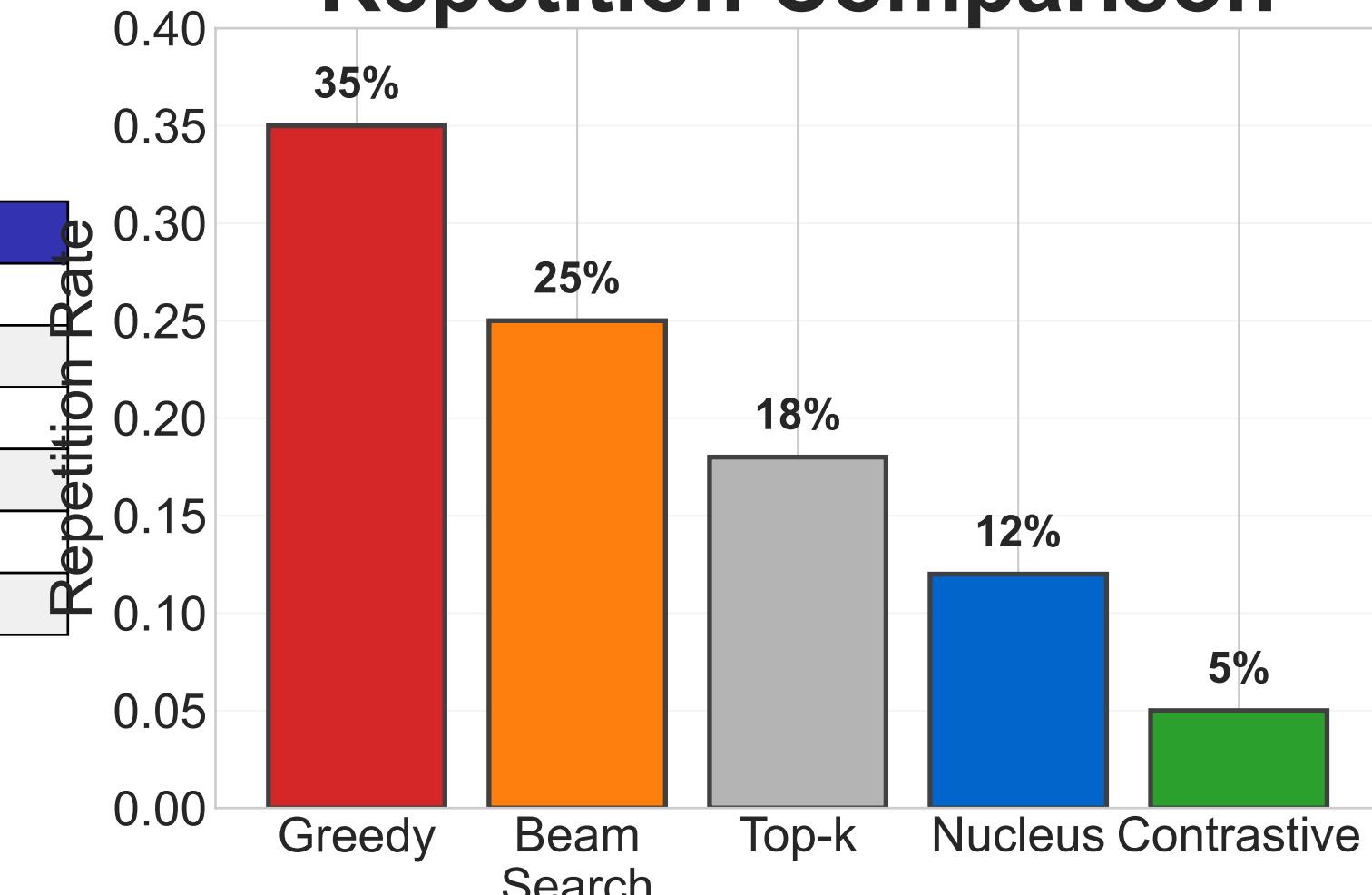


# Contrastive Search vs Nucleus Sampling

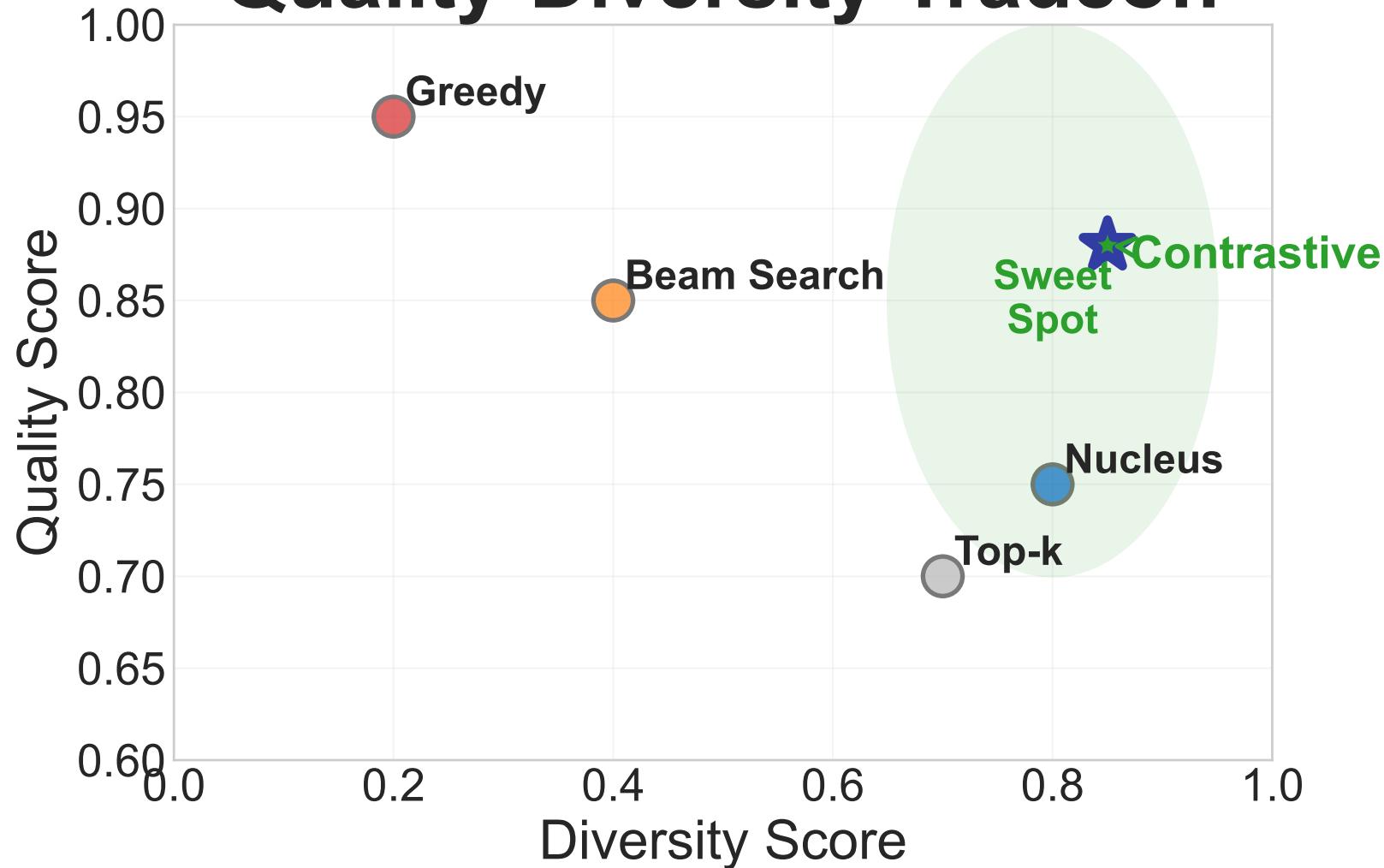
## Method Comparison

Aspect	Nucleus (Top-p)	Contrastive
Diversity	High	High
Repetition	Medium	Very Low
Coherence	Good	Excellent
Speed	Fast $O(V \log V)$	Slower $O(k \times T^2)$
Parameters	p, temperature	$\alpha, k, \text{penalty}$
Best for	General use	Long generation

## Repetition Comparison



## Quality-Diversity Tradeoff



Context: "The weather today is"

### Nucleus Sampling:

- beautiful and sunny with clear skies
- perfect for a walk in the park

### Contrastive Search:

- beautiful with clear blue skies
- perfect for outdoor activities today