Statistical Lexicosemantics
Analyzing Perspectives in Wikipedia

Keith Maki, Rosé Research Group
LTI, Carnegie Mellon University
Perspective

Source: Roger Peet IN//APPROPRIATE CULTURE (http://inappropriateculture.tumblr.com)
Motivating Questions

● What effect do edits have on the perspective displayed by a collaborative artifact?
  ○ What kinds of edits are associated with perspective changes?
● How do perspectives differ between Wikipedias? Between pages on similar topics?
  ○ Model perspective in a language-independent manner?
Topic Modeling

- Represent documents as sampled from latent word distributions (topics)
- First, distribution of topics is drawn then topics are drawn from distribution
- Each word represents only one topic
- Observed “switching variables” can influence distributions of topics

Example Topic Model Plate Diagram
Perspective Topic Model \textit{(Nguyen et al. 2009)}

- Train on corpus of multiple perspectives
  - Documents labeled with perspective
- Assign bias scores to words in each topic
- High scores indicative of one perspective
- See “what changes” between perspectives

\[
Bias_{d_1,d_2}(w,t) = \log\left(\frac{rank_{d_1}(w,t)}{rank_{d_2}(w,t)}\right)
\]
BitterLemons Corpus

- Popular corpus for investigating perspective
- \( n = 594 \) articles on IPC topics
  - 297 authored by 2 editors, 297 by guests
- Articles labeled with author perspective
  - 51% Israeli
perhaps in the eyes of the international community the problem or one aspect of it is the fourth geneva convention for the majority of israelis who want their country to remain jewish and democratic the real problem today is not international law but our own folly how do we deal with an aggressive energetic and messianic minority that refuses to accept the writ of the government of israel and begin vacating their to accept the writ of the government of israel and begin vacating their settlements

al iraqiya television one of the tv stations founded by the americans and an official iraqi channel speaks of palestine as an occupation but when it talks about iraq it talks about the coalition forces these people also do not find the two cases similar they see the palestinians as having the right to rebel against the israeli occupation and the iraqi resistance as illegitimate
### BitterLemons Corpus

**Perspective classification task**

<table>
<thead>
<tr>
<th>Model</th>
<th>SVM (Lin 2006)</th>
<th>NB (Lin 2006)</th>
<th>OPUS (Greene 2009)</th>
<th>ANB (Hardisty 2010)</th>
<th>(Our model)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Acc (G-&gt;E)</strong></td>
<td>88.22%</td>
<td>93.46%</td>
<td>97.64%</td>
<td><strong>99.93%</strong></td>
<td>96.3%</td>
</tr>
<tr>
<td><strong>Acc (E-&gt;G)</strong></td>
<td>81.48%</td>
<td>85.85%</td>
<td>85.85%</td>
<td>88.28%</td>
<td><strong>91.9%</strong></td>
</tr>
</tbody>
</table>
Wikipedia IPC Articles Timeseries

- Analyze article revision histories
- Bias score anomaly detection
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East Jerusalem Timeseries
In 1950, East Jerusalem, along with the rest of the West Bank, was annexed by Jordan. However, the annexation of the West Bank was recognized only by the United Kingdom, which did not recognize the annexation of East Jerusalem. During the period of Jordanian rule, East Jerusalem lost much of its importance as a commercial hub. It even saw a population decrease, with merchants and administrators moving to Amman. On the other hand, it maintained its religious importance, as well as its role as a regional center.

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East Jerusalem Timeseries
This move excluded many of East Jerusalem’s suburbs and divided several villages and is deemed illegal by the international community. No single nation recognises this annexation by Israel.

With the stated purpose of preventing infiltration during the [[Second Intifada]], Israel decided to surround Jerusalem’s eastern perimeter with a [[Israeli West Bank barrier|security barrier]]. The structure has separated East Jerusalem neighborhoods from the West Bank suburbs, some of which are under the jurisdiction of the [[Palestinian Authority]]. The separation barrier has raised much criticism, and the [[Israeli Supreme Court]]

By deliberately angering Palestinians, Ariel Sharon with his unwelcome visit to the Dome of the Rock, started the [[Second Intifada]]. Israel decided to surround Jerusalem’s eastern Arab part with a [[Israeli West Bank barrier|wall]], thus separating the Palestinians in East Jerusalem from their relatives on the other side. The structure has isolated East Jerusalem neighborhoods from the West Bank suburbs,
East Jerusalem Timeseries
Open questions

- Are perspective trends similar across articles?
- Is author behavior similar across articles?
- Does perspective influence article quality?
- Talk pages?
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(What is article quality??)
References


