



**Jet Propulsion Laboratory**  
California Institute of Technology

# **A104/105: Finding Facts in the Alternative World**

## **2018 Computers in Libraries Panel**

**Panelist Sara Tompson, M.S., Manager  
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# #CILDC 2018 – Tompson – Intro

1. I've been a STEM Librarian since 1987 (some admin-only gigs)
2. Now working at second Federally Funded Research & Development Center (FFRDC) in my career -- the Jet Propulsion Laboratory, run by Caltech under contract to NASA
  - FFRDCs do professional, peer-reviewed and vetted STEM work with government funding
  - Universities and agencies do the same

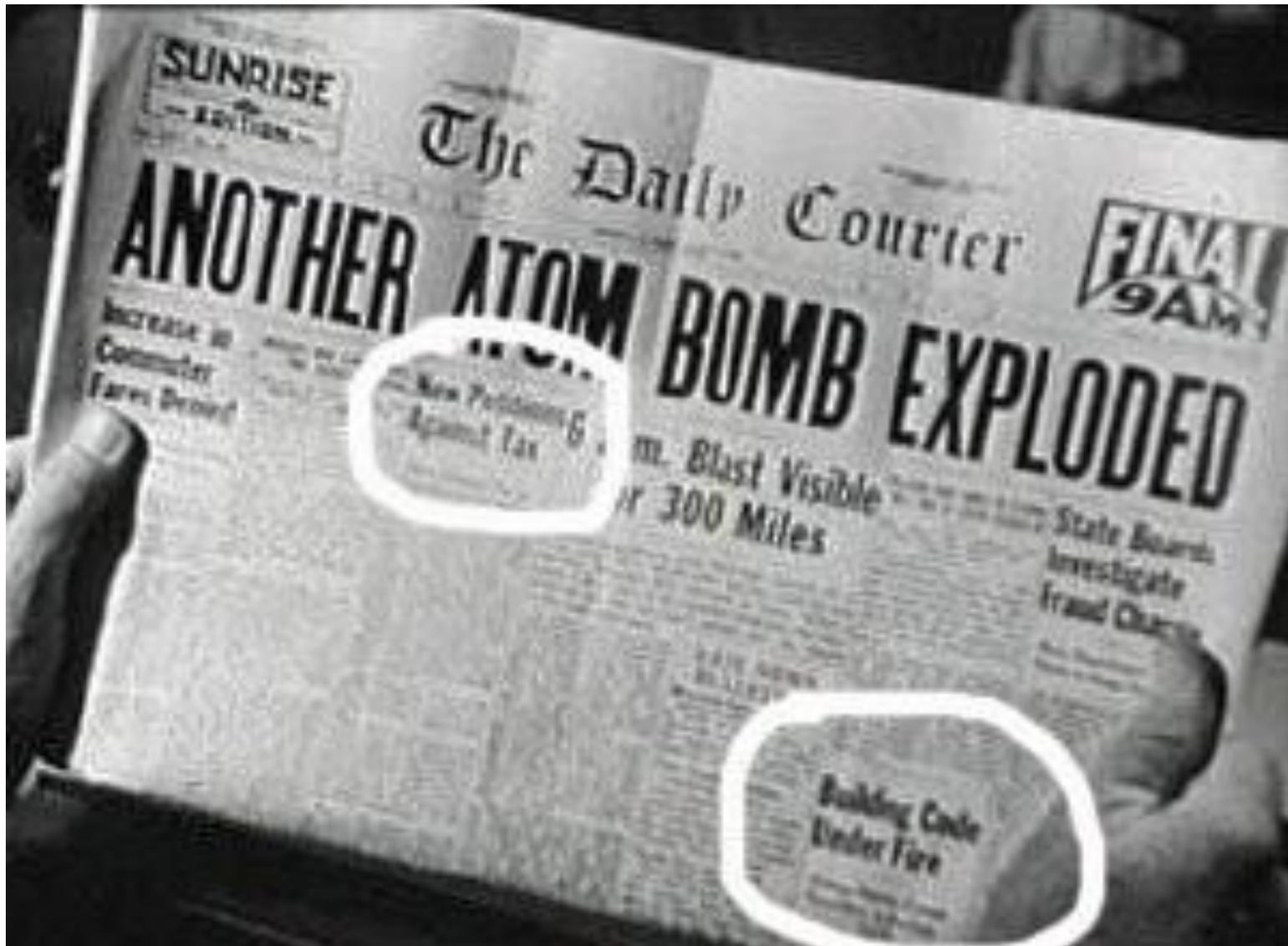
However, I'm not here to convince you about #2, really...

Instead, let's discuss:

- Need for us info pros, ESPECIALLY, to be rigorous
- Some tools for vetting information so we, and our customers, do not succumb to fake facts

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# #CILDC – Tompson – Intro – Recognize This?!



