

THESIS DEFENSE

LOADED LANGUAGE AND CONSPIRACY THEORIZING

FEBRUARY 24, 2023

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Rensselaer



OUTLINE

- 1. Problem and Research Question**
2. Background
3. Methods
4. Results
5. Discussion, Limitations, and Future Work
6. Implications and Key Takeaways



RACE
What is the 'great replacement' and how is it tied to the Buffalo shooting suspect?
May 16, 2022 · 12:35 AM ET



5 Unfounded Claims About Voting in the Midterm Elections

Here are some of the main falsehoods and rumors that have spread on social media in the lead-up to Election Day.

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Perspective | Published: 10 March 2022

An epidemic of uncertainty: rumors, conspiracy theories and vaccine hesitancy

Ed Pertwee | Clarissa Simas & Heidi J. Larson
Nature Medicine 28, 456–459 (2022) | C
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Abstract
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- Despite increased media attention, conspiracy theories are not particularly new, unnatural, or uncommon.
- There are conspiracy theories which do turn out to be true, after all.
- There are cognitive and social motives underlying conspiracy theories.
- There is ample historical evidence that conspiracy theories proliferate during times of upheaval and unrest.

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- There are cognitive and social motives underlying conspiracy theories.
- There is ample historical evidence that conspiracy theories proliferate during times of upheaval and unrest.

However, conspiracy theorizing can be profoundly harmful to individuals and communities.

Why are conspiracy theories an issue?

- Endorsement is associated with:
 - Lowered intention to engage in politics¹
 - Resistance to follow medical advice²
 - Tendency to reject important scientific findings³
 - Increased intention to engage in everyday crime⁴ and increased violent extremist intentions⁵





January 6, 2021



Conspiracy theories online

- Online, people can share conspiracy theories faster and farther than ever before¹.
- Challenges associated with trying to detect conspiracy theories online automatically in text:
 - People learn to circumvent content moderation efforts and keyword detection tools^{2,3}.
 - User-based strategies fall short when users do not fit a typical profile⁴.
 - Conspiracy theories are international in reach, making detection a cross-linguistic problem⁵.



Detecting conspiracy theories online

- What kind of solution is needed?
 - One potential solution: A near-term, cognitively motivated method that focuses on features of the language people use when talking about conspiracy theories.
- **The purpose of this research is to investigate whether there are linguistic markers of conspiracy theorizing.**



Research question and hypothesis

- Broadly, how does language relate to belief in conspiracy theories? Are there linguistic markers of conspiracy theorizing?
- Hypothesis: ***Loaded language*** – i.e., words, phrases, and overall rhetorical strategies that have strong emotional implications and intent to sway others – may be indicative of conspiracy theorizing.
- Why? Belief in conspiracy theories is tied to a range of strong emotions¹. Accordingly, language with strong emotional and persuasive content may be expressed by people experiencing the strong emotions associated with conspiracy theorizing.

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1. Problem and Research Question

