Fake News, Content Atomization, and Information Literacy

"Digital Scholarly Cycle Disruptions and the Academic Library: Challenges and Opportunities"

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Recipes for Fake News

Authors Mustafaraj and Metaxas (2017) illustrate how fake news and misinformation are spread in Twitter and Facebook:

Step 1	Register a domain name for a new website, for example: http://coakleysaidit.com
Step 2	Create anonymous accounts, for example: CoakleySaidWhat, etc.
Step 3	Identify a community of users interested in the topic, for example, the MA Senate Election race.
Step 4	Target members of this community with messages, for example, reply to users providing link to website.
Step 5	Wait for members of community to spread message via retweets in their organic subnetworks.

Table 1: A recipe for spreading misinformation on Twitter via a "Twitter-Bomb".

Step 1	Register web domains for lots of related websites, with catchy names such as: http://TrumpVision365.com, see [17].
Step 2	Create Facebook accounts of fictitious people, e.g. Elena Nikolov or Antonio Markoski, see [18].
Step 3	Identify and join a Facebook group about a political candidate, e.g., "Hispanics for Trump" or "San Diego Berniecrats", see [18].
Step 4	Target members of the Facebook group with posts, by linking to the fake news website stories, see [18].
Step 5	Wait for members of the group to spread the fake news in their organic subnetworks, by sharing and liking it.

Table 2: The recipe for spreading "fake news" on Facebook in the wake of the 2016 U.S. Presidential election. It contains the same steps as the recipe shown in Table 1.

Source: Mustafaraj, E., & Metaxas, P. T. (2017). The Fake News Spreading Plague: Was it Preventable?. *Social and Information Networks (cs.SI)* arXiv preprint arXiv:1703.06988.

The issue

Click-bait practices prioritize the generation of emotionally-loaded content with the goal of making users "click" and, in consequence, increase revenue:

→ **post-truth** refers to this phenomenon of "emotionalizing facts" for utilitarian reasons,

→ news agencies started to create news reports using product-oriented work practices (Himma-Kadaka,

Echo chambers polarize audiences and prevent ideas exchange, which diminishes critical thinking.

> "...the most popular fake news was even more widely spread on Facebook than the most Popular authentic mainstream news during the U.S. 2016 president election."

Shu, K., Sliva, A., Wang, S., Tang, J., & Liu, H. (2017). Fake News Detection on Social Media: A Data Mining Perspective. *ACM SIGKDD Explorations Newsletter*, 19(1), 22-36.

Himma-Kadakas, M. (2017). Alternative facts and fake news entering journalistic content production cycle. *Cosmopolitan Civil Societies: An Interdisciplinary Journal*, 9(2), 25-40.

Criteria for believability analysis:

Based on a thorough literature review, authors Reuter, Kaufhold & Steinfort (2017, May) establish the following criteria for believability assessment of social media content:

1. **Various independent sources**: Several sources provide the same information: examination through so-called *cross-checking*, i.e. search for additional sources of similar content.
2. **Familiar and reliable sources:** The source is known and trustworthy (e.g. emergency services, Trusted Volunteers, transitive trust or the like): Examination of trustworthy persons can be made through a database or *transitive trust*, i.e. the classification of trustworthy senders through reliable individuals.
3. **Contain evidence:** The source contains evidence such as pictures, videos, links to official sources or the like: Examination on content-related correctness about the attached evidence.
4. **Subjectivity/emotionality:** Filtering according to keywords – determination of subjectivity and emotionality: Check text quality, because many orthographic or grammatical mistakes speak for a low believability, for example.
5. **Collective intelligence:** Correction of information through collective intelligence: Information might be examined through comments, corrections of the author, or questions of other observers, reducing the spread of misinformation (reference to criterion 6).
6. **Popularity/range:** Popularity and range of information – e.g. number of "likes", "shares" (Facebook) or "Followers" (Twitter): The believability of contained information increases due to the pre-filtering through subjective assessment of disseminating users.
7. **Geographical reference**: Geographical proximity or another personal reference to the content: Believability results from the (personal) interest in trustworthy information by the author (e.g. search for help) due to physical proximity or belonging to organizations, communities or the workplace.
8. **Addressee**: Is information addressed to the public or particular persons? Existing concepts "imply that a rumor is more likely to spread within a community (i.e. particular persons) that is sustained by affective trust and strong social ties".
9. **Filtering keywords and signs**: Is specific information often questioned or disputed? Are there special symbols often used such as question marks or exclamation marks? Questions, doubts, or positive statements (combination of 4 & 5) influence believability positively or negatively. The use of many special signs, such as question marks or exclamation marks, can be a sign of lower believability.
10. **Existing "local knowledge"**: Local details, which outsiders maybe do not know and which signal the own consternation and thereby serious interest in misfortune: The believability results from the high geographical reference (e.g. knowledge of recent incidents, special buildings), the examination possibly proves to be problematic.

Source: Reuter, C., Kaufhold, M. A., & Steinfort, R. Rumors, Fake News and Social Bots in Conflicts and Emergencies: Towards a Model for Believability in Social Media. Proceedings of the 14th ISCRAM Conference (Albi, France, May 2017). P. 583-591

Tools and Sources:

FactCheck.org — A University of Pennsylvania project, FactCheck was created to "monitor the factual accuracy of what is said by major U.S. political players in the form of TV ads, debates, speeches, interviews and news releases".

