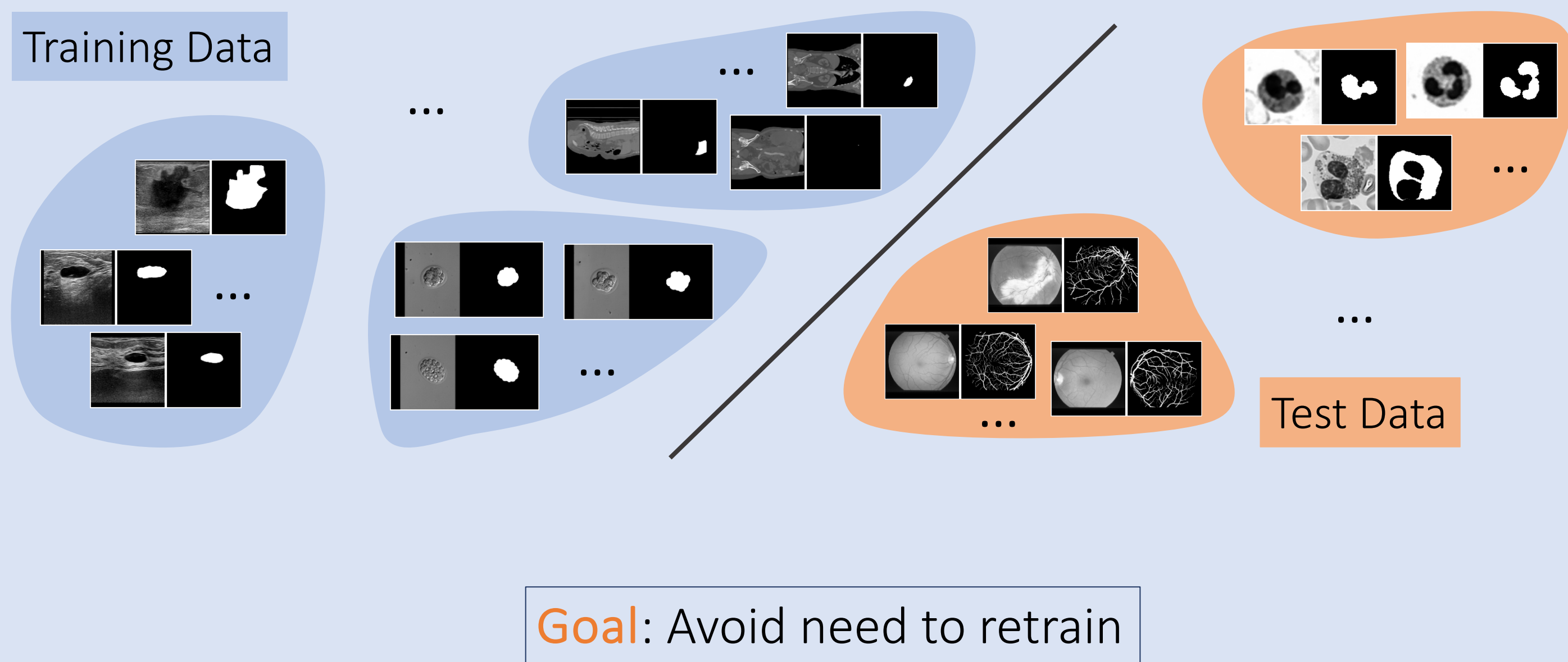


## Motivation

### Challenge 1: Task Diversity

- Many learning tasks -> need to retrain for every new dataset
- Degrees of variability:  
Anatomy, Structure in one anatomy, Modality, Machine settings...



