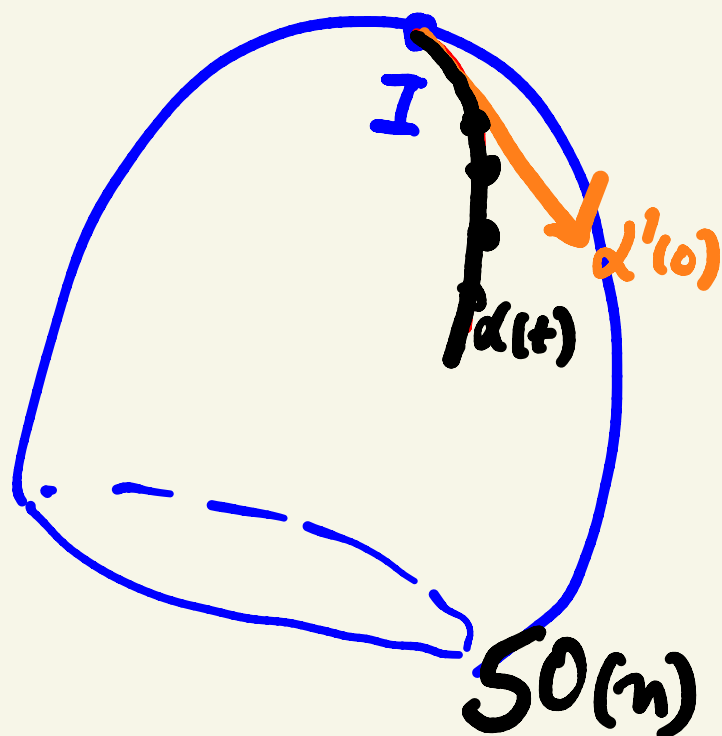$$SO(n) = \left\{ A \in M_{\mathbb{R}}(n) \;\middle|\; \begin{array}{c} A^T A = A A^T = I \\ \det A = 1 \end{array} \right\}$$

$$A = [V_1, V_2, \cdots, V_n]$$

$$V_i \cdot V_j = \delta_{ij} = \begin{cases} 1, & \text{if } i = j \\ 0, & \text{if } i \neq j \end{cases}$$

Recall $SO(3)$,

$$I = \begin{pmatrix} 1 & 0 & 0 \\ 0 & 1 & 0 \\ 0 & 0 & 1 \end{pmatrix} \in SO(3)$$

Let $\alpha(t) \in SO(n)$ s.t $\alpha(0) = I$.

Want to find $\alpha'(0)$

Say $\alpha(t) = A(t) \overset{\in SO(n)}{} \left(\text{s.t } \alpha(0) = A(0) = I \right)$

$$A(t) A^T(t) = I$$