

$$\begin{array}{cccccc}
 A & B & C & C^T & v \\
 \parallel & \parallel & \parallel & \parallel & \parallel \\
 (P(g)^{-1})^i_{\mu} & \dot{g}(\theta)^k_{\alpha} & P(g)^{\ell}_{\nu} & P(g^{-1})^j_k & \wedge \psi^k
 \end{array}$$

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$$(ABC^T)^i_k \psi^k$$

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$$(AB)^i_k \psi^k$$