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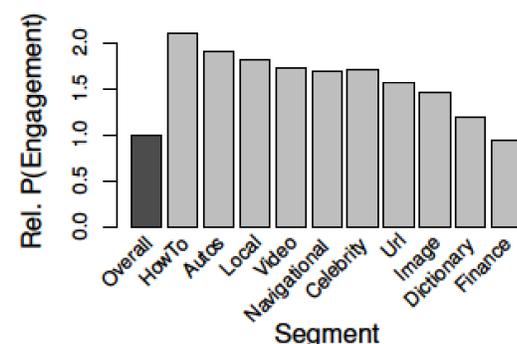
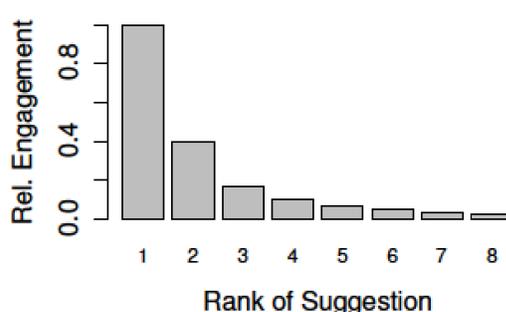
## Summary

First large-scale study of user interactions with query auto-completion feature based on 1.6M queries from Bing's query logs.

### Rank & Type

We see a clear decrease in engagement with lower ranked QAC suggestions which can potentially be explained by strong position bias.

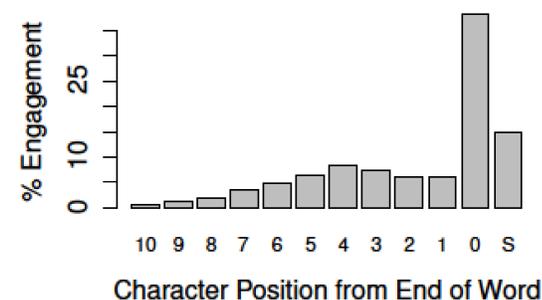
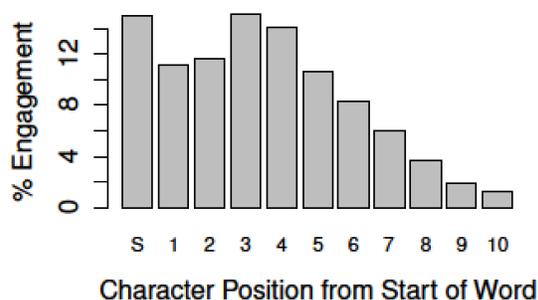
Our data also shows that QAC engagement varies with query class.



### Word Boundaries

Users are more likely to engage with QAC systems at word boundaries. 38% of engagements happen after the user has typed the last character of a word.

Our data shows a bursty nature of typing at the beginning of each word and also that users are less likely to engage as they get closer to the end of a word.

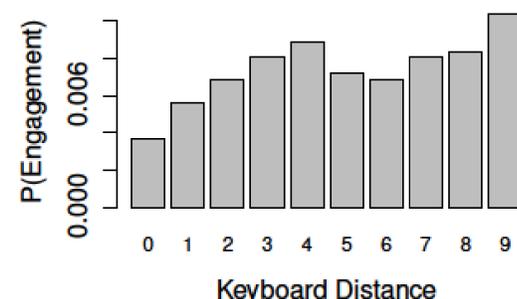
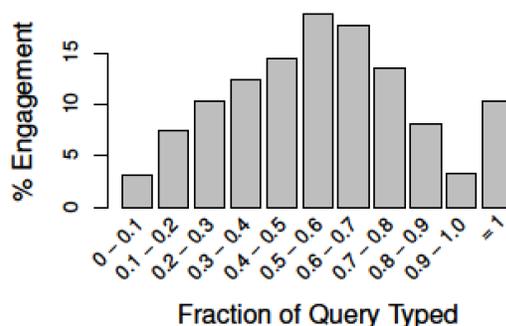


### Fraction Typed & Keyboard Distance

QAC engagements most frequently happens after the user has typed slightly more than 50% of the query, but (interestingly) also in significant proportion after the user has typed the full query.

Our data shows a monotonic increase in the probability of engagement with keyboard distance, up to a distance of 4 keys.

Note: The 4 keys distance is the maximum distance a user's finger must travel on a QWERTY keyboard assuming two-handed typing.



### Distance from rarest n-gram

Are users more likely to engage with QAC when attempting to type words that are difficult to spell? Our data shows that the highest percentage of QAC engagements correspond to when the user has typed the 3rd character of the rarest 3-gram or the 4-gram in the query.

