

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**

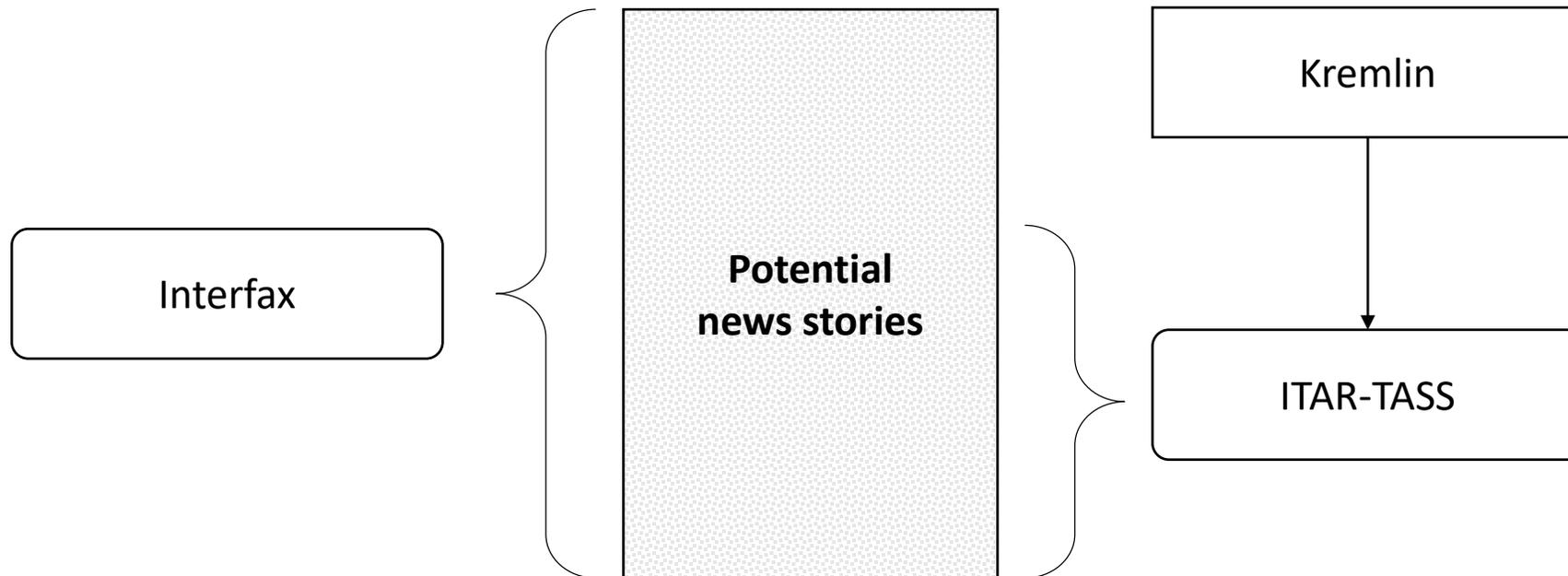
- Ukraine crisis is the latest **major geopolitical event** in Europe
- Russia's has vested interest in Ukraine as a **buffer zone to NATO** and a potential member of the **Eurasian Union**
- Ukraine crisis is considered as a “**information war**” (e.g. *President Putin's Fiction: 10 False Claims About 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 Decembter 2014)

