

Matching Methods for High-Dimensional Data with Applications to Text

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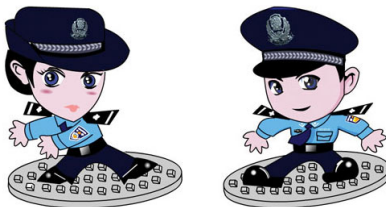


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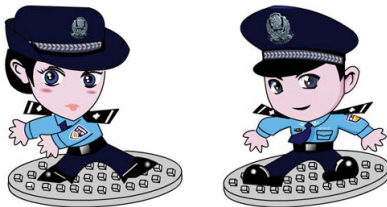
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The perfect experiment



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Problem 1: unethical

Problem 2: we aren't the Chinese government

How Can We Measure Deterrence?

The best approximation:

Find two bloggers



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Find two bloggers

✓ similar users,



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- ✓ similar users,
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How Can We Measure Deterrence?

The best approximation:

Find two bloggers with very similar posts

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How Can We Measure Deterrence?

The best approximation:

Find two bloggers

with similar posts

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written on the same day

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Find two bloggers



Only one censored



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Censorship 'Mistake'

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Does the censored blogger's behavior change?

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Does the censored blogger's behavior change?

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Very little work on this.

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 1. model $p(t_i | \vec{x}_i) \rightsquigarrow$ propensity scores
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- ▶ Both strategies scale poorly with high-dimensional covariates.

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 - ▶ Match on z_i or $\hat{\pi}_i$

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- ▶ could be more efficient if matches were more similar

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 - ▶ thousands of variables, even if we coarsen, no exact match

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 - ▶ pros: **bounds** imbalance on each variable
- ▶ Problem: high-dimensional confounder
 - ▶ thousands of variables, even if we coarsen, no exact match

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Problems with Topical CEM

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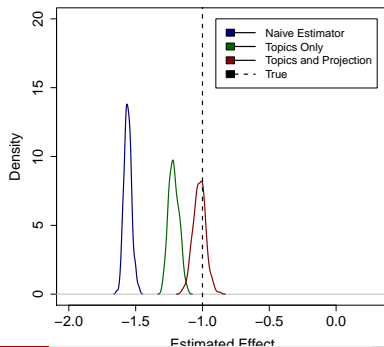
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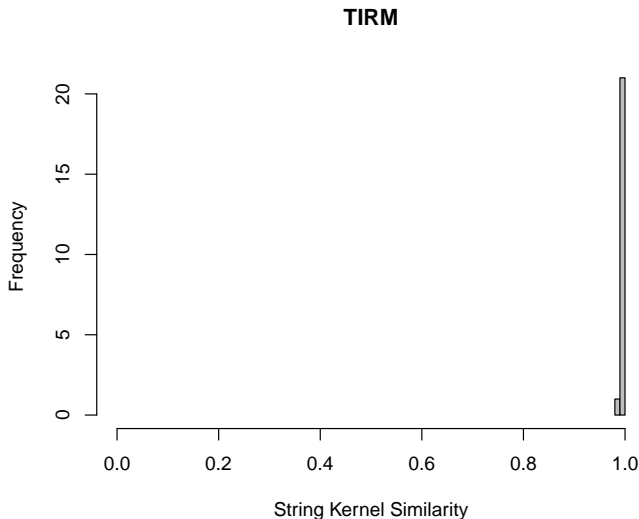
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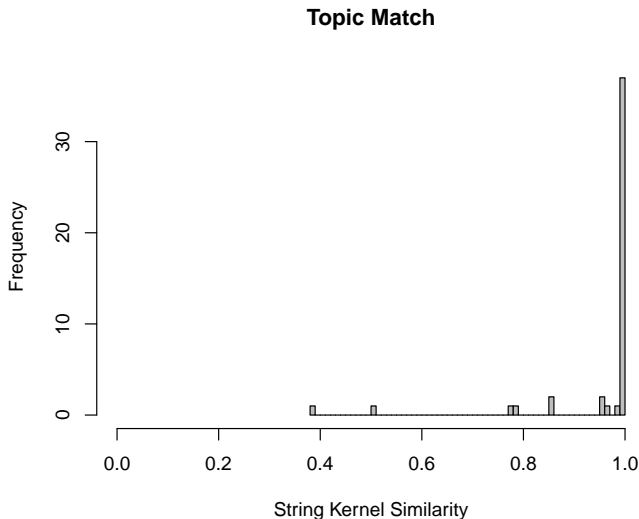
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TIRM Finds Almost Identical Posts