POLITIFACT CELEBRATING 10 YEARS — Nonpartisan fact-checking website about facts in American politics. Owned by the nonprofit school for journalists "The Poynter Institute". Includes the "Truth-O-Meter", an accuracy rating for political claims.

Snopes — Snopes' editorial team researches the source of the claim and double-checks with supporting information. The website was founded by David Mikkelson in 1994.

tweetcred — Is a Chrome plug in that offers a credibility score of up to 7 stars. The score is calculated based on 45 features of the tweet and is computed through a supervised automated ranking algorithm.

Botometer — Gives the probability that a particular Twitter account is a bot based on its activity. An OSoMe project (bot-o-meter)

HOAXY beta — Visualizes the spread of claims and related fact checking online. Claims can be searched to analyze the extent and depth of their spread across social media platforms.

Reveal — Tools and services for social media verification, such as the Journalist Decision Support System (JDSS), which crawl Twitter posts and find content for verification.
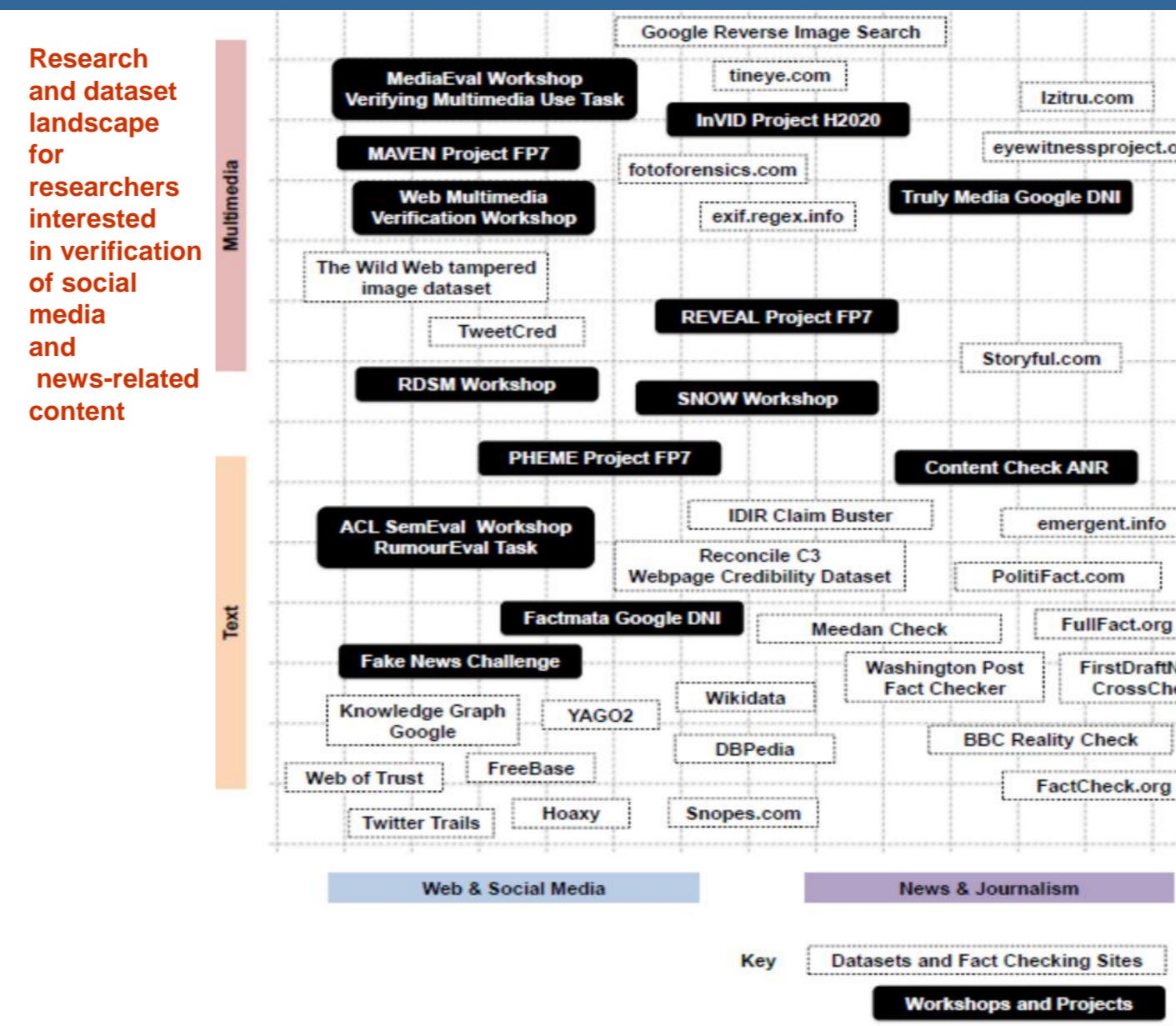
Source: Middleton, S., Papadopoulos, S., & Kompatsiaris, Y. (2017). Social computing for verifying social media content in breaking news. *IEEE Internet Computing*, 1-10.

CONTENT ATOMIZATION: the knowledge graph

NLP advances introduce the automatic generation of new content based on concepts and facts found on digital-born knowledge. Information is taken out of context and connected to other pieces of information to build new knowledge. Inferences are drafted using concepts and facts from different sources:

Content is aggregated from different sources