$$\pm a^{\pm} = \begin{cases} a \\ -a \\ a^{-1} \\ -a^{-1} \end{cases}$$

$$\Gamma =< ai{:}\frac{a-1}{a+1} >=< i{:}c >$$

$$E\left(\pm a^{\pm}\right) \asymp E\left(\pm^{a}\gamma^{\pm}\right)$$

$$^{\pm a^{\pm}}i = \begin{cases} ^{a}i \\ ^{-a}i \\ ^{1/a}i \\ ^{-1/a}i \end{cases} = \begin{cases} ^{a}i \\ -^{a}i \\ -^{a}i^{-1} \\ ^{a}i^{-1} \end{cases} = \pm\,^{a}i^{\pm}{:} \quad ^{\pm a^{\pm}}c = \begin{cases} ^{a}c \\ ^{-a}c \\ ^{1/a}c \\ ^{-1/a}c \end{cases} = \begin{cases} ^{a}c \\ ^{a}c^{-1} \\ -^{a}c \\ -^{a}c^{-1} \end{cases} = \pm\,^{a}c^{\pm}$$

$$\left(x-\frac{a-1}{a+1}\right)\left(x-\frac{a+1}{a-1}\right)\left(x-\frac{a-i}{a+i}\right)\left(x-\frac{a+i}{a-i}\right)$$

$$= \overbrace{\underbrace{a+1}x-a+1}\overbrace{\underbrace{a-1}x-a-1}\overbrace{\underbrace{a+i}x-a+i}\overbrace{\underbrace{a-i}x-a-i}$$

$$= \overbrace{a\underbrace{x-1}+\underbrace{x+1}}\overbrace{a\underbrace{x-1}-\underbrace{x+1}}\overbrace{a\underbrace{x-1}+i\underbrace{x+1}}\overbrace{a\underbrace{x-1}-i\underbrace{x+1}}$$

$$= \underbrace{\overset{2}{a}\overbrace{x-1}^{2}-\overbrace{x+1}^{2}}\underbrace{\overset{2}{a}\overbrace{x-1}^{2}+\overbrace{x+1}^{2}} = \overset{4}{a}\,\overbrace{x-1}^{4}-\overbrace{x+1}^{4}$$

$$\prod_{\varkappa}^{4}\left(x-i^{\varkappa}b\right) = \underbrace{x-b}\underbrace{x-ib}\underbrace{x+b}\underbrace{x+ib} = \underbrace{x^2-b}^{2}\underbrace{x^2+b}^{2} = x^4-b^4$$

$$\prod_{\varkappa}^{4}\left(x-i^{\varkappa}a\right) = x^4-a^4$$

$$\prod_{\varkappa}^{4}\left(x-i^{\varkappa}\frac{1}{a}\right) = x^4-\frac{1}{a^4}$$

$$\prod_{\varkappa}^{4}\left(x-i^{\varkappa}\frac{a-1}{a+1}\right) = x^4-\frac{\left(a-1\right)^4}{\left(a+1\right)^4}$$

$$\prod_{\varkappa}^{4}\left(x-i^{\varkappa}\frac{a+1}{a-1}\right) = x^4-\frac{\left(a+1\right)^4}{\left(a-1\right)^4}$$

$$\prod_{\varkappa}^{4}\left(x - i^{\varkappa}\frac{a-i}{a+i}\right) = x^4 - \frac{(a-i)^4}{(a+i)^4}$$

$$\prod_{\varkappa}^{4}\left(x - i^{\varkappa}\frac{a+i}{a-i}\right) = x^4 - \frac{(a+i)^4}{(a-i)^4}$$

$$a^4\,\underbrace{a^4-1}{}^4\,\underbrace{X-a^4}\,\underbrace{X-\frac{1}{a^4}}\,\underbrace{X-\frac{(a-1)^4}{(a+1)^4}}\,\underbrace{X-\frac{(a+1)^4}{(a-1)^4}}\,\underbrace{X-\frac{(a-i)^4}{(a+i)^4}}\,\underbrace{X-\frac{(a+i)^4}{(a-i)^4}}$$

$$= \underbrace{X-a^4}\,\underbrace{a^4X-1}\,\underbrace{(a+1)^4X-(a-1)^4}\,\underbrace{(a-1)^4X-(a+1)^4}\,\underbrace{(a+i)^4X-(a-i)^4}\,\underbrace{(a-i)^4X-(a+i)^4}$$

$$= \left(X^2+14X+1\right)^3 a^4\left(a^4-1\right)^4 - \left(a^8+14a^4+1\right)^3 X\left(X-1\right)^4$$

$$\underbrace{X-c}\left(X-\frac{1}{c}\right) = X^2+1-X\left(c+\frac{1}{c}\right)$$

$$a^4+\frac{1}{a^4} = \frac{a^8+1}{a^4}$$

$$\frac{(a-1)^4}{(a+1)^4}+\frac{(a+1)^4}{(a-1)^4} = \frac{(a-1)^8+(a+1)^8}{(a+1)^4(a-1)^4} = \frac{(a-1)^8+(a+1)^8}{\left(a^2-1\right)^4}$$

$$\frac{(a-i)^4}{(a+i)^4}+\frac{(a+i)^4}{(a-i)^4} = \frac{(a-i)^8+(a+i)^8}{(a+i)^4(a-i)^4} = \frac{(a-i)^8+(a+i)^8}{\left(a^2+1\right)^4}$$

$$a^4\left(X^2+1-X\frac{a^8+1}{a^4}\right) = a^4\left(X^2+1\right)-X\left(a^8+1\right) = \underbrace{X-a^4}\,\underbrace{a^4X-1}$$

$$\left(X^2+1-X\frac{(a-1)^8+(a+1)^8}{\left(a^2-1\right)^4}\right)$$

$$\left(X^2+1-X\frac{(a-i)^8+(a+i)^8}{\left(a^2+1\right)^4}\right)$$

$$1|z\begin{array}{c|c} a & b \\ \hline c & d \end{array} = \frac{b+zd}{a+zc}$$

$$1|z\begin{array}{c|c} u\left(v-w\right)-\left(u-v\right)w & \left(u-w\right)v \\ \hline u-v+w-v & w-u \end{array} = \frac{\left(z-v\right)\left(w-u\right)}{\left(z-u\right)\left(w-v\right)+\left(z-w\right)\left(u-v\right)}$$

$$\begin{cases} u \mapsto -1 \\ v \mapsto 0 \\ w \mapsto 1 \end{cases}$$

$$u = \infty \Longrightarrow 1|z \begin{array}{c|c} v - 2w & v \\ \hline 1 & -1 \end{array}$$