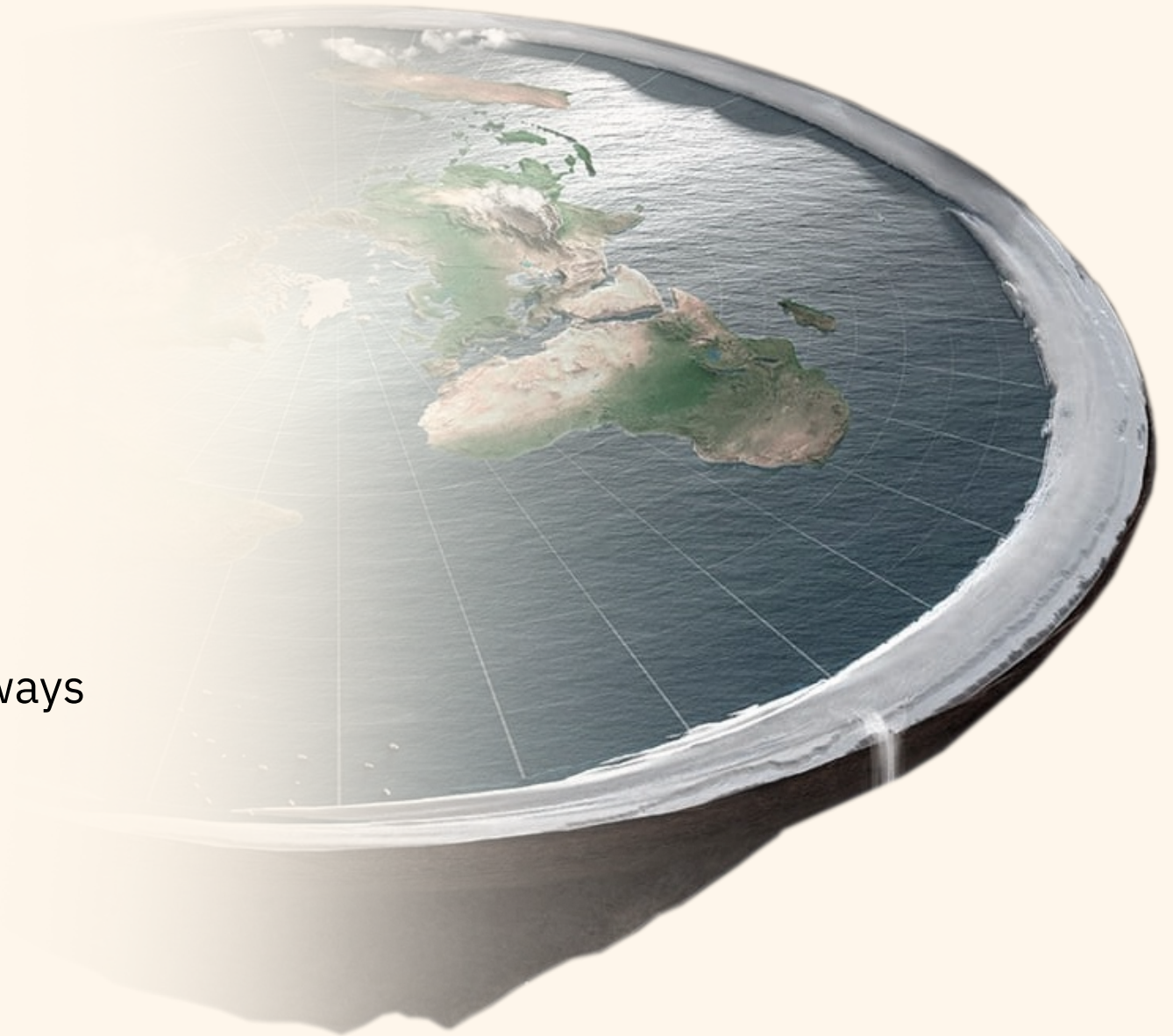
2. Background

- **Conspiracy theories**
- **Four types of loaded language**

3. Methods

4. Results

5. Discussion, Future Work, Key Takeaways



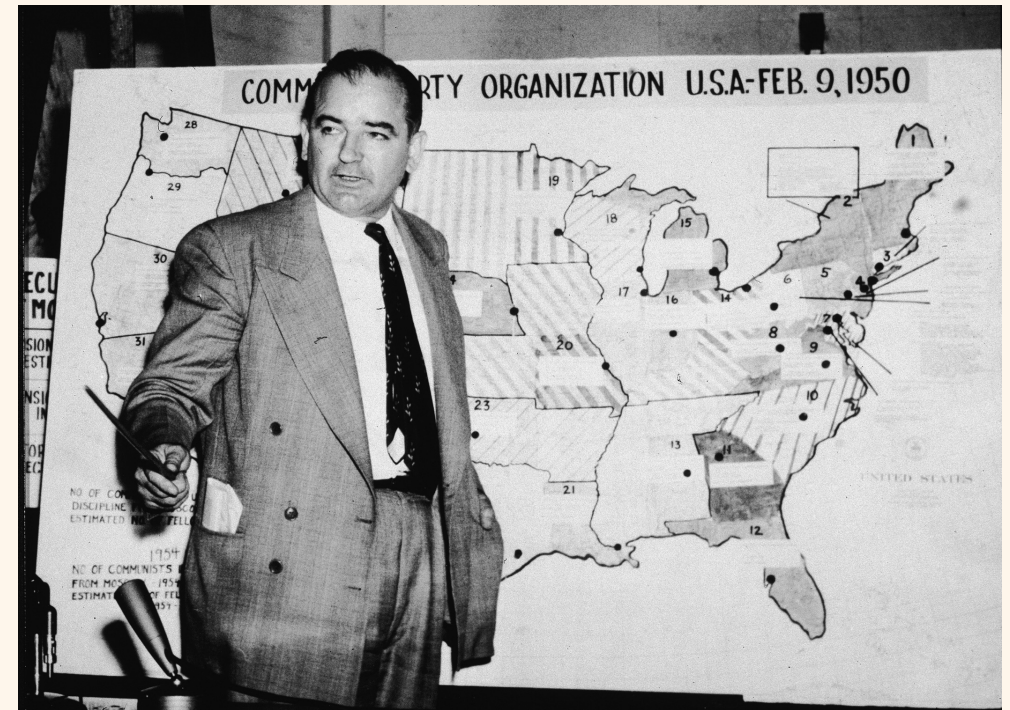
Conspiracy theories

Conspiracy theory = an explanation of events that attributes agency to a small