Identifying Behaviour behind the Zero Results Rate Increase

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Background

One of the core Key Performance Indicators (KPIs) for the Discovery team this quarter is the Zero Results Rate; the rate at which search requests fail to return any results. Our goal for the quarter is to reduce it from the 25% at which it stood at the beginning of the quarter to 15% by the end.

Rather than see this rate decrease, however, we have actually seen it *increase*, particularly in the context of full-text searches. Our task with this report is to explore some hypotheses for where this increase could be coming from.
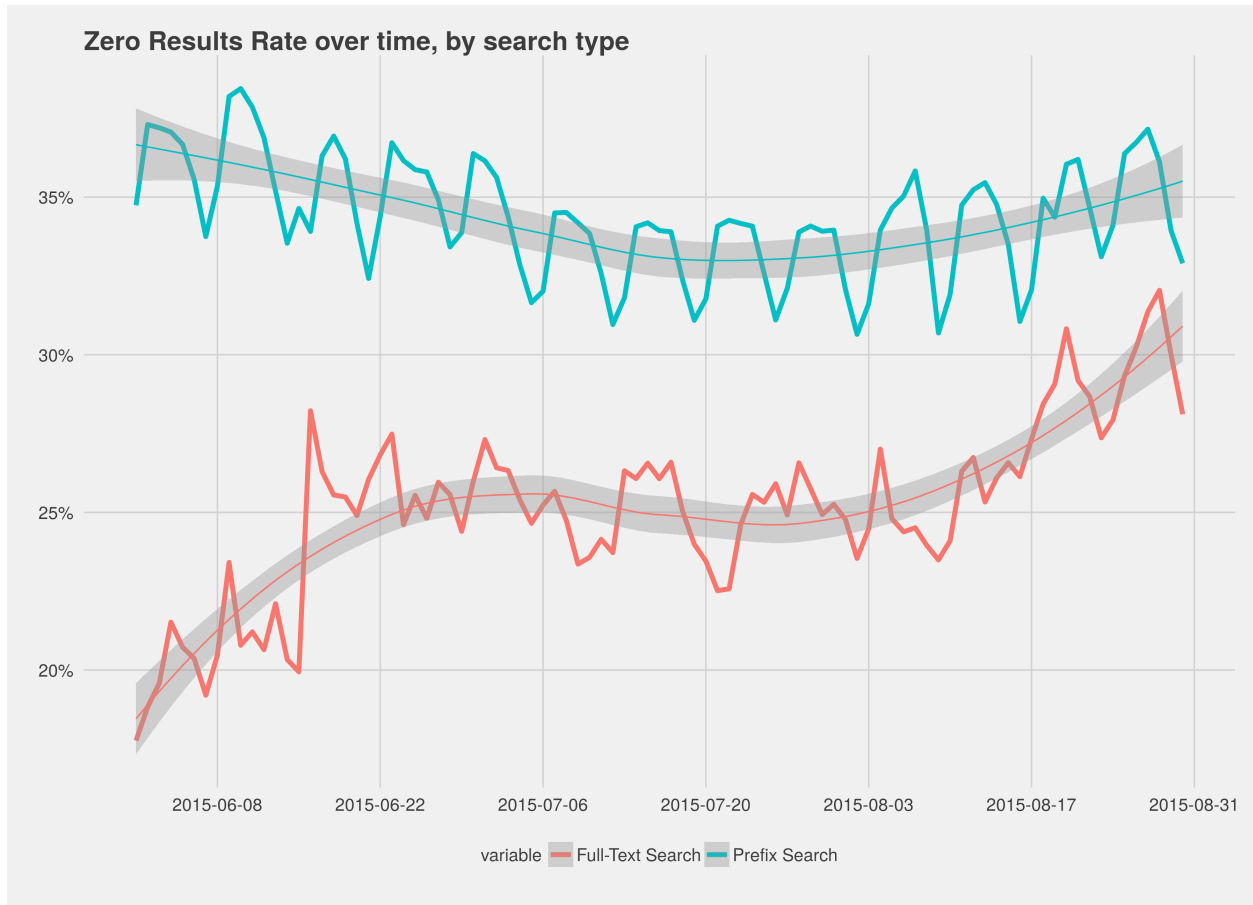
In doing this we are heavily limited by the data we have access to, to the point where answering the question directly by exploring all hypotheses is impossible. This is because the logs that note whether queries returned zero results do *not* note anything about the user, so doing things like detecting automata is impossible.

