

$$-1|1 \underset{m}{\triangleleft} \mathbb{C} \xleftarrow{\mathcal{F}} -1|1 \underset{m}{\triangleleft} \mathbb{C}$$

$${}^x \overline{\mathcal{F}} \mathcal{A} = x \overline{1-x} \mathcal{A} + (c - (a+b+1)x) \mathcal{A} = ab \mathcal{A} \text{ Gauss}$$

$$\left[\frac{a|b}{z^c} \right] = \sum_n^{\mathbb{N}} \frac{(a)_n (b)_n z^n}{(c)_n n!}$$

$$\left[\frac{a|b}{z^c} \right] = \frac{c-a-b}{1-z} \left[\frac{c-a|c-b}{z^c} \right] = \frac{-a}{1-z} \left[\frac{a|c-b}{z-1} \right] = \frac{-b}{1-z} \left[\frac{c-a|b}{z-1} \right]$$

$$\left[\frac{a|b}{1-z} \right]_{a+b+1-c} = z \frac{a+1-c|b+1-c}{1-z} \left[\frac{a|b+1-c}{1-z} \right]_{a+b+1-c} = z^{-a} \left[\frac{a|a+1-c}{1-z^{-1}} \right]_{a+b+1-c} = z^{-b} \left[\frac{b+1-c|b}{1-z^{-1}} \right]_{a+b+1-c}$$

$$\begin{aligned} (-z)^{-a} \left[\frac{a|a+1-c}{z^{-1}} \right]_{a+1-b} &= (-z)^{b-c} \frac{c-a-b}{1-z} \left[\frac{1-b|c-b}{z^{-1}} \right]_{a+1-b} = \frac{-a}{1-z} \left[\frac{a|c-b}{1-z} \right]_{a+1-b} = (-z)^{1-c} \frac{c-a-1}{1-z} \left[\frac{1}{1-z} \right]_{a+1-b} \\ &= (-z)^{1-c} \frac{c-a-1}{1-z} \left[\frac{1}{1-z} \right]_{a+1-b} = (-z)^{1-c} \frac{c-a-1}{1-z} \left[\frac{1}{1-z} \right]_{a+1-b} \end{aligned}$$

$$\begin{aligned} (-z)^{-b} \left[\frac{b+1-c|b}{z^{-1}} \right]_{b+1-a} &= (-z)^{a-c} \frac{c-a-b}{1-z} \left[\frac{1-a|c-a}{z^{-1}} \right]_{b+1-a} = \frac{-b}{1-z} \left[\frac{b|c-a}{1-z} \right]_{b+1-a} = (-z)^{1-c} \frac{c-b-1}{1-z} \left[\frac{1}{1-z} \right]_{b+1-a} \\ &= (-z)^{1-c} \frac{c-b-1}{1-z} \left[\frac{1}{1-z} \right]_{b+1-a} \end{aligned}$$

$$z^{1-c} \left[\frac{a+1-c|b+1-c}{z} \right]_{2-c} = z^{1-c} \frac{c-a-b}{1-z} \left[\frac{1-a|b}{z} \right]_{2-c} = z^{1-c} \frac{c-a-1}{1-z} \left[\frac{z}{z-1} \right]_{2-c} = z^{1-c} \frac{c-b-1}{1-z} \left[\frac{z}{z-1} \right]_{2-c}$$

$$\frac{c-a-b}{1-z} \left[\frac{c-a|c-b}{1-z} \right]_{c+1-a-b} = z^{1-c} \frac{c-a-b}{1-z} \left[\frac{1-a|b}{1-z} \right]_{c+1-a-b} = z^{a-c} \frac{c-a-b}{1-z} \left[\frac{c-a|a}{1-z^{-1}} \right]_{c+1-a-b} = z^{b-c} \frac{c-a-b}{1-z} \left[\frac{c-b|b}{1-z^{-1}} \right]_{c+1-a-b}$$

$$\left[\frac{a|b}{z} \right]_{a+b+1/2} = \frac{2a|_b}{1-\sqrt{1-z}} = \left(\frac{1+\sqrt{1-z}}{2} \right)^{-2a} \left[\frac{2a|a-b+1/2}{\sqrt{1-z}-1} \right]_{a+b+1/2}$$

$$\sqrt{1-z} \left[\frac{a|b}{z} \right]_{a+b-1/2} = \frac{2a-1|_b-1}{1-\sqrt{1-z}} = \left(\frac{1+\sqrt{1-z}}{2} \right)^{1-2a} \left[\frac{2a-1|a-b+1/2}{\sqrt{1-z}-1} \right]_{a+b-1/2}$$