### Challenge 2: Inherent Stochasticity

- Data inherently ambiguous
- Labels can be segmented differently by different raters
- Most models are deterministic and don't model this



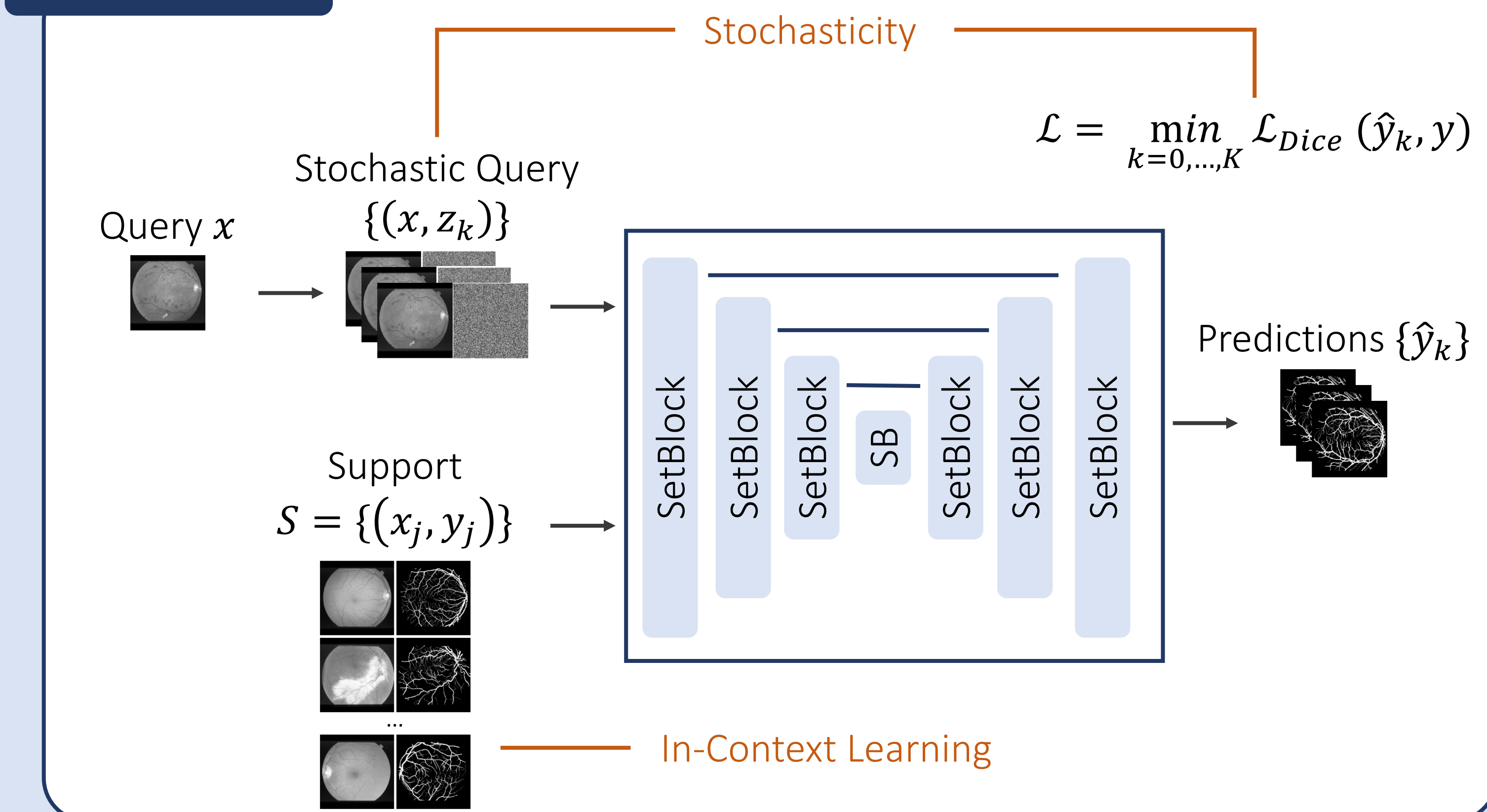
Take away: A single Tyche model produces many candidate segmentations for samples from unseen medical imaging datasets without retraining.

