Approaches for Matcher Performance Modeling

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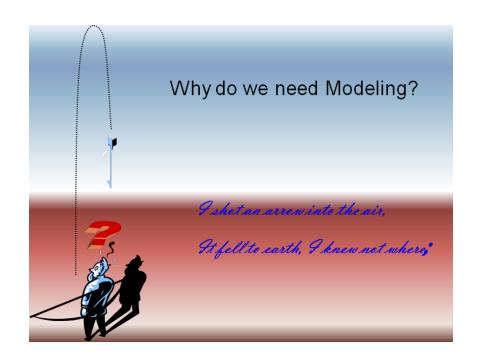
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Modeling

Why Needed

- Effective design of matcher tests requires understanding the likely outcomes
- If the database/background/ repository is greatly increased, what will be the resulting performance
- Increasing the candidate list length means more human effort for adjudication — what is most cost-effective length?

Why do we need Modeling?

I shot an arrow into the air,

It fell to earth, I knew not where;"

Approach

Compare/contrast four approaches:

- 1-Based on a direct fit of the matching scores
- 2-Assume "plausible" forms for matching score distributions; derive candidate OC and CMC from these; fit OC/CMC using experimental data
- 3-Employ self-similarity/scalability arguments to derive general properties — these arguments do not rely on score distributions
- 4-Use intrinsic/natural score to derive distributions
- Lack of space precludes a detailed description of methods – poster does not cover method 4

Solution-space for various approaches and their common intersection

Approach 2

Approach 1

Approach 3

"Fixed-point Solutions" – solutions encountered with all approaches

Approach 4