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Investigations and Opportunities with Differential Equations

STUDENT VERSION

RUMOR SPREAD IN INTERNET ARTICLES

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STATEMENT

In an article, “Why Rumors Outrace the Truth Online,” in the 29 September 2014 issue of *The New York Times* [2], dated 29 September 2014 by Brendan Nyhan the author says, “It’s no surprise that interesting and unusual claims are often the most widely circulated articles on social media. Who wants to share boring stuff?”

Further, Nyhan says, “Or take the bizarre but instructive example of the woman who claimed to have had an implant to add a third breast – clearly an example of an implausible story that was too good to check.”

“Initial reports circulated widely on social networks, totaling over 188,000 shares according to Emergent’s data. The story was quickly discredited after it was reported that a three-breast prosthesis had been previously found in the woman’s luggage, but the articles reporting that it was false never attracted even one-third as many shares as the initial false reports.”

“That hoax may seem silly, but it’s instructive about the problem with rumors – they’re often much more interesting than the truth. The challenge for fact-checkers, it seems, is to make the facts as fun to share as the myths they seek to replace.”

The author, who is an assistant professor of government at Dartmouth College, provides the plot (see Figure 1) to show the spread of the False information rumor and the True information ordered by shares of articles.

In the plot the headline reads, “An Implausible Story Too Good Not to Share - Shares of articles about a three-breasted woman [False] circulated more widely on social media than articles debunking [True] it.” See [1] for details on data collection.

Rumor Spread in Internet Articles

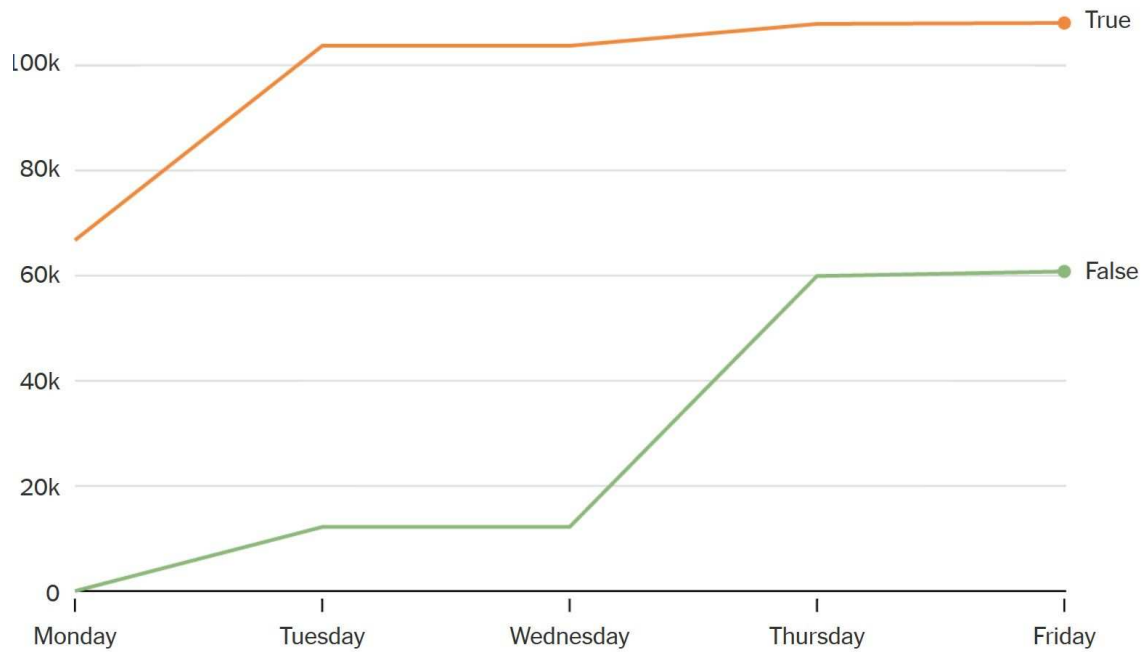


Figure 1. Plot of shares of articles about a three-breasted woman, both true and false version of the story as compiled by Emergent.info [1].

Activity

Use the logistic model, $y'(t) = ry(t)(K - y(t))/K$, using $y(t)$ as the number of articles with the story compared to $K - y(t)$ as the number of articles without the story at all, where r is the intrinsic spread rate and K is the eventual number of articles or perceived maximum number of possible articles (first of the type True and then of the type False) to analyze the data and compare the models to see just what parameter tells the most “truth” about the claim. Hint: On what word in the title, “Why Rumors Outrace the Truth Online,” might you focus?

REFERENCES

- [1] Emergent. 2014. Claim: A Florida woman got a third breast. <http://www.emergent.info/third-breast>. Accessed 29 September 2014.
- [2] Nyhan, B. 2014. Why Rumors Outrace the Truth Online. The New York Times. 29 September 2014. <http://www.nytimes.com/2014/09/30/upshot/its-so-much-more-fun-to-spread-rumors-than-the-truth.html?ref=technology&abt=0002&abg=1>. Accessed 29 September 2014.