

$${}^z U_g = \frac{1}{0} \left| \begin{array}{c|c} z & a \\ \hline 1 & c \end{array} \right| \frac{b}{d} = \frac{1}{0} \left| \begin{array}{c|c} -\overline{a+zc} & \overline{b+zd} \\ \hline 1 & 1 \end{array} \right| = \frac{a+zc}{c} \left| \begin{array}{c|c} b+zd & \\ \hline d & 1 \end{array} \right| = \frac{a+zc}{c} \left| \begin{array}{c|c} -\overline{a+zc} & \overline{b+zd} \\ \hline 1 & 1 \end{array} \right| = \frac{a+zc}{c} \left| \begin{array}{c|c} 0 & \\ \hline d-c\overline{a+zc} & \overline{b+zd} \\ \hline -1 & 1 \end{array} \right|$$

$$\zeta \overline{{}^w U_g^n} \mathbf{1} = 0 \cdot {}^w U_g + \zeta {}^w \underline{\dot{g}} \mathbf{1} \xrightarrow{a+wc} {}^{n*}$$

$${}^w U_g = \frac{\overline{a+wc}^*}{0} \left| \begin{array}{c|c} \dot{c}^* & \\ \hline d - c\overline{a+wc} & \overline{b+wd} \\ \hline * & * \end{array} \right| = \frac{\overline{a+wc}^*}{0} \left| \begin{array}{c|c} \dot{c}^* & \\ \hline d - c^w g & \\ \hline * & * \end{array} \right|$$

$$\dot{w} \underline{g} = \overline{a+wc}^{-1} \dot{w} \overline{d - c\overline{a+wc} \overline{b+wd}} = \overline{a+wc}^{-1} \dot{w} \overline{d - c^w g} \Rightarrow \underline{w} g = L_{a+wc}^{-1} R_{d - c\overline{a+wc} \overline{b+wd}} = L_{a+wc}^{-1} R_{d - c^w g}$$

$$\zeta \overline{{}^w U_g^n} \mathbf{1} = \xrightarrow{a+wc} \overline{a+wc}^{-*} \overline{\dot{c} + \zeta \overline{d - c^w g}} \mathbf{1}$$

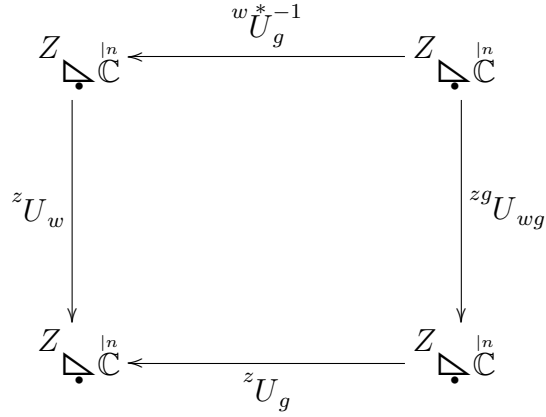
$$\text{affine } \zeta \overline{{}^w U_g} = \overline{a+wc}^{-*} \overline{\dot{c} + \zeta \overline{d - c^w g}} = \overline{a+wc}^{-*} \dot{c} + \overline{a+wc}^{-*} \zeta \overline{d - c^w g} = 0 \cdot {}^w \underline{\dot{g}} + \zeta {}^w \underline{\dot{g}}$$

$$\zeta \overline{{}^w U_g^{nz^w}} \mathbf{1} = \xrightarrow{a+wc} \overline{z^w g + \zeta \overline{{}^w \underline{\dot{g}}}} \mathbf{1}$$

$$\text{LHS} = \xrightarrow{a+wc} \overline{z^w + 0 \cdot \overline{{}^w \underline{\dot{g}}}}^{-w} + \zeta {}^w \underline{\dot{g}} \mathbf{1} = \xrightarrow{a+wc} \overline{z^w g + \zeta \overline{{}^w \underline{\dot{g}}}} \mathbf{1} = \overline{z^w g + \zeta \overline{{}^w \underline{\dot{g}}}} \mathbf{1} = \text{RHS}$$

$${}^w U_g B_{-\omega}^n = B_{-\omega}^n \xrightarrow{a+w+\omega c} {}^* = B_{-\omega}^n \xrightarrow{a+wc} {}^* \xrightarrow{1 + \frac{a+wc}{-1} \omega c} {}^*$$

$$wg + \omega {}^w U_g = \overline{a+w+\omega c}^{-1} \overline{a+wc} \overline{wg - \omega d}$$



$$\zeta^0 U_{\neq} = \zeta \mathbf{t}_{-z} {}^z B_z^{1/2} = \overbrace{1 + \zeta^*}^{-1} \zeta {}^z B_z^{1/2} = \overbrace{z^*}^{1/2} \overbrace{1 + \zeta^*}^{-1} \zeta \overbrace{z^*}^{1/2}$$

$$\begin{aligned}
& \overbrace{\zeta + z g}^{n/2} \overbrace{\zeta + z g - z g^*}^n = \overbrace{a + \zeta + z c}^n \overbrace{a + \zeta + z c \quad b + \zeta + z d - \overbrace{a + z c \quad b + z d}^{-1}}^n \overbrace{\zeta}^* \\
& = \overbrace{b + \zeta + z d - \overbrace{a + \zeta + z c \quad a + z c \quad b + z d}^{-1}}^n \overbrace{\zeta}^* = \overbrace{b + \zeta + z d - \overbrace{b + z d}^{-1} - \zeta \overbrace{a + z c \quad b + z d}^{-1}}^n \overbrace{\zeta}^* \\
& = \overbrace{\zeta d - \zeta \overbrace{a + z c \quad b + z d}^{-1}}^n \overbrace{\zeta}^* = \overbrace{\zeta}^n \overbrace{d - \overbrace{a + z c \quad b + z d}^{-1}}^n \overbrace{\zeta}^n
\end{aligned}$$