group of powerful people who act in secret against the public interest



Working conditions in the early 20th century.

National Archives and Records Administration.



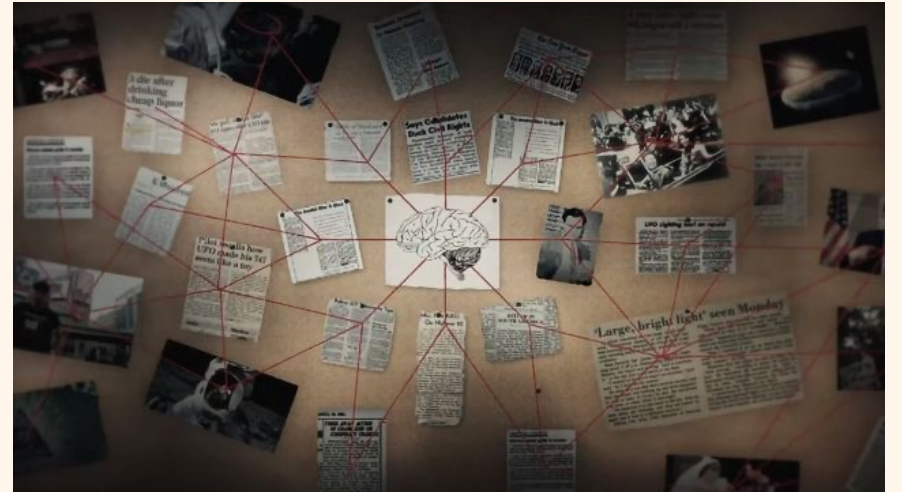
Sen. Joseph McCarthy, at the Senate Subcommittee on Investigations' McCarthy-Army hearings on June 9, 1954.

Getty Images.

