

$$d\mu(t_1 \cdots t_r) = \prod_i^{1|r} e^{-t_i^2/2} \prod_{i < j}^{1|r} \overline{t_i - t_j}^a = e^{-aU}$$

$$U = \frac{1}{2a} \sum_i^{1|r} t_i^2 - \sum_{i < j}^{1|r} \log \overline{t_i - t_j}$$

$$dt_1 \cdots dt_r e^{-t_i^2/2} \prod_{i < j}^{1|r} \overline{t_i - t_j}^a$$

$$\frac{1}{\sqrt{2\pi}^n} \int_{\mathbb{R}^r} \prod_i^{1|r} e^{-t_i^2/2} \prod_{i < j}^{1|r} \overline{t_i - t_j}^a = \prod_j^{1|r} \frac{\Gamma_{1+ja/2}}{1+a/2}$$

$$\frac{1}{(2\pi)^r} \int_{dt_1 \cdots dt_r}^{-\pi}^{\pi} e^{it_i} - e^{it_j} \overline{t_i - t_j}^a = \frac{\Gamma_{1+na/2}}{\Gamma_{1+a/2}}$$

$$\int_{dt}^0 \overline{t}^{\zeta-1} = \left(\frac{\pi}{\sin \pi \zeta} \right)^r \int_{du_1 \cdots du_r}^{\mathbb{T}^r} -u \overline{u_1 \cdots u_r}^{\zeta}$$

$$u = e^{i\vartheta}$$

$$du = idt e^{i\vartheta} = iud\vartheta$$

$$\frac{du}{2\pi i u} = d\vartheta$$

$$\frac{1}{\sqrt{2\pi}^n} \int_{dx_1 \cdots dx_n}^{\mathbb{R}^n} e^{-x \overline{x}/2} \prod_v \overline{x \overline{x} v}^a = \prod_v \frac{\Gamma_{1+d_v a/2}}{\Gamma_{a/2}}$$