## Tyche Overview

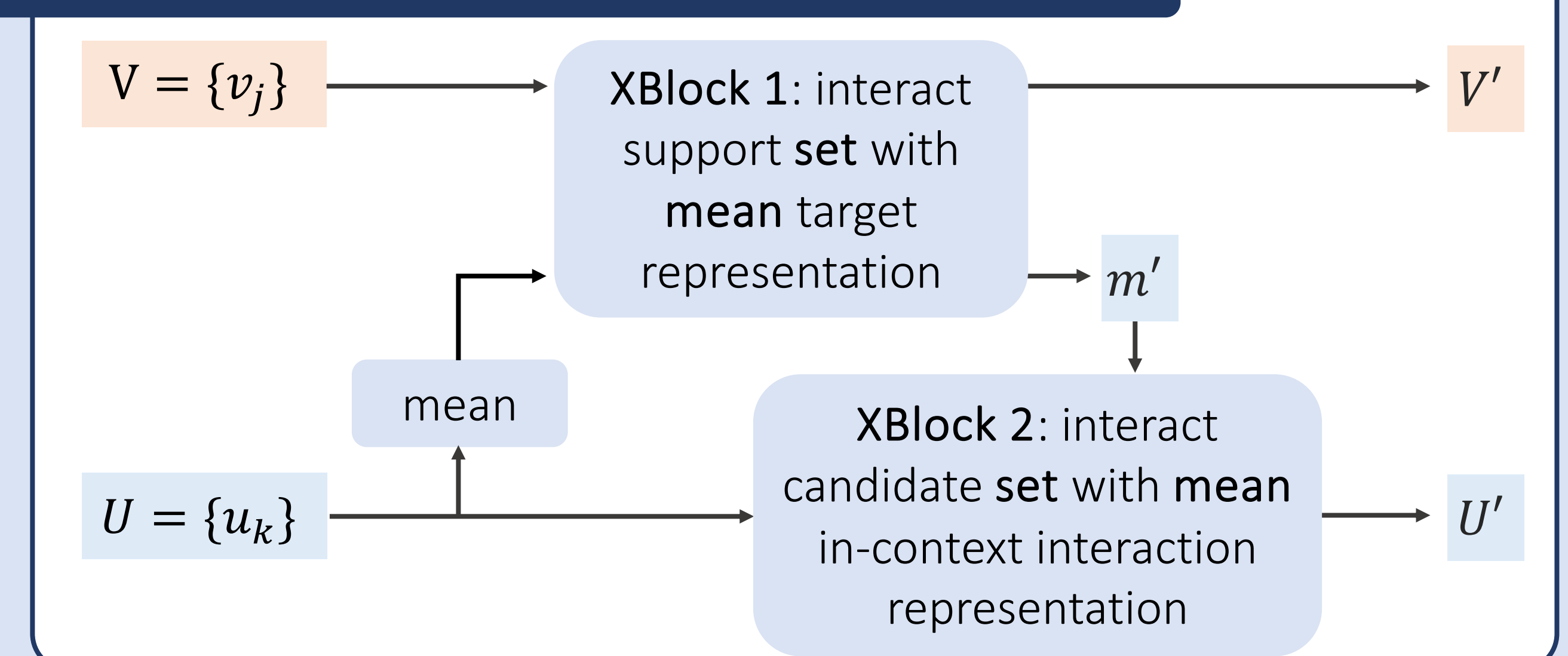
### Model

- Can segment new **unseen** modalities and anatomies
- Provides a **set** of plausible segmentations
- In-context learning with a **support** set of valid image/segmentation pairs to describe potentially-unseen task

