$$n = 2: \quad \left(\begin{array}{c|c} {}^1g_1 & {}^1g_2 \\ \hline {}^2g_1 & {}^2g_2 \end{array}\right)^* = \left(\begin{array}{c|c} {}^2g_2 & q^2 g_1 \\ \hline q^{-11}g_2 & {}^1q_1 \end{array}\right)$$

$$w^* = w$$

$$\begin{cases} {}^1g_1^* = S\,{}^1g_1 = {}^2g_2 & {}^1g_2^* = -S\,{}^2g_1 = q^2 g_1 \\ {}^2g_1^* = -S\,{}^1g_2 = q^{-1}\,{}^1g_2 & {}^2g_2^* = S\,{}^2g_2 = {}^1g_1 \end{cases}$$

$$\mathbb{C}\left(q^{\pm}\right) \xleftarrow{\text{int}} {}^2\mathbb{C}_2^{\mho} \overset{q}{\underset{m}{\triangle}} \mathbb{C} \text{ Haar meas}$$

$$\int 1 = 1$$

$$\underbrace{\int \otimes 1}\, \Delta \urcorner = 1 \int \urcorner = \underbrace{1 \otimes \int}\, \Delta \urcorner$$

$$\int_{d_q w}^{0|1} w^k = (1-q) \sum_{n}^{\mathbb{N}} q^n\, q^{nk} = \frac{1-q}{1-q^{k+1}} = \frac{1}{[k+1]3q}$$

$$q^2 \text{ integral}$$

$$\int {}^2g_2^k\, {}^1g_1^\ell\, {}^2g_1^m\, {}^1g_2^n = \delta_{kl}\, \delta_{mn}\, (-q)^m\, q^{2k(m+1)} \frac{1-q^2}{1-q^{2(m+k+1)}} \prod_{1 \leqslant j \leqslant k} \frac{1-q^{2j}}{1-q^{2(m+j)}}$$

$$= \delta_{kl}\, \delta_{mn}\, (-q)^m\, q^{2k(m+1)} \frac{(1)_k^q}{(m+1)_{k+1}^q}$$

$$\int {}^1g_1^k\, {}^2g_2^\ell\, {}^2g_1^m\, {}^1g_2^n = \delta_{kl}\, \delta_{mn}\, (-q)^m \frac{(1)_k^q}{(m+1)_{k+1}^q}$$