

Contrastive Search: How It Works

Step 1: Get to Site #045

- city: 0.45
town: 0.61
area: 0.15
place: 0.12

Score = $(1 - \alpha) \times P(\text{taken}) + \alpha \times \text{similarity}$

$$\text{score} = (1-\alpha) \times P(\text{token}) - \alpha \times \text{similarity}$$

city: $0.4 \times 0.45 - 0.6 \times 0.2 = 0.372$

town: $0.4 \times 0.18 - 0.6 \times 0.75 = 0.3$

area: $0.4 \times 0.15 - 0.6 \times 0.65 = -0.3$

Step 2: Comp

ontext: "th

- City: 0.92
Town: 0.75
Area: 0.65
Place: 0.60

Winner: "town" (high prob, lower similarity)

Key Insight: Balance probability (coherence) with diversity (novelty)

$\alpha=0$: Pure greedy | $\alpha=0.6$: Balanced | $\alpha=1.0$: Maximum diversity