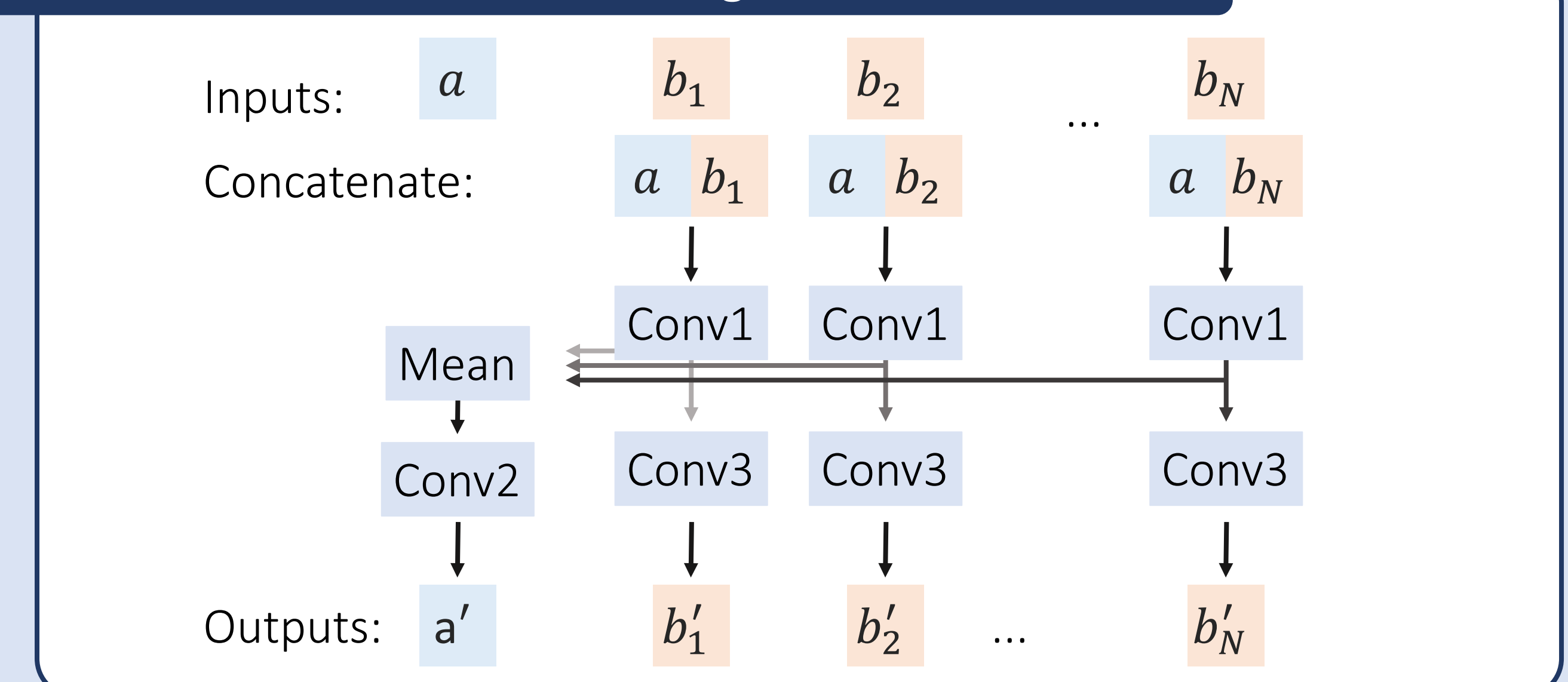
### Architecture



### SetBlock: interaction between two sets



### XBlock: interaction