

## Transformation from body to world

$$X_{0 \leftarrow i} = \prod_{j=1}^i X_{(j-1) \leftarrow j} = X_{0 \leftarrow 1} \cdot X_{1 \leftarrow 2} \cdots$$

## Rotation from body to world

$$R_{0 \leftarrow i} = \prod_{j=1}^i R_{(j-1) \leftarrow j} = R_{0 \leftarrow 1} \cdot R_{1 \leftarrow 2} \cdots$$