$$a|a+1/2 \left[\frac{z}{c} \right] = \overbrace{1-z}^{-a} \frac{2a|_c - 2a - 1}{\frac{1 - \sqrt{1-z}}{2}}^{-1} = (1 + \sqrt{z})^{-2a} \frac{2a|_{2c-1} - 1/2}{1 + \sqrt{z}}$$

$$a|b \left[\frac{z}{a+b+1/2} \right] = \frac{a|b}{4z \overbrace{1-z}^{-1}} = \overbrace{1-2z}^{a+1/2|b+1/2} \frac{a+1/2|b+1/2}{4z \overbrace{1-z}^{-1}} = \overbrace{1-2z}^{-a/2} \frac{a|a+1/2}{(2z-1)^2} \frac{1}{a+b+1/2}$$

$$\frac{1-2c}{1-z} \frac{2a|_c}{2c} = \frac{c-a|c+a-1/2}{4z \overbrace{1-z}^{-1}} = \overbrace{1-2z}^{c+a|c-a+1/2} \frac{c+a|c-a+1/2}{4z \overbrace{1-z}^{-1}} = \frac{2a-2c}{1-2z} \frac{c-a|c-a+1/2}{\overbrace{1-2z}^{-2}} \frac{1}{2c}$$

$$\frac{2a|b}{2b} \left[\frac{z}{b+1/2} \right] = \overbrace{1-z}^{-a} \frac{a|b-a}{4(z-1)^2} = \overbrace{1-\frac{z}{2}}^{-a-1/2} \frac{b-a+1/2|a+1/2}{4(z-1)^2} = \overbrace{1-\frac{z}{2}}^{-2a} \frac{a|a+1/2}{2-z} = \overbrace{1-z}^{b-2a} \frac{2a-2b}{1-\frac{z}{2}} \frac{b-a|b-a+1/2}{2-z} \frac{1}{b+1/2}$$

$$= \overbrace{1-z}^{-a} \frac{2a|_b - 2a}{\frac{1 - \sqrt{1-z}}{-4\sqrt{1-z}}} = \left(1 + \frac{-4a}{2\sqrt{1-z}}\right) \frac{2a|_a - b + 1/2}{\frac{1 - \sqrt{1-z}}{1 + \sqrt{1-z}}} \frac{1}{b+1/2}$$

$$\frac{2a|b}{2a-b+1} \left[\frac{z}{2a-b+1} \right] = \overbrace{1-z}^{-2a} \frac{a|a-b+1/2}{\frac{-4z}{(1-z)^2}} = (1+z) \frac{-2a-1}{1-z} \frac{a+1/2|a-b+1}{\frac{-4z}{(1-z)^2}} = (1+z)^{-2a} \frac{a|a+1/2}{(1+z)^2} = \overbrace{1-z}^{a-b+1/2} \frac{2b-2a-1}{(1+z)} \frac{a-b+1/2|a-b+1}{(1+z)^2} \frac{1}{2a-b+1}$$

$$= (1 + \sqrt{z})^{-4a} \frac{2a|_a - b + 1/2}{\frac{4\sqrt{z}}{(1 + \sqrt{z})^2}} \frac{1}{4a-2b+1}$$

$$\frac{a|b}{c} \left[\frac{z}{c} \right] = \frac{b-a|c}{b|c-a} \overbrace{(-z)}^{-a} \frac{a+|a-c}{1+a-b} \left[\frac{z^{-1}}{1+a-b} \right] + \frac{a-b|c}{a|c-b} \overbrace{(-z)}^{-b} \frac{b+|b-c}{1+b-a} \left[\frac{z^{-1}}{1+b-a} \right]$$

$$\frac{a|b}{2b} \left[\frac{z}{(1+z)^2} \right] = (1+z)^{2a} \frac{a|a-b+1/2}{b+1/2} \frac{z^2}{b+1/2}$$

$$\frac{{}_2a|b}{1+2a-b} \left[\frac{z}{1-z} \right] = \overbrace{1-z}^{-2a} \left[\frac{a|a-b+1/2}{-\frac{4z}{(1-z)^2}} \right]_{1-2a+b}$$

$$\frac{{}_2a|b}{a+b+1/2} \left[\frac{z+1}{2} \right] = \frac{a+b+1/2}{a+1/2} \frac{{}_1/2|1/2}{b+1/2} \left[\frac{a|b}{z^2} \right]_{1/2} - \frac{a+b+1/2}{a|b} \frac{{}_1/2|-1/2}{1/2} z \left[\frac{z^2}{3/2} \right]_{a+1/2|b+1/2}$$

$$\frac{a-1|b}{c} \left[\frac{z}{c} \right] - \frac{a|b-1}{c} \left[\frac{z}{c} \right] = \frac{a-b}{c} z \left[\frac{a|b}{c+1} \right]$$