Measuring News Bias in Complex Media Systems

A New Approach to Big Media Analysis

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Structure of the thesis

• **Substantive**
  1. “Measuring news bias: Russia’s official news agency ITAR-TASS’s coverage of the Ukraine crisis” (Published in *The European Journals of Communication*).
  2. “The spread of the Kremlin’s narratives by a western news agency during the Ukraine crisis’ (Published in *The Journal of International Communication*).

• **Methodological**
  3. “Newsmap: A semi-supervised approach to geographical news classification” (Published in *Digital Journalism*).
  4. “Big Media Analysis: Application of Vector Space Models to Document Scaling” (Under-review by *Communication Methods and Measures*).
What is “media bias”?

• The central theme in media studies and journalism
  • News bias is one of the most widely discussed topics in journalism (Barkho, 2013b; Donsbach & Klett, 1993; Maras, 2012).

• Refers to a lack of ‘objectivity’ in news reporting

• But there is disagreement on definitions of news bias
  • Different terms such as ‘objectivity’, ‘impartiality’, ‘balance’ or ‘fairness’
  • Definitions of news bias coming from how news bias is measured

• Studies concentrated to the US media system
  • News coverage of elections (parties, candidates and agendas) in the US
  • Fewer studies in European media systems
What is “complex media system”?

• **Simple media systems** (the good old days)
  - Strong influence of **national broadcast** media (TV networks)
  - **Two-party** political systems (e.g. US, and UK until 2010)
  - Mass media is **independent** from political groups (guaranteed by regulations)

• **Complex media systems**
  - Strong influence of **regional** or **online** media (cable and internet)
  - **Single-party** or **multi-party** systems (Europe, Asia etc.)
  - Mass media is **affiliated** with political groups
What is “big media analysis”?

• It implies “big data” analysis of mass media

• Large scale analysis of media is necessary to find news bias
  • Only longitudinal analysis can show systematic patterns in news reporting
  • News media is one of the most productive sources of textual data (N=155,978)

• Requires a set of new techniques for analysis of media content
  • Media data is large and noisy (mixture of different topics and voices)
  • Bias in news is usually implicit
Why international news?

• International news industry is the most complex media system
  • National media systems are subsystems
  • Absence of truly global news organizations
  • World system is mixture of large and small countries
  • International news organizations are affiliated with home countries

• Good testing ground for my new approach
  • Analyze English-language services of Russia’s ITAR-TASS and other news agencies
Why ITAR-TASS and the Ukraine crisis?

• **ITAR-TASS**
  - It is the successor of **Soviet TASS**, and owned and controlled by the Russian government
  - Russian government has been investing in international media to enhance its “soft power” (e.g. Russia Today)

• **Ukraine crisis**
  - Ukraine crisis is the latest **major geopolitical event** in Europe
  - Russia’s has vested interest in Ukraine as a **buffer zone to NATO** and a potential member of the **Eurasian Union**
  - Ukraine crisis is considered as a “**information war**” (e.g. *President Putin’s Fiction: 10 False Claims About Ukraine* by US State Department)
My approach to news bias

• **Definition**
  - **Instrumental use of the mass media for the interest** the owner (Russian government)

• **Measurement**
  - **Positive-negative tones** of news stories on **Ukraine’s democracy** and sovereignty

• **Strategy**
  - Compare two Russian news agencies: **ITAR-TASS** (state-owned) and **Interfax** (independent)
  - Find **systematic patterns** in news coverage relatively to the benchmark media in longitudinal analysis (January 2013 to December 2014)
Theory behind my approach

- News production is **selection of stories** from all the potential stories
- **Systematic choice** of particular stories leads to news bias
- There are **political motives** behind the systematic choice of stories
New text analysis techniques

• **Geographical classification** (Newsmap)
  - Train **semi-supervised** geographical news classifier (use small geographical dictionary for machine learning)
  - Extract names of places, people and organizations automatically from a large corpus
  - Newsmap outperforms complex geographical information extraction systems (e.g. Reuters’ Open Calais and Geoparser)

• **Sentiment analysis** (Latent Semantic Semantic Scaling)
  - Estimate sentiment parameters in a **vector space model** (LSA) with existing seed words (Turney & Littman, 2003)
  - Score documents in the same way as Wordscore (Benoit & Laver, 2003)
  - Replicates human coding (r > 0.70)
Framing of democracy

Framing of sovereignty

E1  Yanukovich demands legal reforms to MPs for EU association plan
E2  The trade agreement with the EU is abandoned by Yanukovych
E3  Protest against the pro-Russian regime in Kiev intensifies
E4  Yanukovych is removed from presidency by the parliament
E5  Crimea referendum is held and 95% support accession
E6  Military operations against separatists are launched
Analysis of Western news agencies

Watanabe, Kohei. ‘The Spread of the Kremlin’s Narratives by a Western News Agency during the Ukraine Crisis’. The Journal of International Communication 23, February 2017
Correlation with ITAR-TASS’s coverage

\[ P(r > 0) = 0.99; \text{med}(r) = 0.81 \]

\[ P(r > 0) = 0.58; \text{med}(r) = 0.06 \]

\[ P(r > 0) = 0.70; \text{med}(r) = 0.21 \]

Watanabe, Kohei. ‘The Spread of the Kremlin’s Narratives by a Western News Agency during the Ukraine Crisis’. *The Journal of International Communication* 23, February 2017
Findings

• Russian government utilized ITAR-TASS for international propaganda as part of its ‘hybrid war’
  • ITAR-TASS’s news stories mix facts and fictions citing both Russian and Western sources to enhance credibility
  • Russia’s propaganda during the Ukraine crisis calling for protection of Russian minorities was a prelude to full-scale military intervention (e.g. 2008 Russo-Georgian war)

• Reuters could have caused the confusion on the Ukraine crisis
  • Reuters news stories are published on Yahoo News and Huffington Post (100 million unique visitors per month)
  • Western news agencies could be employed by non-Western governments in international propaganda
Conclusion

• Today’s international news gathering and distribution system is **vulnerable to state-sponsored propaganda**
  • Media scholars need to conduct **large scale analysis** of media content to counter propaganda (or ‘fake news’)

• We need to develop **more tools and techniques** for media analysis
  • Large media data requires **text analysis tools** (e.g. quanteda)
  • **Semi-supervised techniques** are very useful in media studies