

$$g=\frac{a}{\overline{b}}\Big|\frac{b}{\overline{a}}$$

$$[g]=\frac{-a^\circ b}{\overset{+}{a}^\circ}\Big|\frac{a^\circ}{\overline{b}a^\circ}$$

$$\zeta\!:\!\omega\in\mathbb{C}^r$$

$$x=\zeta\overset{+}{\zeta}$$

$$y=\omega\overset{+}{\omega}$$

$$^x_g\mathcal{B}_y=\,^x\mathcal{E}_{\overset{*}{a}^\circ\overset{+}{b}/2}\,\,\,^{a^\circ x\overset{+}{a}^\circ}\mathcal{J}_y\,\,\,^{-a^\circ b/2}\mathcal{E}_y$$

$$\exp\frac{1}{2}\left(\zeta^+\bar{b}a^\circ\zeta+2\bar{\omega}^*a^\circ\zeta-\bar{\omega}^*a^\circ b\bar{\omega}\right)=\mathcal{E}^{\zeta^+\bar{b}a^\circ\zeta/2}\mathcal{E}^{\bar{\omega}^*a^\circ\zeta}\mathcal{E}^{-\bar{\omega}^*a^\circ b\bar{\omega}/2}$$

$$\mathcal{E}^{\zeta^+\bar{b}a^\circ\zeta/2}=\mathcal{E}^{\text{tr}\,\,\zeta\zeta^+\bar{b}a^\circ/2}=\mathcal{E}^{\text{tr}\,\,x\overbrace{\overset{*}{\underline{\overset{+}{a}^\circ}\overset{+}{b}}}/2}=\mathcal{E}^{x\overline{\overline{\overset{*}{\underline{\overset{+}{a}^\circ}\overset{+}{b}}}}/2}$$

$$\mathcal{E}^{-\bar{\omega}^*a^\circ b\bar{\omega}/2}=\mathcal{E}^{-\text{tr}\,\,a^\circ b\bar{\omega}\bar{\omega}^*/2}=\mathcal{E}^{-\text{tr}\,\,a^\circ b y/2}=\mathcal{E}^{-a^\circ b\overline{\overline{y}}/2}$$

$$\int\limits_{dh}^{\ell\mathbb{R}_\ell^\mathsf{U}}\mathcal{E}^{2\,\text{tr}\,\,\zeta h\bar{\omega}}=\zeta\overset{+}{\zeta}\mathcal{J}_{\omega\overset{+}{\omega}}^{\ell/2}$$

$$\int\limits_{dh}^{\ell\mathbb{R}_\ell^\mathsf{U}}\mathcal{E}^{2\bar{\omega}^*a^\circ\zeta h}=\,^{a^\circ x\overset{+}{a}^\circ}\mathcal{J}_y^{\ell/2}$$

$$\text{LHS} \,=\, \int\limits_{dh}^{\ell\mathbb{R}_\ell^\mathsf{U}} \mathcal{E}^{2\,\text{tr}\,\,\underline{a^\circ\zeta h}\bar{\omega}^*} \,=\, {}^{(a^\circ\zeta)}\overbrace{\overline{\overline{a^\circ\zeta}}}^+ \mathcal{J}_{\omega\bar{\omega}^*}^{\ell/2} \,=\, {}^{a^\circ}\underline{\underline{\zeta}}\overset{+}{\zeta}\overset{+}{a}^\circ \mathcal{J}_{\omega\bar{\omega}^*}^{\ell/2} \,=\, \text{RHS}$$

$$\mathcal{J}\left(\overbrace{\overline{\overline{\overset{*}{a}^\circ\zeta}}}^+\overline{\overline{\overset{*}{a}^\circ\zeta}}\right)=\mathcal{J}\left(\zeta^+\overset{+}{a}^\circ\bar{\omega}\bar{\omega}^*a^\circ\zeta\right)$$

$$= {}^{a^{\circ}\zeta\overset{+}{a}^{\dagger^{\circ}}}\mathcal{J}_{\omega\overset{+}{\omega}} = {}^{a^{\circ}x\overset{+}{a}^{\dagger^{\circ}}}\mathcal{J}_y$$