# #CILDC – Tompson – Intro – Recognize This?!

- Classic text often used as **fake headlines** in movies, sometimes TV shows
  - <https://blog.seattlepi.com/movielady/2011/09/10/bogus-movie-newspaper-headlines-of-building-codes-and-tax-petitions-and-cabbages-and-kings/>
  - [http://mst3k.wikia.com/wiki/New\\_Petitions\\_Against\\_Tax](http://mst3k.wikia.com/wiki/New_Petitions_Against_Tax)
    - (Image source)
- If you see, be suspicious!

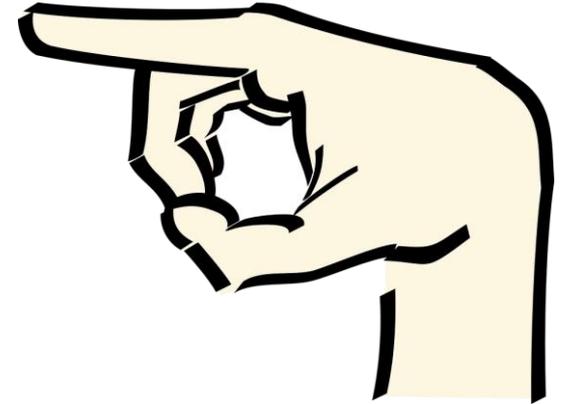
# #CILDC 2018 – Tompson – Intro

## Plus ça change, plus c'est la même chose!

- Tompson, Sara. *Evaluating Information Resources OR Bibliographic Baloney Detection (with apologies to Dr. Sagan!)*. Invited panelist, North Suburban Special Librarians program, **March 5, 2002**.



# #CILDC – Tompson – Info Pro No No's



Professional horror stories  
(mostly on social media):

- Wrong dates
- Mis-citations
- Citing non-authoritative sources or sources who are definitely NOT subject matter experts (SMEs)
- NOT checking sources
- I cop to sharing the too-early demise of Tom Petty posting – was from national news, so their oops too!
- Errors about as bad on the left as on the right, per my Facebook feed
  - And yes, I have friends of many persuasions. (That's why I don't get very political on FB.)

# #CILDC – Tompson – Info Pros...

- **Your** info pro no no's to share? ...
- We info pros must be good examples, not bad. Even, or perhaps more so, on social media!
- Please, please, please:
  1. Do **not** forward without reading what you forward
  2. **Do** check the date of the piece you are forwarding
- **See more tips on following slides**

# #CILDC 2018 – Tompson – Tools

## RADCAB - Your Vehicle for Information Evaluation

Click or tap each RADCAB concept for further information.

**R**ELEVANCY

Is the information relevant to the question at hand? Am I on the right track?

**A**PPROPRIATENESS

Is the information suitable to my age and core values?

**D**ETAIL

How much information do I need? Is the depth of coverage adequate?

**C**URRENCY

When was the information published or last updated?

**A**UTHORITY

Who is the author of the information? What are his or her qualifications?

**B**IAS

Why was this information written? Was it written to inform me, persuade me, entertain me, or sell me something?

# #CILDC 2018 – Tompson – Tools

<http://www.radcab.com/pdfs/radcab-rubric-2.pdf>

## The RADCAB™ Rubric Information Evaluation Assessment



RADCAB CONCEPTS	CRITERIA & PERFORMANCE LEVELS				Points
	Down and Out in Researchville 1	Tired Researcher 2	Research Pro 3	Totally Rad Researcher 4	
<b>RELEVANCY R</b>	I have no idea how to find relevant information.	I know I can create keywords from my research questions to find relevant information but it takes too much time.	I create keywords from my research questions and use them to find relevant information.	I use quotation marks around my search terms and the minus sign "-" where needed, and I use the site operator to limit searches to credible sites.	_____
<b>APPROPRIATENESS A</b>	I have no idea how to discern appropriate information for my age or core values.	I know some information sources seem difficult to understand and some offend me but I try to read them anyway.	I leave information sources quickly that are too hard for me to understand or offend my core values.	I set personal boundaries about what I view, read and listen to, and I close out information sources that confuse me or offend my core values.	_____
<b>DETAIL D</b>	I have no idea if an information source has enough information for me.	I am frustrated with determining if an information source has the information I need.	I can make a good guess if the information source has the depth of coverage I need to complete my assignment.	I use specific details from a website such as its site map, its internal search engine and its page organization to inform me about the depth of coverage the information source offers.	_____
<b>CURRENCY C</b>	I don't care about the currency of my information source.	I know it is important to find out about the currency of an information source, but I tend to hope for the best rather than take the time to look	I look for copyright information or "last updated" information in my information source.	I comb my information source for copyright information or "last updated" information because I understand that information sources that are continually updated	_____

# #CILDC 2018 – Tompson – Tools

One of my heroes, the late astronomer **Carl Sagan**, has some tips for us:

Sagan’s “**The Fine Art of Baloney Detection**” is a chapter in his 1995 ***The Demon-Haunted World: Science As a Candle in the Dark***. Full text of the book is on the Internet Archive!

