Consider variables $\eta^\alpha, 1 \leq \alpha \leq N$, which commute with x^s and $\partial/\partial x^s, 1 \leq s \leq n$, but do not commute with each other. A tensor is a polynomial

$$T_{\alpha_1 \dots \alpha_k}(x) \eta^{\alpha_1} \dots \eta^{\alpha_k}.$$

A covariant derivative is

$$\nabla_i = \frac{\partial}{\partial x^i} - \Gamma^\alpha_{i\sigma}(x) \operatorname{ad}(\zeta^\sigma_\alpha) = \operatorname{ad}\left(\frac{\partial}{\partial x^i} - \Gamma^\alpha_{i\sigma}(x)\zeta^\sigma_\alpha\right),$$

where the variables ζ^σ_α commute with x^s and $\partial/\partial x^s$ and satisfy

$$[\zeta^\sigma_\alpha, \eta^\gamma] = \delta^\gamma_\alpha \eta^\sigma \text{ and } [\zeta^\sigma_\alpha, \zeta^\tau_\beta] = \delta^\tau_\alpha \zeta^\sigma_\beta - \delta^\sigma_\beta \zeta^\tau_\alpha.$$

If the variables η^α commute, then

$$\zeta^\sigma_\alpha = \eta^\sigma \frac{\partial}{\partial \eta^\alpha}.$$

If we set $\Gamma_i = \Gamma^\alpha_{i\sigma}(x)\zeta^\sigma_\alpha$, then

$$\nabla_i = \frac{\partial}{\partial x^i} - \operatorname{ad}(\Gamma_i) \text{ and } [\Gamma_i, \eta^\alpha] = \Gamma^\alpha_{i\sigma}(x)\eta^\sigma.$$

The curvature of the connection ∇ is

$$R_{ij} = [\nabla_i, \nabla_j] = R^\sigma_{ij\tau} \operatorname{ad}(\zeta^\tau_\sigma),$$

where

$$R^\sigma_{ij\tau} = -\frac{\partial}{\partial x^i}\Gamma^\sigma_{j\tau} + \frac{\partial}{\partial x^j}\Gamma^\sigma_{i\tau} + \Gamma^\alpha_{i\tau}\Gamma^\sigma_{j\alpha} - \Gamma^\alpha_{j\tau}\Gamma^\sigma_{i\alpha}.$$