In general, a Clifford number transforms according to

(1) $$\Phi \to \Phi' = \mathrm{R}\,\Phi\,\mathrm{S}$$

Clifford numbers

e.g., $\mathrm{R} = \mathrm{e}^{\frac{1}{2}\alpha^A \gamma_A}$, $\mathrm{S} = \mathrm{e}^{\frac{1}{2}\beta^A \gamma_A}$

In particular, if $\mathrm{S} = 1$, we have

$$\Phi \to \Phi' = \mathrm{R}\,\Phi$$

As an example, let us consider the case

$$\mathrm{R} = \mathrm{e}^{\frac{1}{2}\alpha\gamma_1\gamma_2} = \cos\frac{\alpha}{2} + \gamma_1\gamma_2 \sin\frac{\alpha}{2}, \qquad \mathrm{S} = \mathrm{e}^{\frac{1}{2}\beta\gamma_1\gamma_2} = \cos\frac{\beta}{2} + \gamma_1\gamma_2 \sin\frac{\beta}{2}$$

and examine, how various Clifford numbers, $X = X^C \gamma_C$, transform under (1), which now reads: $X \to X' = \mathrm{R}\,X\,\mathrm{S}$

(i) If $X = X^1 \gamma_1 + X^2 \gamma_2$

then

$$X' = X^1\left(\gamma_1 \cos\frac{\alpha-\beta}{2} + \gamma_2 \sin\frac{\alpha-\beta}{2}\right) + X^2\left(-\gamma_1 \sin\frac{\alpha-\beta}{2} + \gamma_2 \cos\frac{\alpha-\beta}{2}\right)$$