Conspiracy theories

Research shows that CTs serve two functions:

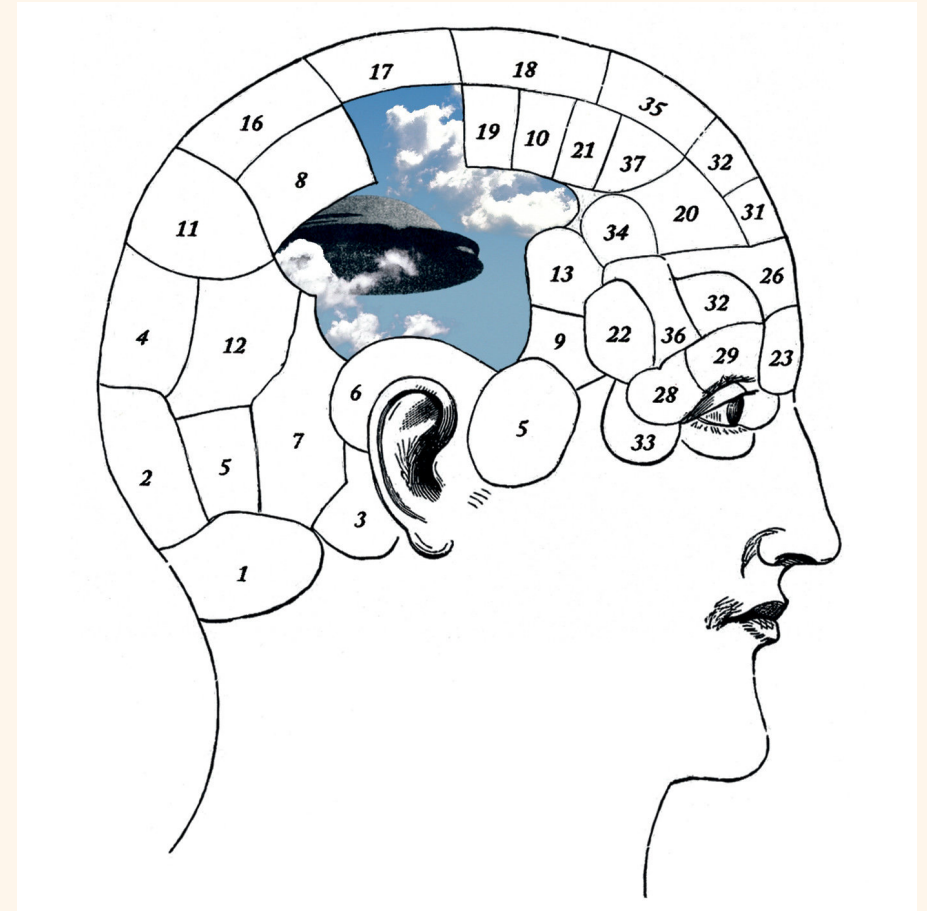
1. Making sense of the world
2. Navigating social group dynamics



Conspiracy theories: Making sense of the world

Sensemaking is motivated by emotion.

- Anxiety and stress^{1,2}
- Perceived threat and lack of control^{3,4,5,6}
- Feelings of uncertainty and need for cognitive closure^{7,8,9,10,11,12}
- Two key cognitive processes at play:
 - pattern perception^{13,14,15}
 - agent detection^{16,17,18}



¹Grzesiak-Feldman (2013), ²Swami et al. (2013), ³Whitson & Galinsky (2008), ⁴Van Prooijen & Acker (2015), ⁵Sullivan et al. (2010), ⁶Kofta et al. (2020), ⁷Van Prooijen & Jostmann (2013), ⁸Kruglanski & Webster (1996), ⁹Kossowska & Bukowski (2015), ¹⁰Marchlewska et al. (2017), ¹¹Roets & Van Hiel (2008), ¹²Freund et al. (1985), ¹³Whitson & Galinsky (2008), ¹⁴Van der Wal et al. (2018), ¹⁵Van Prooijen et al. (2017), ¹⁶Imhoff & Bruder (2014), ¹⁷Heider & Simmel (1944), ¹⁸Douglas et al. (2016)

Conspiracy theories: Navigating social group dynamics

Conspiracy beliefs are characterized by two aspects of intergroup conflict:

- affiliating with an ingroup identity
- distancing oneself or one's ingroup from a suspicious, hostile outgroup.^{1,2,3}

