[13.13] In $\mathbb{R}^3$, $x^a \rightarrow T^a_b x^b = T^a_1 x^1 + T^a_2 x^2 + T^a_3 x^3$, or

$$\begin{cases} x^1 \rightarrow T^1_1 x^1 + T^1_2 x^2 + T^1_3 x^3 \\ x^1 \rightarrow T^2_1 x^1 + T^2_2 x^2 + T^2_3 x^3 & \text{is the explicit representation.} \\ x^1 \rightarrow T^3_1 x^1 + T^3_2 x^2 + T^3_3 x^3 \end{cases}$$

✔