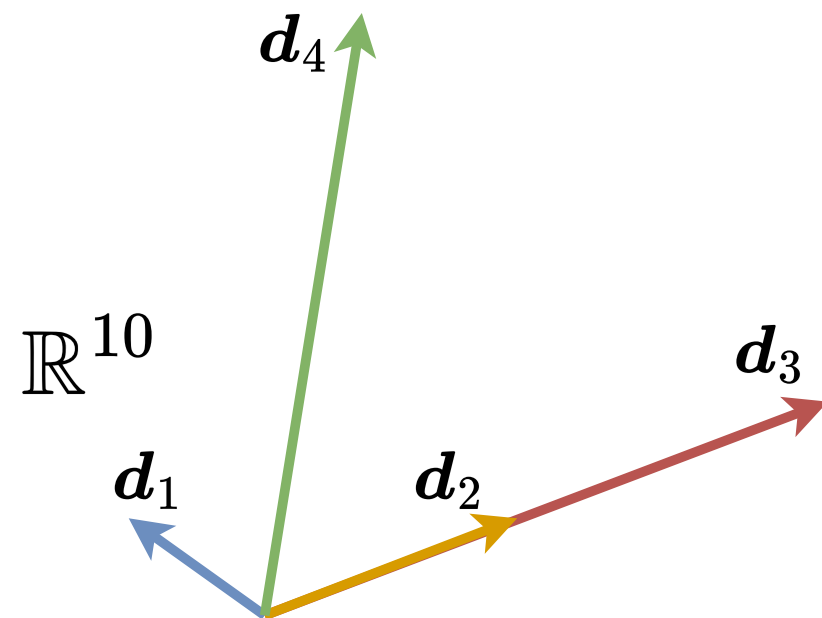
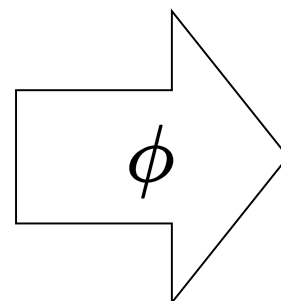


Hierarchical data

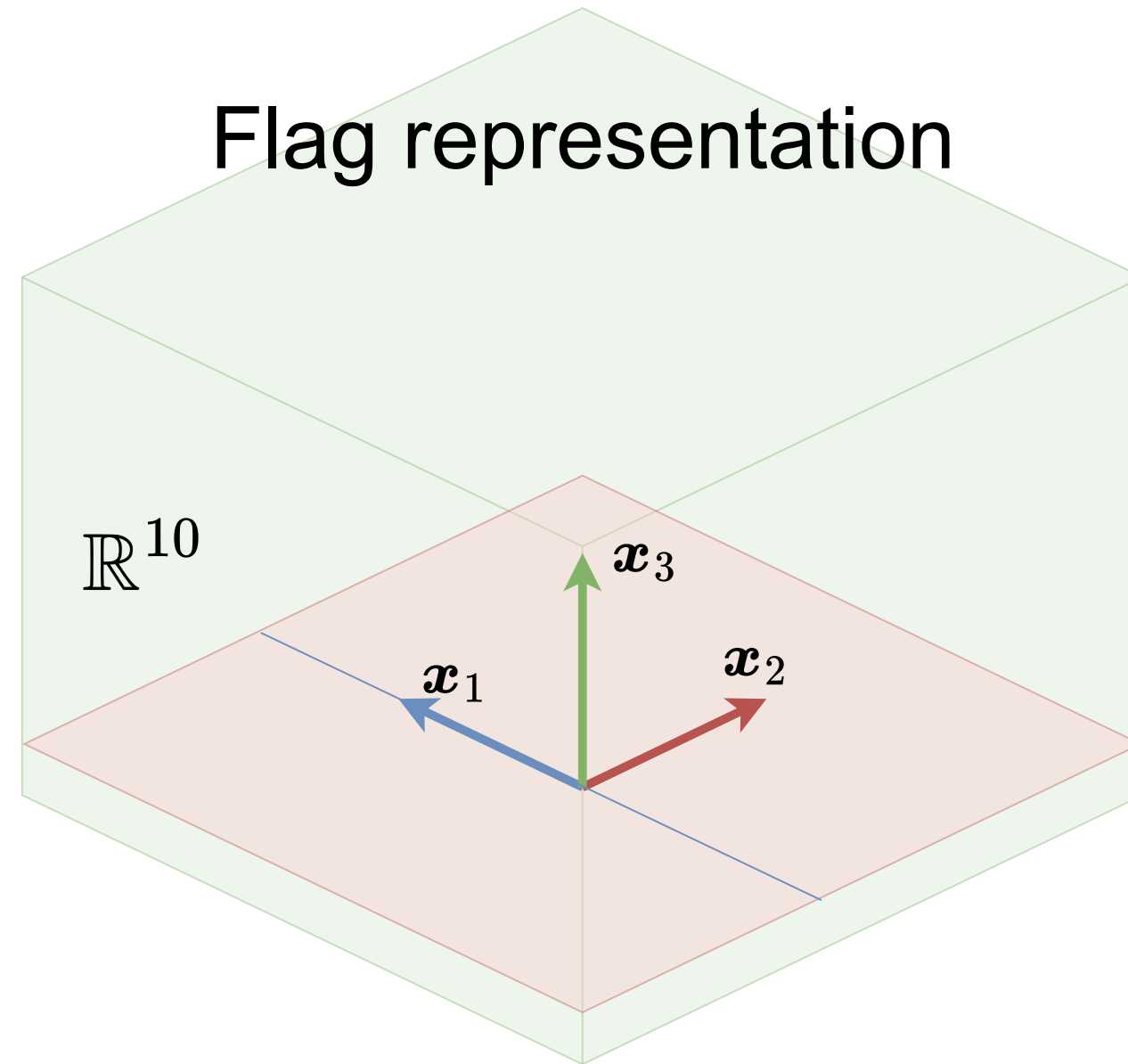


$$\mathcal{A}_1 \subset \mathcal{A}_2 \subset \mathcal{A}_3$$

$$\{1\} \subset \{1, 2, 3\} \subset \{1, 2, 3, 4\}$$



Flag representation



$$[\mathbf{X}] \in \mathcal{FL}(1, 2, 3; 10)$$