Literature provides evidence for:

- Collective narcissism and strong ingroup identification^{4,5,6}
- Individual trait orientation and outgroup antagonism^{7,8,9}



¹(Van Prooijen and Douglas (2018), ²Douglas et al. (2017), ³Van Prooijen & Van Lange (2014), ⁴Golec de Zavala et al. (2009), ⁵Cichocka et al. (2015), ⁶Golec de Zavala & Federico (2018), ⁷Abalakina-Paap et al. (1999), ⁸Imhoff & Bruder (2014), ⁹Swami (2012)

Cognitively-motivated loaded language

1. Making sense of the world:

1. Thought-terminating clichés
2. Euphemistic and dysphemistic language

2. Navigating social group dynamics:

3. Biblical references
4. Ingroup and outgroup language



Thought-terminating clichés (TTCs)

- Thought-terminating clichés = “semantic stop-signs”
- *E.g. it is what it is, let's agree to disagree, it's God's will, where we are, such is life, do the math, do your own research*
- TTCs impede critical thinking and can lead to *crippled epistemologies* – a flaw in the sensemaking process and a factor in conspiracy theorizing.¹

The AG of Massachusetts thinks burning property is good protest. Three more policemen were stabbed and shot in NYC last night. **Think about it.**



¹Sunstein & Vermeule (2009)

Euphemistic and dysphemistic language

- Euphemistic language is language usage in which a neutral word is substituted with one that is considered more pleasant. Euphemisms make the emotional impact of a word softer.
- E.g. *pass away for die* or *between jobs for unemployed*.
- Dysphemisms make the emotional impact of a word blunter or more visceral.
- E.g. *worm food for dead*.

Euphemistic language

It's nothing to death, just like Max said. It's just **stepping over into another plane**. Don't, don't be this way. Stop this hysterics...



Dysphemistic language

.@WhoopiGoldberg had better surround herself with better hosts than Nicole Wallace, who doesn't have a clue. The show is close to **death!**



Biblical references

- People who interpret the Bible literally are significantly more likely to believe in a variety of conspiracy theories¹.
- People who self-identify with a strict interpretation of the Bible may occasionally speak in *Christianese*, a religiolect with distinct terms and jargon used within many branches and denominations of Christianity.
- E.g. “I’ve been looking forward to fellowshipping with all of you,” = I’ve been looking forward to gathering in our shared love for Jesus and for each other.

Thank you heavenly Father for blessing us with this opportunity to stand up for our **God**-given unalienable rights[...] Thank you for filling this chamber with Patriots that love you and that love **Christ**. [...] in **Christ**’s holy name we pray. Amen.



¹Baylor University (2021)

Ingroup and outgroup language

- Social psychologists have demonstrated that **ingroup language** (e.g. *we, us, our*) indicates a sense of shared group identity¹.
- Likewise, **outgroup language** (e.g. *they, them, theirs*) identifies an outgroup (often a minoritized group) onto which fear and resentment can be projected².

Ingroup language

These are the thugs **we** are allowing to control the public discourse and so-called "liberals" celebrate it. Bizarre.

Outgroup language

Everything **they** do in China will eventually come to America. Mark my words. It already is.



¹Tausczik & Pennebaker (2010), ²Douglas & Sutton (2018)

Goals of this thesis

- Identify several types of loaded language related to conspiracy theorizing based on literature in the cognitive and psychological sciences.
- Develop semi-automatic methods for detecting loaded language in raw natural language text.
- Examine the frequency of loaded language usage in:
 - a preliminary single-topic pilot study.
 - an expanded comparison study.
 - an evaluative study.
- Draw conclusions about language and conspiracy theorizing and identify limitations, applications, and directions for future work.