between single feature and set

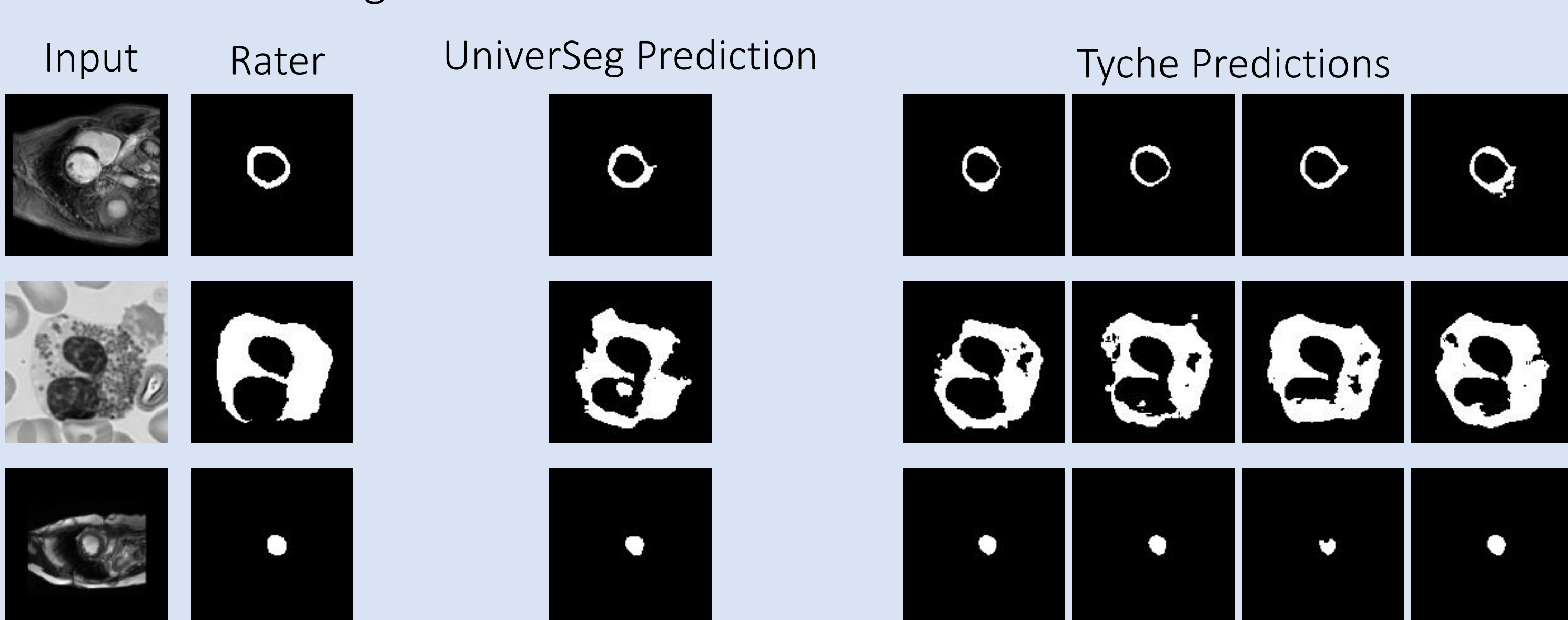


## Qualitative Results

### Datasets with Multiple Raters

