## Passive transformations

The object remains the same

(2) $$\Phi' = \psi'^{\tilde{A}} \xi'_{\tilde{A}} = \psi^{\tilde{A}} \xi_{\tilde{A}} = \Phi$$

If the spinor basis transforms according to

(3) $$\xi'_{\tilde{A}} = \mathrm{R} \xi_{\tilde{A}} \mathrm{S} = L_{\tilde{A}}{}^{\tilde{B}} \xi_{\tilde{B}}$$

then the components must transform as

(4) $$\psi'^{\tilde{A}} = \psi^{\tilde{B}} (L^{-1})_{\tilde{B}}{}^{\tilde{A}}$$

With respect to the new basis, $\xi'_{\tilde{A}}$, (new reference frame), the generalized spinor, $\Phi$, has transformed components.

From (2) – (4) we obtain

$$\psi^{\tilde{B}} (L^{-1})_{\tilde{B}}{}^{\tilde{A}} \xi'_{\tilde{A}} = \psi^{\tilde{B}} \mathrm{R}^{-1} \xi'_{\tilde{B}} \mathrm{S}^{-1} = \psi^{\tilde{B}} \xi_{\tilde{B}}$$

This is the active transformation of the object $\psi^{\tilde{B}} \xi'_{\tilde{B}}$ :

$$\psi^{\tilde{B}} \xi'_{\tilde{B}} \rightarrow \psi^{\tilde{B}} \xi_{\tilde{B}} = \psi^{\tilde{B}} \mathrm{R}^{-1} \xi'_{\tilde{B}} \mathrm{S}^{-1}$$

This is equivalent to the active transformation of the object $\psi^{\tilde{B}} \xi_{\tilde{B}}$:

$$\psi^{\tilde{B}} \xi_{\tilde{B}} \rightarrow \psi^{\tilde{B}} \xi'_{\tilde{B}} = \psi^{\tilde{B}} \mathrm{R} \xi_{\tilde{B}} \mathrm{S}$$

Active transformations are thus embedded in passive transformations.