$$U = \xi' \underbrace{1_p - x\overset{*}{y}|x} = \xi \underbrace{1_p|x^y}$$

$$V = \eta' \underbrace{\overset{*}{v}_3|q - \overset{*}{v}u} = \eta \underbrace{\overset{*}{\overbrace{v^u}}_3|q}$$

$$g = \begin{array}{c|c} 1_p & -x^y \\ \hline -\overset{*}{\overbrace{v^u}} & 1_q \end{array} \in G^{\mathbb{C}}$$

$$U \cdot g = \xi \underbrace{1_p|x^y} \begin{array}{c|c} 1_p & -x^y \\ \hline -\overset{*}{\overbrace{v^u}} & 1_q \end{array} = \xi \underbrace{1_p - x^y \overset{*}{\overbrace{v^u}}|0} = \mathbb{C}_p|0$$

$$V \cdot g = \eta \underbrace{\overset{*}{\overbrace{v^u}}_3|q} \begin{array}{c|c} 1_p & -x^y \\ \hline -\overset{*}{\overbrace{v^u}} & 1_q \end{array} = \eta \underbrace{0_3|q - \overset{*}{\overbrace{v^u}} x^y} = 0|\mathbb{C}_q$$

$${}^z g = \overbrace{a + zc}^{-1} \underbrace{b + zd}$$

$${}^0 g = \overset{-1}{a}\, b$$

$$\dot{z}\, {}^z\underline{g} = -\overbrace{a + zc}^{-1} \dot{z}\, c \overbrace{a + zc}^{-1} \underbrace{b + zd} + \overbrace{a + zc}^{-1} \dot{z}\, d = \overbrace{a + zc}^{-1} \dot{z} \underbrace{d - c \overbrace{a + zc}^{-1} \overbrace{b + zd}}$$

$$\dot{z}\, {}^0\underline{g} = \overset{-1}{a}\, \dot{z} \underbrace{d - c\overset{-1}{a} b}$$

$$\begin{array}{c|c} a & b \\ \hline c & d \end{array} = \begin{array}{c|c} 1 & 0 \\ \hline c\overset{-1}{a} & 1 \end{array} \begin{array}{c|c} a & 0 \\ \hline 0 & d - c\overset{-1}{a} b \end{array} \begin{array}{c|c} 1 & \overset{-1}{a} b \\ \hline 0 & 1 \end{array}$$

$$1 = \det \begin{array}{c|c} a & b \\ \hline c & d \end{array} = \det a \det \underbrace{d - c\overset{-1}{a} b}$$

$$\det {}^0\underline{g} = \overset{-2}{\det} a$$