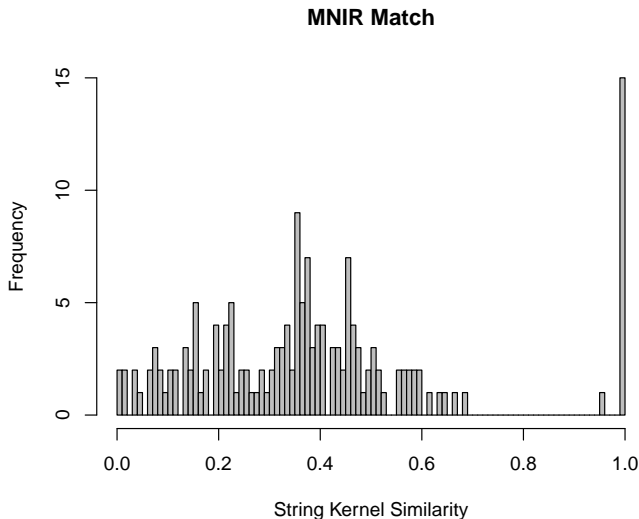
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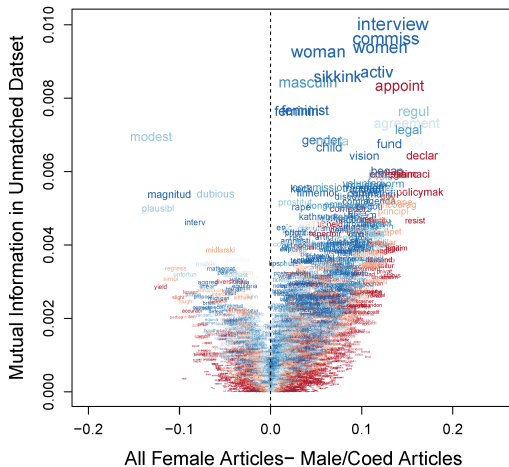
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- ▶ **Our motive:** Find similar articles, see how they are cited differently.

Words men and women use differently in IR

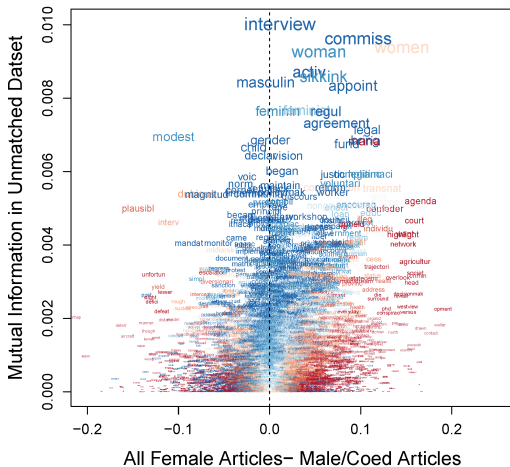
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Topic Matching:



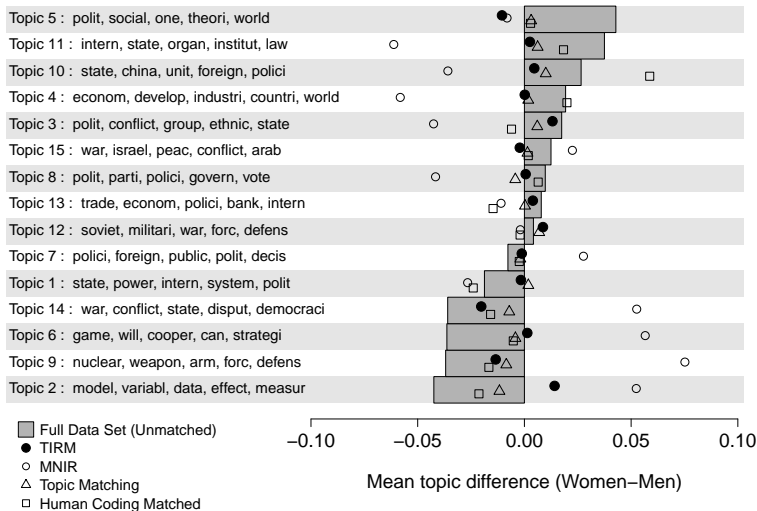
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TIRM Reduces Topical Differences

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Ex. 3: Did killing Bin Laden make his ideas less popular?



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“His **death** will serve as a **global clarion call** for another generation of jihadists.”

– Ed Husain (CFR)

“al-Qaida may emerge even **more radical**, and more closely united under the banner of an **iconic martyr**.”

– Abdel Bari Atwan (The Guardian)

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“The idea that Obama made a strategic misstep by killing a man responsible for the death of thousands of U.S. citizens and committed to killing thousands more is absurd. Rather than making him a martyr, Bin Laden’s killing demonstrated that he was, like the rest of us, mortal.” – Robert Simcox (LA Times)

Ex. 3: Did killing Bin Laden make his ideas less popular?

We don't really know.



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5/2/2011



Anwar al-Awlaki
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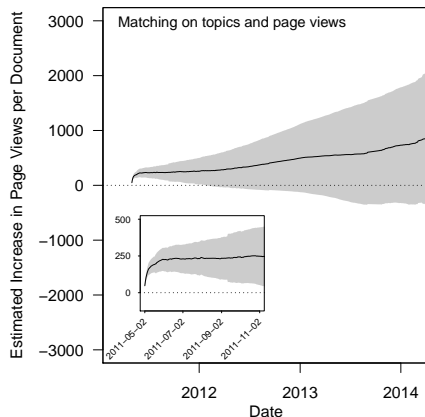


Figure: Estimated effects of Usama Bin Laden's death (on May 2, 2011) on subsequent page views of his documents on a large jihadist web-library.

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