Theory behind my approach

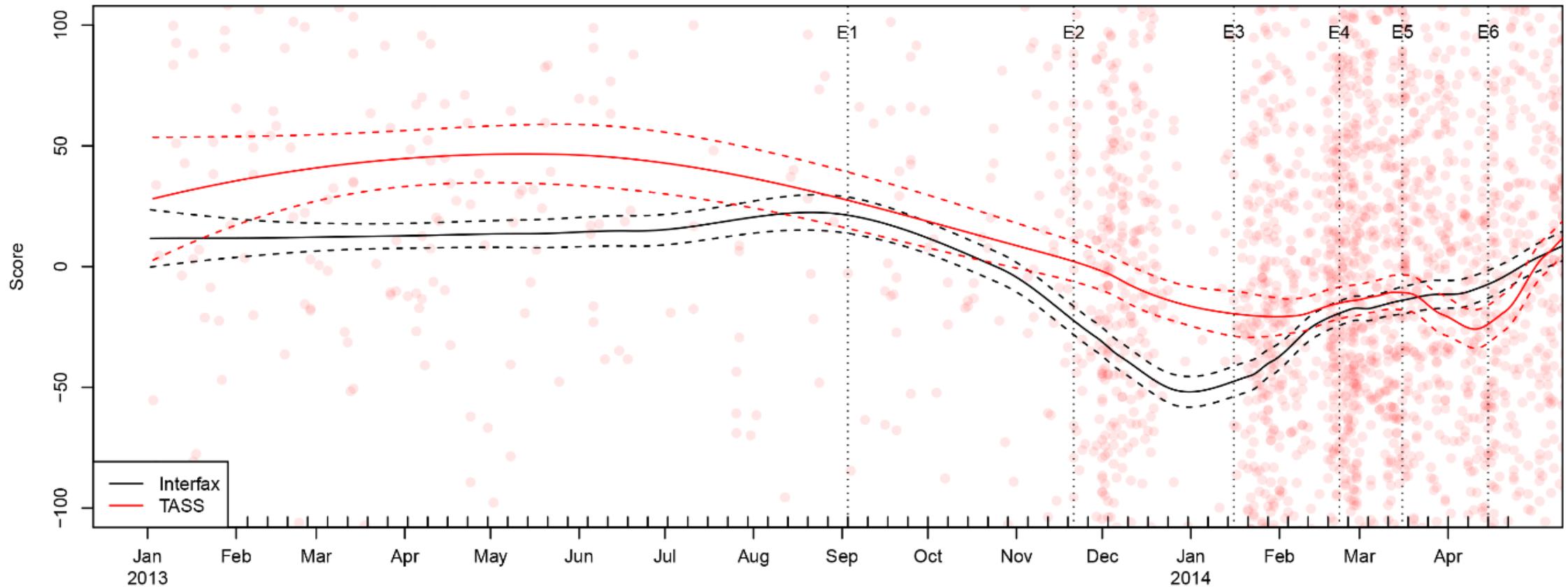
- News production is **selection of stories** from all the potential stories
- **Systematic choice** of particular stories leads to news bias
- There are **political motives** behind the systematic choice of stories



New text analysis techniques

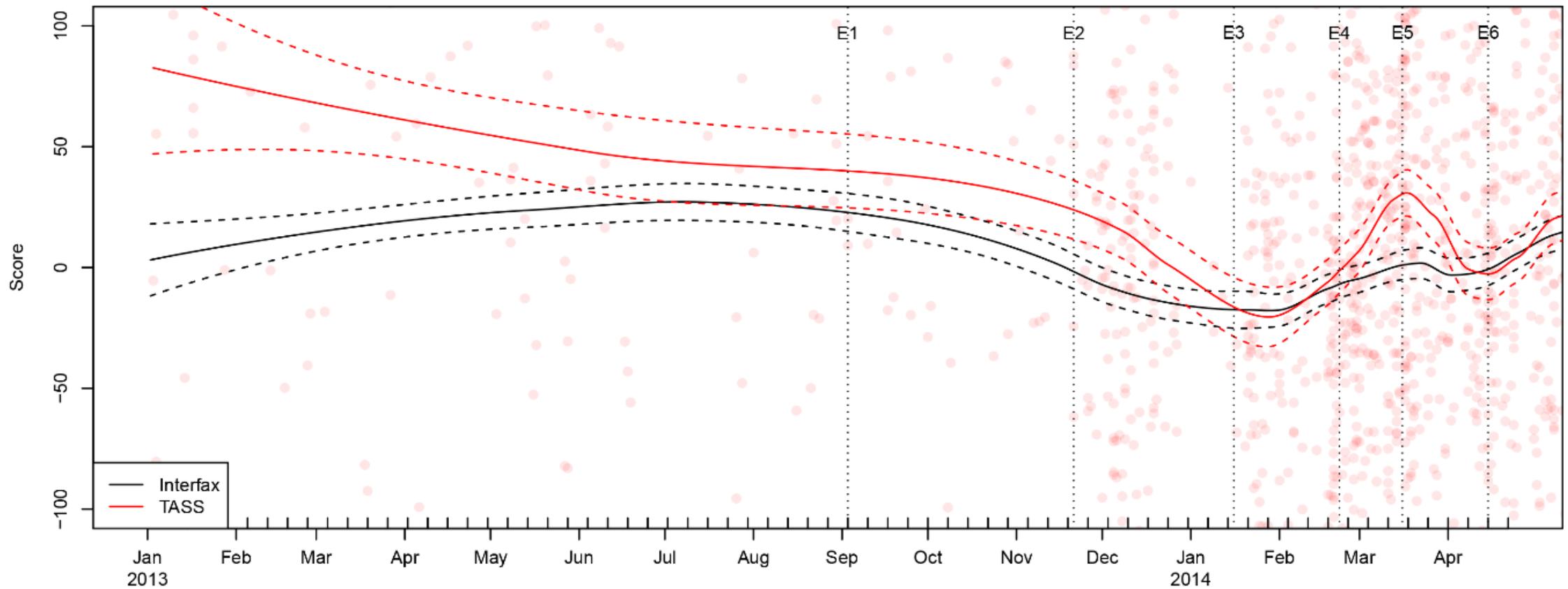
- **Geographical classification** (Newsmap)
 - Train **semi-supervised** geographical news classifier (use small geographical dictionary for machine learning)
 - Extract names of places, people and organizations automatically from a large corpus
 - Newsmap outperforms complex geographical information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



