \frac{v}{0} \in \frac{0}{*} \mid \frac{{}^p\mathbb{K}_q}{0} \longrightarrow {}^p\mathbb{K}_p^U \times {}^q\mathbb{K}_q^U \neg {}^{p|q}\mathbb{K}_{p|q}^U \cong \frac{\overbrace{1-z\bar{z}}^{-1} \overbrace{1+z\bar{z}}^{-1}}{-2\bar{z} \underbrace{1+z\bar{z}}_{-1}} \mid \frac{-2z \overbrace{1+\bar{z}z}^{-1}}{\underbrace{\bar{z}z-1}_{-1} \underbrace{1+\bar{z}z}_{-1}}$$