

$$U^{\mathbb{C}} \ni {}^z G_g = \mathbf{t}_z g \mathbf{t}_{-zg} = \mathbf{t}_{0\hat{g}^{-z}}^* {}^z K_g$$

$${}^z G_g {}^{zg} G_{\hat{g}} = {}^z G_{g\hat{g}}$$

$$\zeta \overbrace{{}^z G_g^{-n}}^{\mathbf{1}} = \zeta + {}^z D_g^{-n} \zeta + {}^{zg} - {}^z g \mathbf{1}$$

$$\zeta \underline{{}^z G_g} = \zeta \underline{\mathbf{t}_z g \mathbf{t}_{-zg}} = \zeta \underline{\mathbf{t}_z} \zeta + {}^z K_g \zeta + {}^{zg} \underline{\mathbf{t}_{-zg}} = \zeta + {}^z K_g$$

$$\Rightarrow \text{LHS} = \det \zeta \underline{{}^z G_g}^{-n} \zeta + {}^z G_g \mathbf{1} = \text{RHS}$$

$${}^z G_w = \mathbf{t}_{wz} {}^z B_w \mathbf{t}_{zw}^*$$

$$\begin{array}{ccc} Z \triangleleft \mathbb{C}^{|n} & \xleftarrow{{}^z G_w^n} & Z \triangleleft \mathbb{C}^{|n} \\ \uparrow {}^z G_g^n & & \downarrow {}^w G_g^{*n} \\ Z \triangleleft \mathbb{C}^{|n} & \xleftarrow{{}^{zg} G_{wg}^n} & Z \triangleleft \mathbb{C}^{|n} \end{array}$$

$$\zeta \overbrace{{}^w G_g^{*-n}}^{\mathbf{1}} = {}^w D_g^{*-n} 0\hat{g}^{-w} + \zeta {}^w K_g \mathbf{1}$$

$$\text{affin } {}^w G_g^* = {}^w K_g \mathbf{t}_{0\hat{g}^{-w}}^* \Rightarrow \begin{cases} \zeta {}^w G_g^* & = \zeta {}^w K_g + 0\hat{g}^{-w} \\ \zeta \underline{{}^w G_g^*} & = {}^w K_g \end{cases}$$

$$\Rightarrow \text{LHS} = \det \zeta \underline{{}^w G_g^*}^{-n} \zeta + {}^w G_g^* \mathbf{1} = \text{RHS}$$