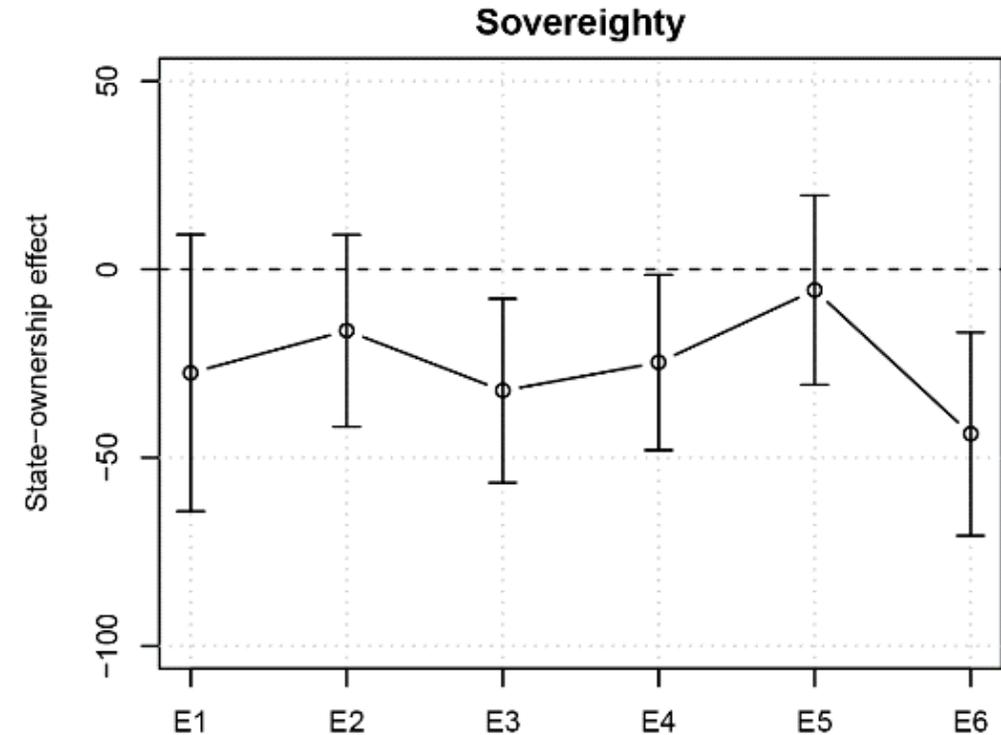
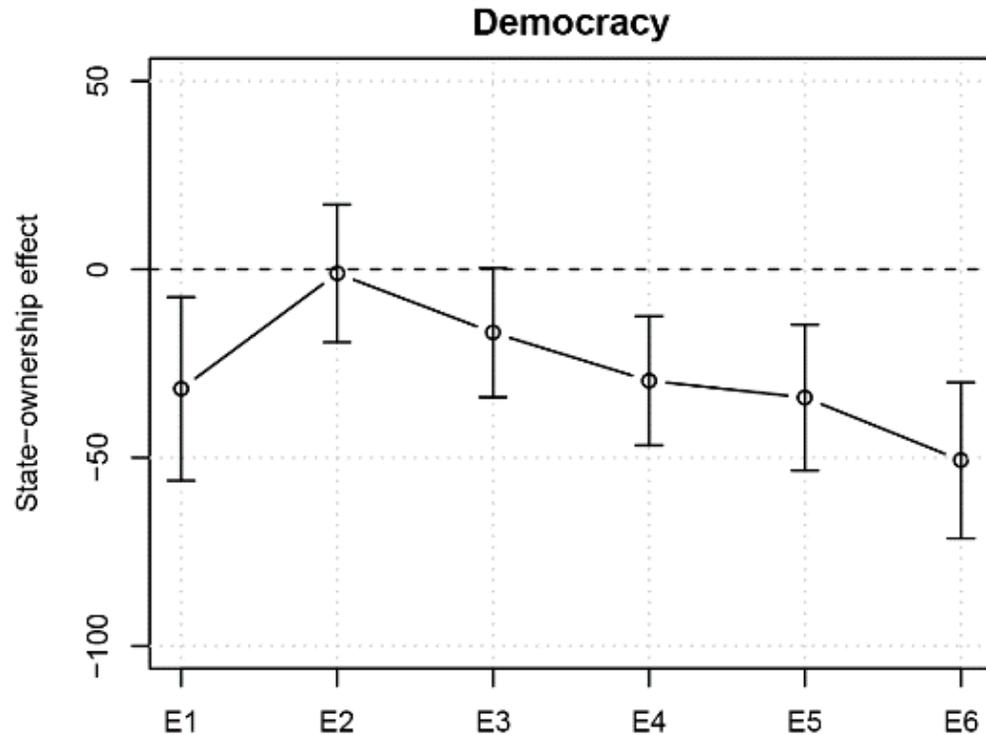
Watanabe, Kohei. 'Measuring News Bias: Russia's Official News Agency ITAR-TASS' Coverage of the Ukraine Crisis'. *European Journal of Communication*, 20 March 2017.