- [https://archive.org/stream/DemonHauntedWorld\\_carlSagan/Sagan\\_-\\_The\\_Demon-Haunted\\_World\\_Science\\_as\\_a\\_candle\\_in\\_the\\_dark\\_djvu.txt](https://archive.org/stream/DemonHauntedWorld_carlSagan/Sagan_-_The_Demon-Haunted_World_Science_as_a_candle_in_the_dark_djvu.txt)

See also this blog post: “Lie-proof Your Life with Carl Sagan’s ‘Baloney Detection’ Checklist”

- <https://qz.com/959775/carl-sagans-baloney-detection-kit-can-help-you-spot-fake-news-and-weaponized-lies/>

# #CILDC 2018 – Tompson – Tools

## Carl Sagan’s “Baloney Detection” Checklist, summary:

- Wherever possible there must be independent confirmation of the “facts”
- Encourage substantive debate
- Arguments from authority carry little weight
- Spin more than one hypothesis
  - Try not to get overly attached to any of your hypotheses
  - Ask if the hypothesis can be falsified
- Quantify
- In a chained argument, every link must hold up
- Apply Occam’s Razor! (Simplest truth most likely)

# #CILDC 2018 – Tompson – Tools

## The Skeptics Guide to the Universe

- <http://www.theskepticsguide.org/>
- Logical fallacies page is very instructive:
  - <http://www.theskepticsguide.org/resources/logical-fallacies>
- Lively weekly podcast
- Social media:
  - <https://www.facebook.com/theskepticsguide/>
  - @SkepticsGuide

# #CILDC 2018 – Tompson – Tools

## The Skeptics Guide: Logical Fallacies

- Just a few of the 20+ fallacies the SGU Team describes:
  - Ad hominem – “...any [argument] that attempts to counter another’s claims or conclusions by attacking the person, rather than addressing the argument itself.” Not the same as name-calling in and of itself.
  - Ad ignorantiam – “...basically states that a specific belief is true because we don’t know that it isn’t true.” UFO proponents’ basis

# #CILDC 2018 – Tompson – Tools

## The Skeptics Guide: Logical Fallacies, continued

- Post-hoc ergo propter hoc – “...assumes cause and effect for two events just because they are temporally related...” Somewhat similar to false causation. E.g. I had a cough. I saw a white dove. The cough went away. The dove was a positive spirit. DOES get complicated, with the placebo effect at work!
- False Dichotomy - Reducing many possibilities to only two. “This fallacy can also be used to oversimplify a continuum of variation to two black and white choices.... For example, science and pseudoscience are not two discrete entities, but rather ...fall along a continuum...”

# #CILDC 2018 – Tompson – Library Association Example

- Impressive that LJ is offering a two-part course to help librarians, and their patrons, ID fake news!
  - [http://learn.libraryjournal.com/courses/facts-matter/?utm\\_source=ljseventalerts](http://learn.libraryjournal.com/courses/facts-matter/?utm_source=ljseventalerts)

**LIBRARYJOURNAL.**  
Online Courses

## **Facts Matter: Information Literacy for the Real World**

March 28 & April 11, 2018



***Join us for the next generation of our wildly popular 2017 course:  
Fighting Fake News***

Live Interactive Sessions on Wednesdays from 2–4 PM ET: March 28 & April 11, bridged with Homework, Online Workshops, Discussions, and Resources. Certificate of Completion Provided.

Also available On-Demand! Can't make a live session? All sessions will be available to you 'on demand' following the initial broadcast. Libraries serve people of all backgrounds and beliefs and function as trusted, nonpartisan sources of accurate information for their communities.

**In these polarized times, helping your community understand news bias and identify reliable sources is more critical—and perhaps more difficult—than ever.**

# #CILDC 2018 – Tompson – STEM Society Example

The American Association for the Advancement of Science (AAAS), founded by Thomas Edison and publisher of **Science** magazine, is fighting back against fake news.

- Per their Senior Licensing Manager Ryan Rexroth at SCEL Vendor Day in LA, 3/8/18, they have organized a group at Society headquarters to focus on ways to help their members and readers combat fake news.
- See also:
  - “The science of fake news” by David M. J. Lazer, Matthew A. Baum, Yochai Benkler, et al. **Science** 09 Mar 2018: 359: 6380, pp. 1094-1096. DOI: 10.1126/science.aao2998  
<http://science.sciencemag.org/content/359/6380/1094.full>
  - “Fighting back against ‘alternative facts’: Experts share their secrets” By Dan Ferber at AAAS 2018:  
<http://www.sciencemag.org/news/2018/02/fighting-back-against-alternative-facts-experts-share-their-secrets>

# #CILDC 2018 – Tompson – Conclusion?

Will we ever be able to always, positively, discern fact from fancy? Probably not! As one of my favorite science fiction authors, the late Ursula K. LeGuin's characters has said:

“The soundest fact may fail or prevail in the style of its telling....” *The Left Hand of Darkness*, p.1

Nevertheless, as a STEM librarian and information professional, I believe we must try our best for truth ourselves and to aid the users of our resources and our social media friends to do so as well.



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