Exploratory data analysis

One important early piece is to explore the premise of the question; *is* the Zero Results Rate going up?
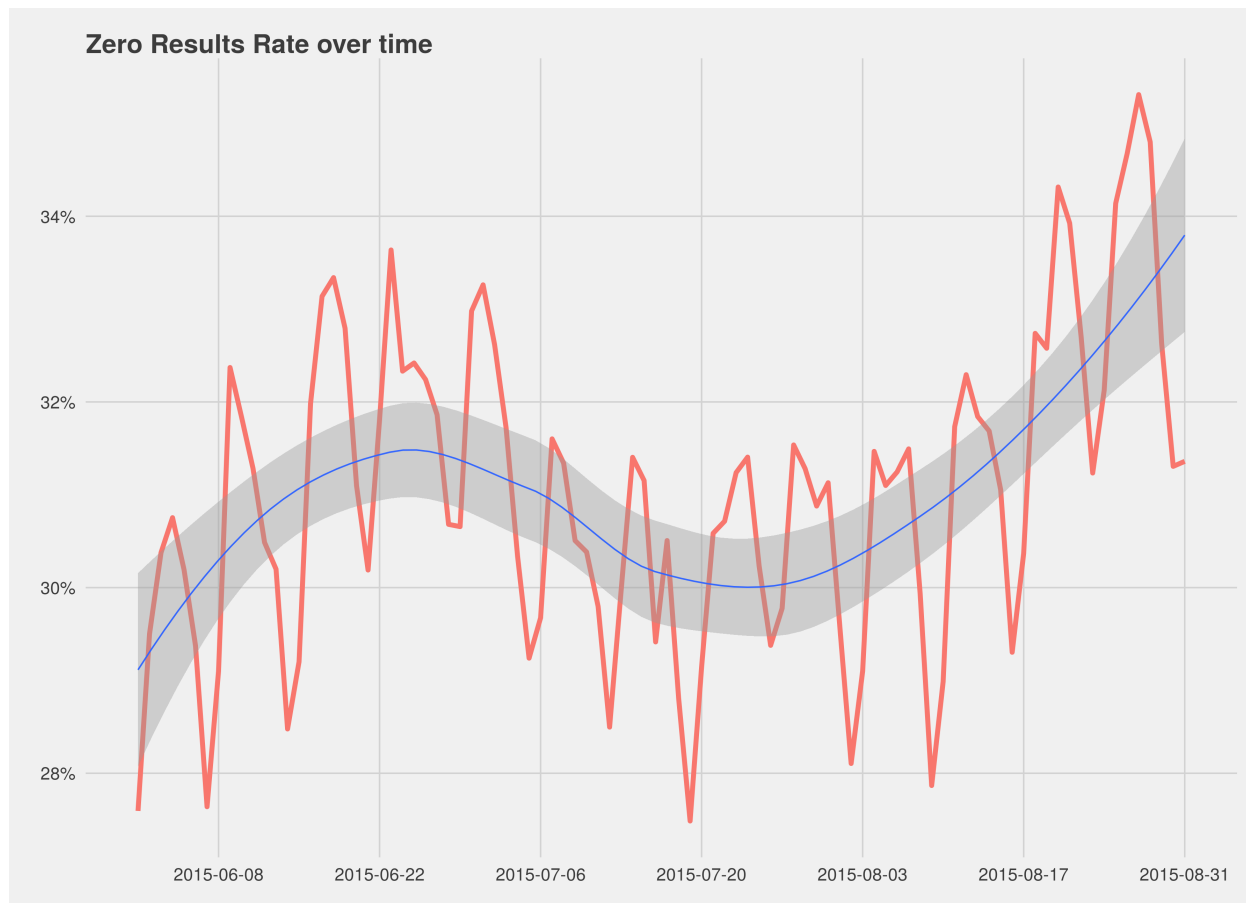
If we examine the overall ZRR (Fig. 1) we see there absolutely is an increase over time (as well as, of unrelated interest, a clear weekly pattern). To dig into this more we can look at the rate broken down by full-text and prefix search:

Zero Results Rate over time, by search type

Hypotheses