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ADDENDUM

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The following paragraph should be inserted after equation (9) on page L151 of Dereli and Deser (1977):

'The transformations (6) or (7) do not, as they stand, appear to correspond to the initial algebra in that the commutator of two transformations on λ vanishes; whereas the corresponding commutator for (2) is a coordinate transformation§. This is due to our having transferred the non-linear part of $\delta\lambda$ to $\delta e_\mu{}^a$. We may now undo this simplification, if desired, by taking advantage of the manifest invariance of (5) under arbitrary coordinate and local Lorentz transformations. Under the former, $e_\mu{}^a$ varies according to $\delta_C e_\mu{}^a = \bar{D}_\mu(e_\nu{}^a\xi^\nu)$ where ξ^ν is the coordinate variation and $\bar{D}_\mu$ is the metric covariant derivative. Under the latter, $\delta_L e_\mu{}^a = \Omega\epsilon^{ab}e_{\mu b}$ where Ω is the Lorentz rotation. If we now perform field-dependent coordinate and local Lorentz variations with $e_\mu{}^a\xi^\mu = -ia^2\bar{\alpha}\gamma^a\lambda$ and $\Omega = ia^2\omega_\mu \,.\, \bar{\alpha}\gamma^\mu\lambda$ simultaneously with (7), say, (taking D_μ there to be the metric covariant derivative) the first term in $\delta e_\mu{}^a$ of (7) is cancelled, and the new form of the invariance transformations reads:

$$\begin{aligned}
\delta\lambda &= \alpha - ia^2(\bar{\alpha}\gamma^\mu\lambda)\,.\,D_\mu\lambda \\
\delta e_\mu{}^a &= -ia^2\bar{\alpha}\gamma^a\psi_\mu \\
\delta\psi_\mu &= 2D_\mu\alpha - ia^2(\bar{\alpha}\gamma^\kappa\lambda)\,.\,D_\kappa\psi_\mu - ia^2D_\mu(\bar{\alpha}\gamma^\kappa\lambda)\,.\,\psi_\kappa.
\end{aligned} \tag{7$'$}$$

The variation of $e_\mu{}^a$ is the usual supergravity one, that of λ now agrees with (2), while the ψ_μ variation now includes a complicated function of the matter field. The commutator of two transformations of (7′) on λ is a combination of field-dependent supersymmetry (of the (7′) type), coordinate and local Lorentz transformations with parameters $\alpha_{12} = -ia^2(\bar{\alpha}_1\gamma^\mu\lambda)\,.\,D_\mu\alpha_2 + ia^2(\bar{\alpha}_2\gamma^\mu\lambda)\,.\,D_\mu\alpha_1$; $\xi_{12}{}^a = 2ia^2(\bar{\alpha}_1\gamma^a\alpha_2)$ and a complicated Ω_{12}, respectively. However, the commutators of two transformations on the supergravity fields do not seem to have this structure off mass-shell.'

The following misprints in Dereli and Deser (1977) should also be noted:

Equation (1) on page L149 should read

$$I = -\frac{1}{4a^2}\int d^2x\,\epsilon^{\mu\nu}\epsilon_{ab}(\delta_\mu{}^a - ia^2\bar{\lambda}\gamma^a\partial_\mu\lambda)(\delta_\nu{}^b - ia^2\bar{\lambda}\gamma^b\partial_\nu\lambda). \tag{1}$$

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§ We thank B Zumino for raising this question.

In equations (3) and (5) on page L150, for $\Sigma^{\mu\nu}\Sigma_{ab}$ read $\epsilon^{\mu\nu}\epsilon_{ab}$.

On line 9, page L150, the equation $\bar{\lambda}\gamma^a\gamma^5\lambda = 0$ should read $\bar{\lambda}\gamma^a\gamma_5\lambda = 0$. In the second footnote on page L150 the equation $\delta e_\mu{}^a = \mathrm{i}b\alpha\gamma^a\psi_\mu$ should read $\delta e_\mu{}^a = \mathrm{i}b\bar{\alpha}\gamma^a\psi_\mu$.

On line 9, page L151, the equation $I = \frac{1}{2}a^2 \int \mathrm{d}^2x\, e$ should read $I = (1/2a^2) \int \mathrm{d}^2x\, e$.

In equation (10) on page L151, for $\Sigma^{\mu\nu\kappa\lambda}\Sigma_{abcd}$ read $\epsilon^{\mu\nu\kappa\lambda}\epsilon_{abcd}$.

In equations (A.1*a*), (A.3), (A.5), (A.6), (A.7), (A.8) and (A.9), on pages L152 and L153, and the final displayed equation on page L153, for all $\Sigma^{\mu\nu}$ read $\epsilon^{\mu\nu}$.

Reference

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