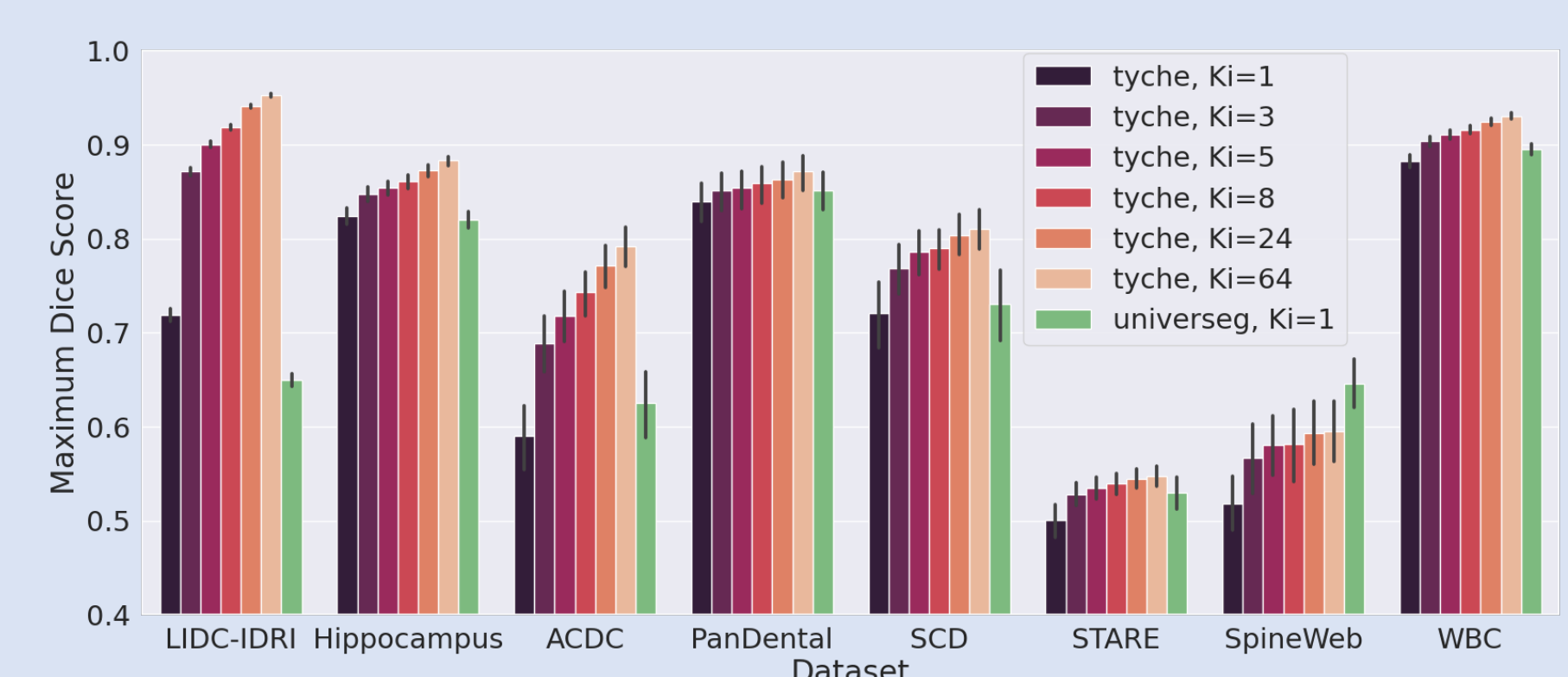


### Datasets with Single Raters

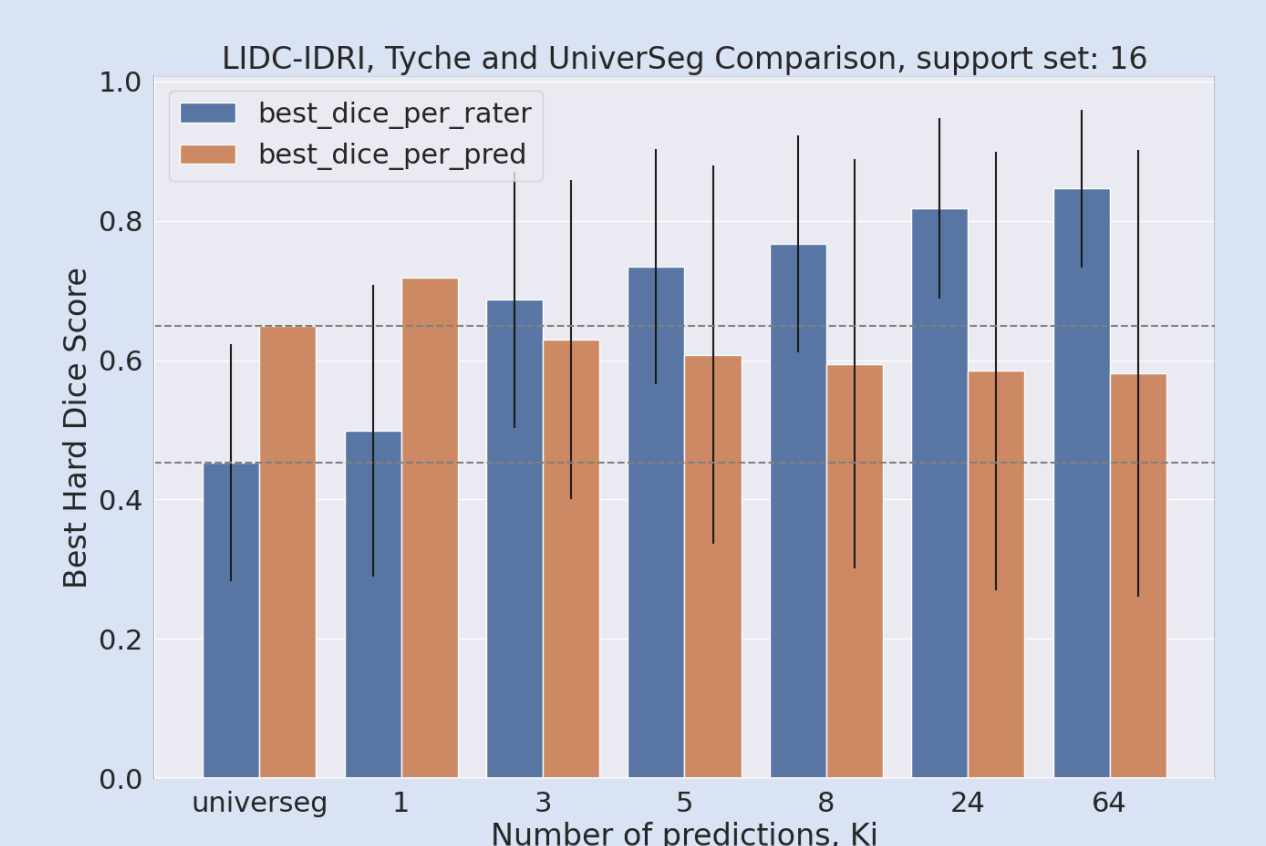
