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0.1 Indefinite (pseduo) and split orthognal groups $O(n, m, F)$

0.1.1 Recap: Metric-preserving transformations

The bilinear form is:

$$u^T M v$$

The transformations which preserve this are:

$$P^T M P = M$$

0.1.2 The metric

If the metric is:

$$M = \begin{bmatrix} -1 & 0 & 0 & 0 \\ 0 & 1 & 0 & 0 \\ 0 & 0 & 1 & 1 \\ 0 & 0 & 0 & 1 \end{bmatrix}$$

Then we have the indefinite orthogonal group $O(3, 1)$

0.1.3 The split orthogonal group

Where $n = m$ we have the split orthogonal group.

$$O(n, n, F)$$

0.1.4 Signatures