When to Use PCA vs t-SNE

Dimensionality Reduction

Purpose?

Preprocess — **Need reversible?**

Visualize — **Linear structure?**
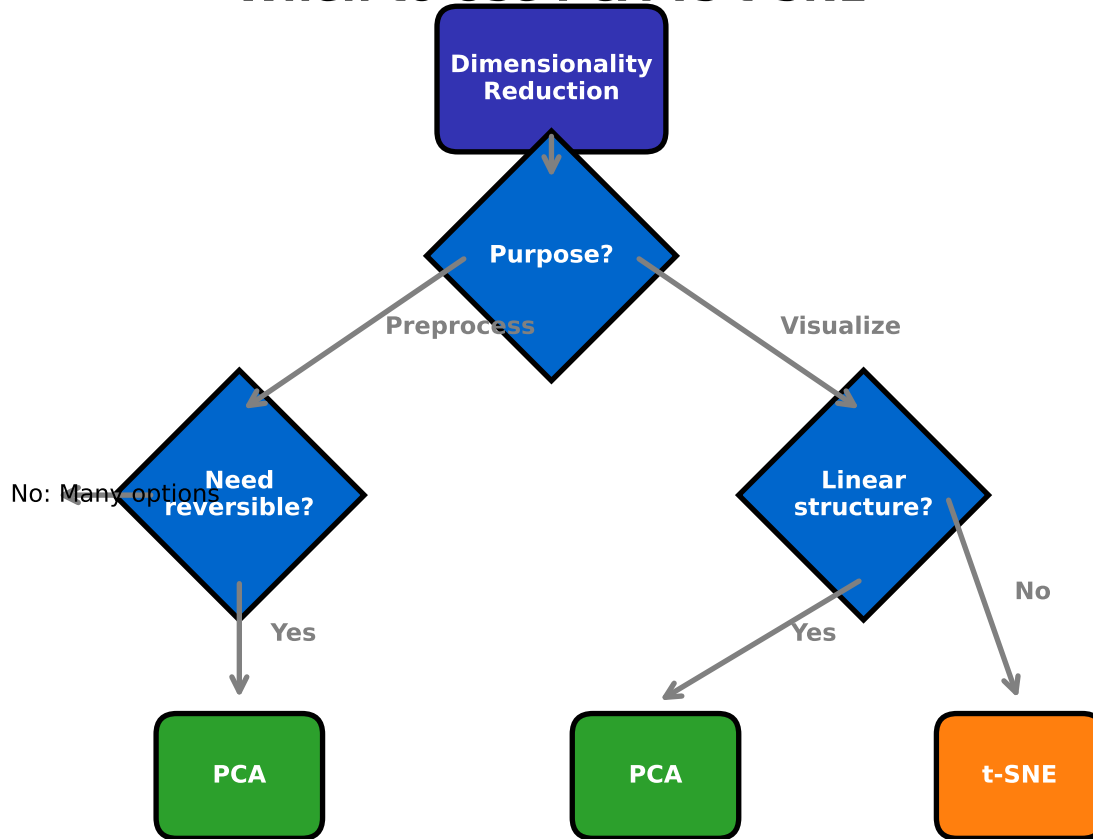
No: Many options

Yes → **PCA**

Yes → **PCA**

No → **t-SNE**

PCA: Fast, linear, reversible, for preprocessing

t-SNE: Slow, non-linear, visualization only, preserves local structure