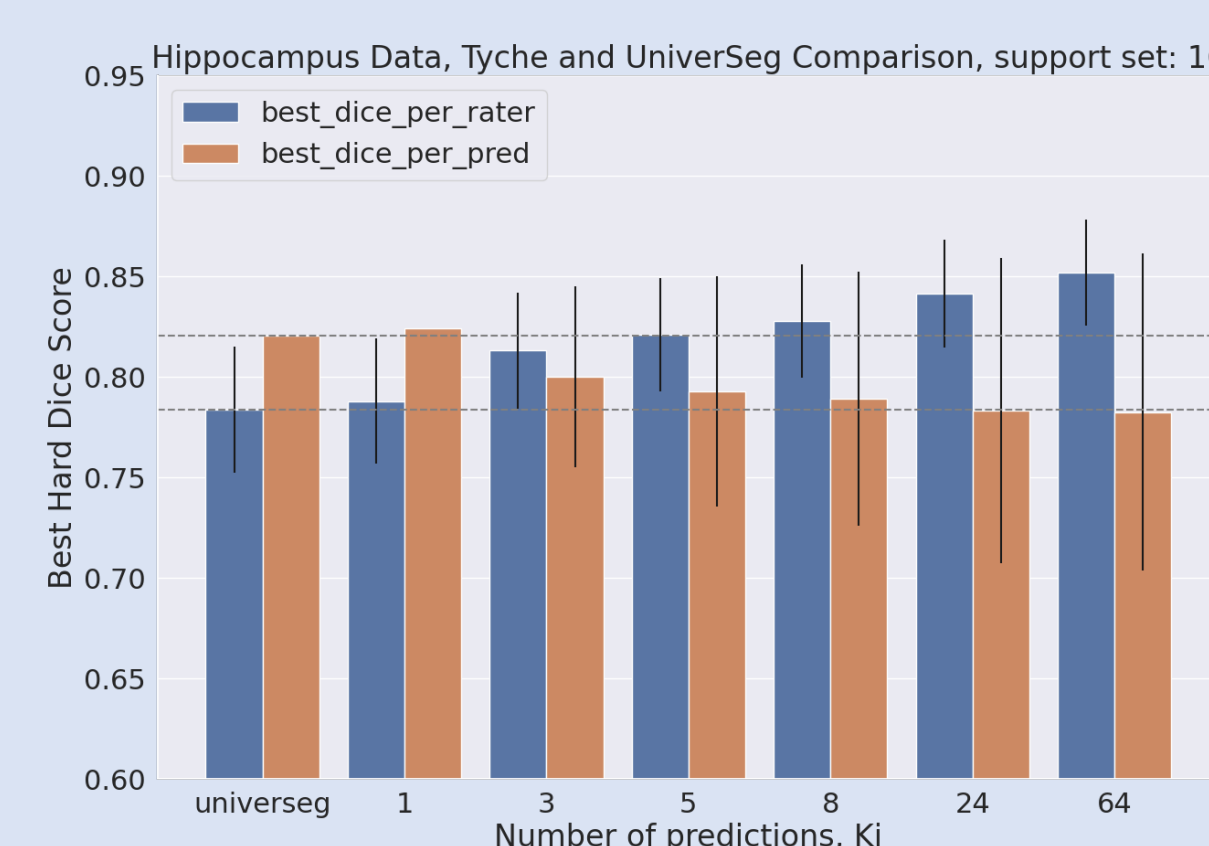


## Quantitative Results

### Best Dice Score per Dataset



### Multi-Rater Data



### Individual Dice score

