Separating Facts from Fiction: Linguistic Models to Classify Suspicious and Trusted News Posts on Twitter

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Motivation
62% of U.S. adults get news on social media
64% of U.S. adults said that “made-up news” has caused a “great deal of confusion” about the facts of current events

Deception detection:
- Seng et al. 2012, Mihalcea and P’erez-Rosas 2015
- Rubin et al. 2015
- Qazvinian et al. 2011, Liu et al., 2015

Fake News Types

<table>
<thead>
<tr>
<th>Propaganda</th>
<th>Hoax</th>
<th>Clickbait</th>
<th>Satire</th>
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<tbody>
<tr>
<td>Intent to Deceive</td>
<td>No Intent to Deceive</td>
<td></td>
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Propaganda deliberately spread misinformation

Hoax seek to mislead for financial or political gain

Clickbait take bits of true stories but insinuate details

Satire take fun of the news

Twitter News Dataset

Brussels Bombing: March 15th–29th, 2016
130K retweets (deduplicated)

100+ fake news accounts:
- Propaganda: infowars
- Hoax: DRUDGE_REPORT
- Satire: ClickHole
- Clickbait: 21wire

Account-level vs. tweet-level annotations:
- Fake news: http://www.fakenewswatch.com/
- PropOrNot: http://www.propornot.com/p/the-list.html

Types of fake news: propaganda, hoax, clickbait, satire

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Fake News Prediction

Build tweet-level neural network models to differentiate between:

I. Trusted vs. fake news posts (130K)
II. Types of fake news: propaganda, hoax, clickbait, satire (65K)

Linguistic Signals

- Moral Foundation Theory: Harm, Care, Loyalty, Betrayal, Authority
- Assertive, Factive, Hedging, Implicative, Report Verbs
- Biased Language
- Subjective Language
- Psycholinguistic Markers
- Syntax and Grammar
- Connotation Signals
- One-hot @mention vectors

Who? How? What?

learn jointly: content + linguistic markers + social graph

Linguistic Analysis

Predict fake vs. trusted news:
- linguistic signals

Infer types of suspicious news:
- social interactions

Message Propagation Patterns

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