Estimating Query Representativeness for Query-Performance Prediction

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The query-performance prediction (QPP) task is estimating retrieval effectiveness with no relevance judgments. We present a novel probabilistic framework for QPP that gives rise to an important aspect that was not addressed in previous work; namely, the extent to which the query effectively represents the information need for retrieval. Accordingly, we devise a few query-representativeness measures that utilize relevance language models. Experiments show that integrating the most effective measures with state-of-the-art predictors in our framework often yields prediction quality that significantly transcends that of using the predictors alone.