

$$\sigma' = L \sigma L^T$$

$$L_{ij} = \underline{e}_i' \cdot \underline{e}_j$$

The element in the n-th row & m-th column expresses for example how much effect a cause from the n-th direction has in the m-th direction, ie how much the body's rotation will change in the m-th direction upon a force from the n-th direction.

$$L \sigma L^T = \begin{matrix} & \begin{matrix} 1 \\ 2 \\ 3 \end{matrix} \\ \begin{matrix} 1' \\ 2' \\ 3' \end{matrix} & \end{matrix}$$

$$\begin{matrix} & \begin{matrix} 1 & 2 & 3 \end{matrix} \\ \begin{matrix} 1 \\ 2 \\ 3 \end{matrix} & \begin{pmatrix} O_{11} & O_{12} & O_{13} \\ O_{21} & O_{22} & O_{23} \\ O_{31} & O_{32} & O_{33} \end{pmatrix} \end{matrix}$$

$$\begin{matrix} & \begin{matrix} 1 & 2 & 3 \end{matrix} \\ \begin{matrix} 1 \\ 2 \\ 3 \end{matrix} & \end{matrix}$$

$$\begin{matrix} & \begin{matrix} 1' & 2' & 3' \end{matrix} \\ \begin{matrix} 1 \\ 2 \\ 3 \end{matrix} & \begin{pmatrix} L_{11}' & L_{12}' & L_{13}' \\ L_{21}' & L_{22}' & L_{23}' \\ L_{31}' & L_{32}' & L_{33}' \end{pmatrix} \end{matrix}$$

The element in the n-th row m-th column expresses the magnitude of the projection of the n-th UNPRIMED basis vector to the m-th PRIMED basis vector.

$$\begin{matrix} & \begin{matrix} 1 & 2 & 3 \end{matrix} \\ \begin{matrix} 1 \\ 2 \\ 3 \end{matrix} & \end{matrix}$$

$$\begin{matrix} & \begin{matrix} 1' & 2' & 3' \end{matrix} \\ \begin{matrix} 1 \\ 2 \\ 3 \end{matrix} & \begin{pmatrix} L_{11}' & L_{12}' & L_{13}' \\ L_{21}' & L_{22}' & L_{23}' \\ L_{31}' & L_{32}' & L_{33}' \end{pmatrix} \end{matrix}$$

This element expresses how much effect there is in the THIRD PRIMED basis vector's direction from the second PRIMED basis vector's direction.

The n-th row m-th column element of this matrix expresses how much effect there is for a cause in the direction of the n-th UNPRIMED BASIS vector to the m-th PRIMED BASIS vector

This row expresses how much effect a cause has from the first direction in the first second third direction in the UNPRIMED basis.

This column expresses how big a projection is from the first second third UNPRIMED basis vector to the first PRIMED basis vector

This column expresses how much effect there is in the direction of the THIRD PRIMED BASIS vector from the first second third UNPRIMED basis vector's direction.

This element expresses how big effect there is for a cause in the FIRST UNPRIMED BASIS in the direction of the FIRST PRIMED BASIS vector

$$O_{11} \quad O_{12} \quad O_{13}$$

$$O_{21} \quad O_{22} \quad O_{23}$$

$$O_{31} \quad O_{32} \quad O_{33}$$

$$L_{11}' \quad L_{12}' \quad L_{13}'$$

$$L_{21}' \quad L_{22}' \quad L_{23}'$$

$$L_{31}' \quad L_{32}' \quad L_{33}'$$

$$C_1^1 \quad C_2^1 \quad C_3^1$$

$$C_1^2 \quad C_2^2 \quad C_3^2$$

$$C_1^3 \quad C_2^3 \quad C_3^3$$

$$L_{11}' \quad L_{12}' \quad L_{13}'$$

This row expresses the magnitude of the projection of the first second third UNPRIMED basis vector onto the second PRIMED basis vector.

$$L_{21}' \quad L_{22}' \quad L_{23}'$$

$$L_{31}' \quad L_{32}' \quad L_{33}'$$

$$L_{11}' \quad L_{12}' \quad L_{13}'$$

$$L_{21}' \quad L_{22}' \quad L_{23}'$$

$$L_{31}' \quad L_{32}' \quad L_{33}'$$