Framing of sovereignty



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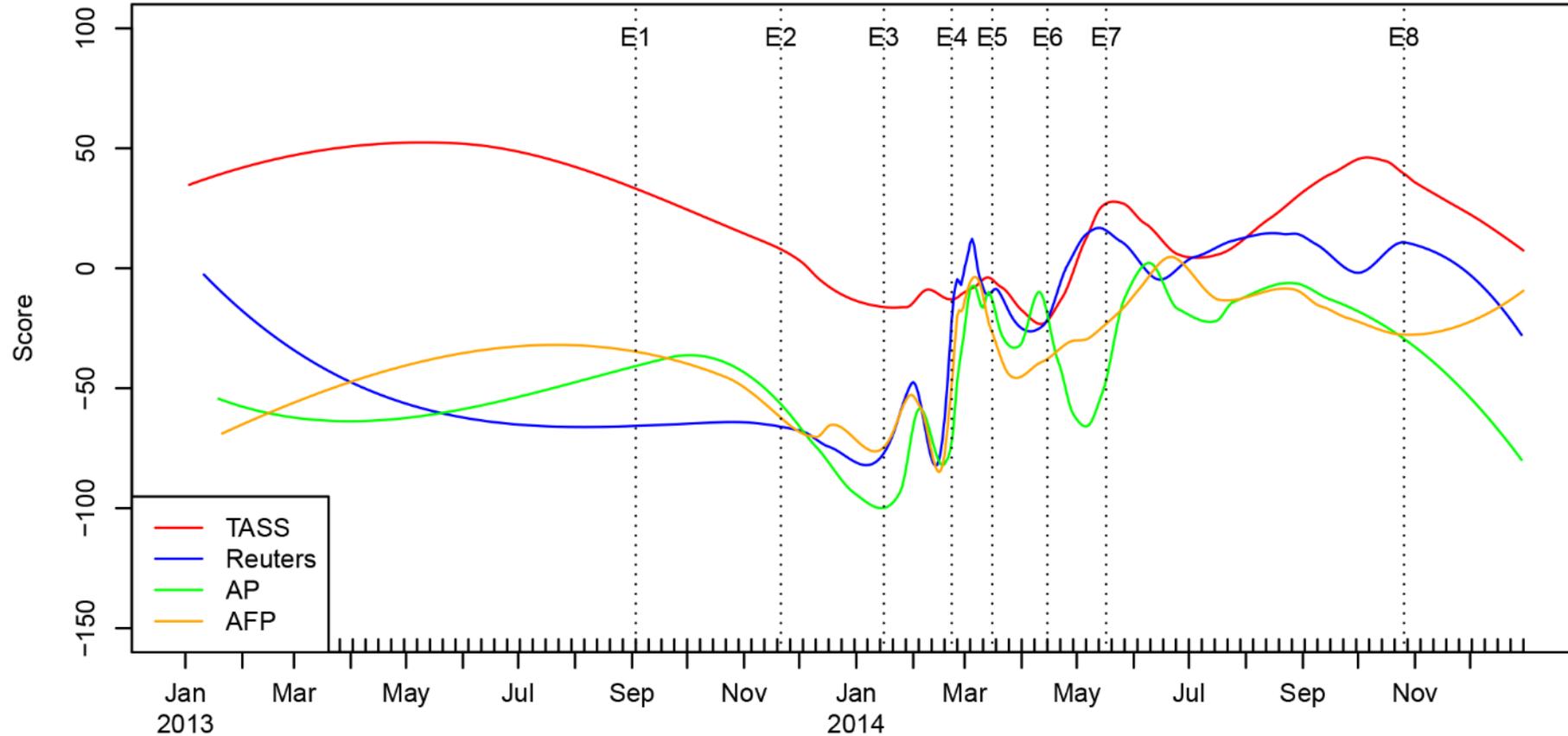
Estimated bias in ITAR-TASS



- E1 Yanukovich demands legal reforms to MPs for EU association plan
- E2 The trade agreement with the EU is abandoned by Yanukovich
- E3 Protest against the pro-Russian regime in Kiev intensifies

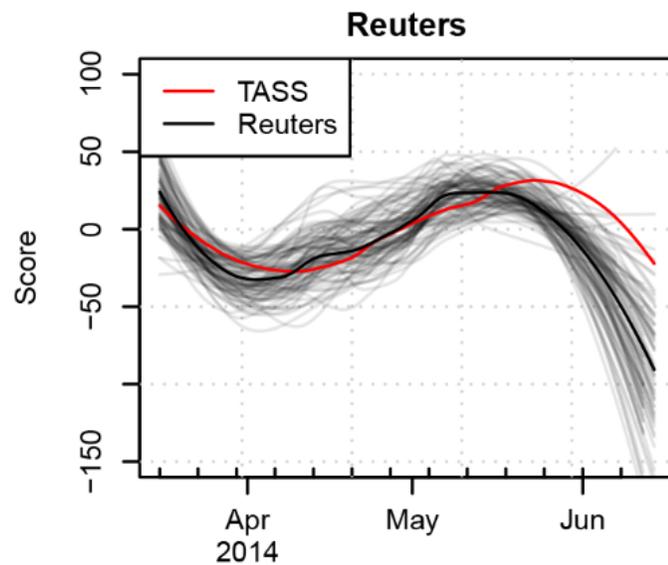
- E4 Yanukovich is removed from presidency by the parliament
- E5 Crimea referendum is held and 95% support accession
- E6 Military operations against separatists are launched

Analysis of Western news agencies

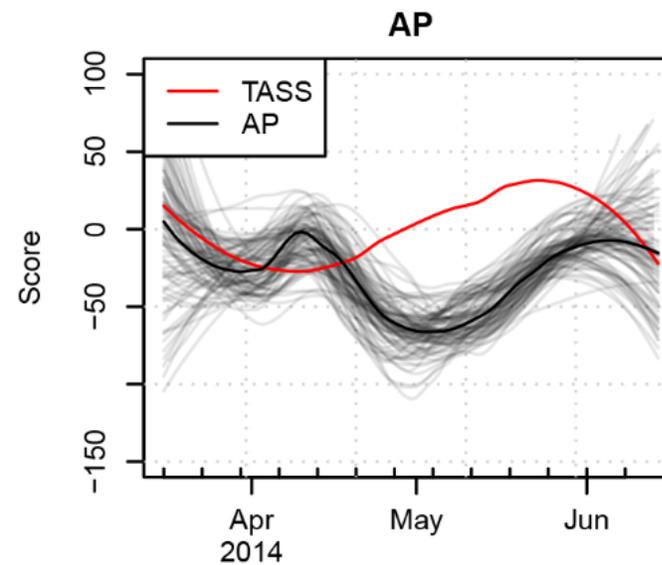


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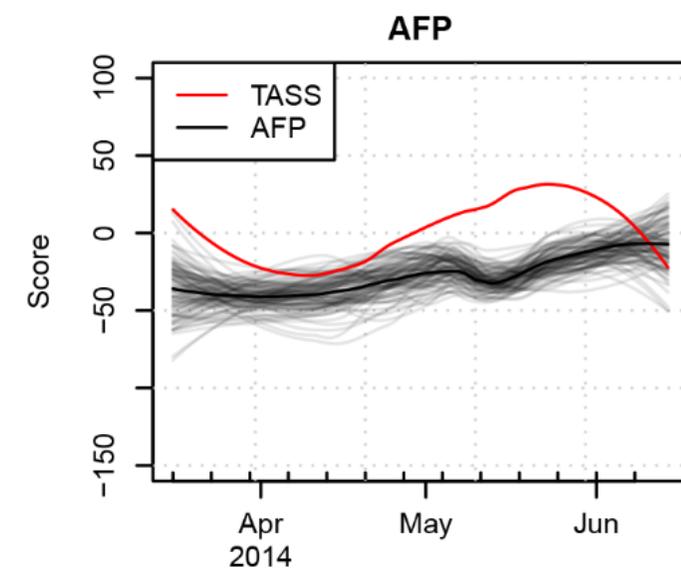
Correlation with ITAR-TASS's coverage



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



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



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

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