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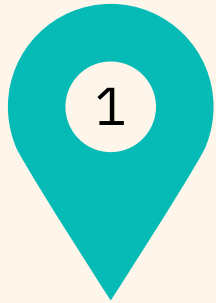


Methods overview

- 1. For TTCs:** I developed lists of TTCs from print and online resources – including books, articles, and blog posts by linguists, rhetoricians, journalists, and philosophers.
- 2. For euphemisms and dysphemisms:** I compiled candidate lists of near-synonyms and had three native-speaker annotators rate them to create lists of “gold” euphemisms and dysphemisms.
- 3. For biblical references:** I used Theographic, a knowledge graph of the Bible for people, groups, events, places, and books. For expressions, I developed lists of expressions following the same methods as for TTCs.
- 4. For ingroup and outgroup language:** I used LIWC (psycholinguistic analysis tool) to count “WE” and “THEY” pronoun usage, as is consistent with the literature.
5. Straightforward keyword searches were carried out for each TTC, euphemism/dysphemism, and biblical reference in each dataset.
6. Precautionary steps and manual vetting were used to account for loaded language that could not actually be considered loaded language in context.



Study I: Loaded Language on Parenting Forums For and Against Vaccination



a single-topic pilot study



Study II: Loaded Language on Conspiracy, Science, and WallStreetBets Subreddits



an expanded comparison study



Study III: Loaded Language on Parler on January 6, 2021



an evaluative study



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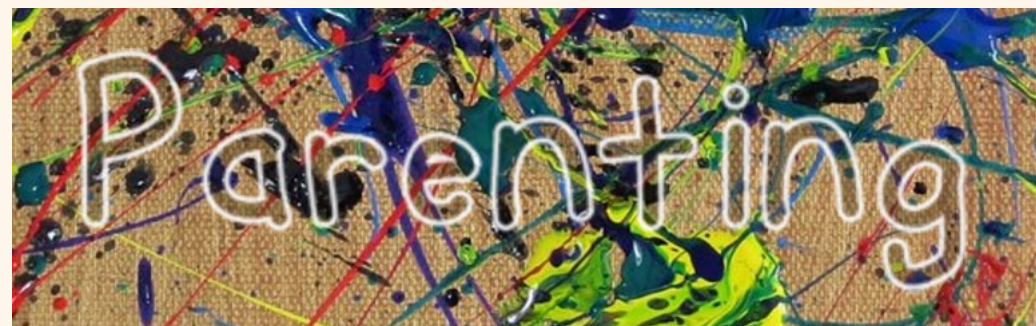
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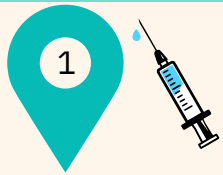
Datasets:

- Anti-vax: a forum from mothering.com
- Vax-neutral: a subset of posts pertaining to vaccination from the subreddit r/parenting

	Anti-vax forum	Vax-neutral forum
# of posts in forum	26,362	119,176
# of posts in dataset	26,362	954
# of users	275,400	3,400,000
Year started	1996	2008

mothering
The Home for Inclusive Family Living





Study I Results

Observed:

p < 0.05

	TTCs	Non-TTCs
antivax	218	26144
vax-neutral	2	952
total	220	27096

p < 0.01

	DIE Dys	Non-DIE Dys
antivax	207	26155
vax-neutral	0	954
total	220	27096

p < 0.05

	Biblical ref	Non-Biblical ref
antivax	804	25558
vax-neutral	17	937
total	821	26495

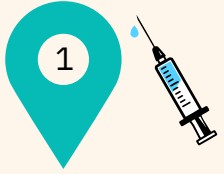
p < 0.001

	Ingroup	Non-Ingroup
antivax	11347	15015
vax-neutral	684	270
total	12031	15285

p < 0.001

	Outgroup	Non-Outgroup
antivax	13482	12880
vax-neutral	595	359
total	14077	13239

- **TTCs:** Anti-vaccination posts contained significantly more thought-terminating clichés than vaccination-neutral posts.
- **Euphemisms/dysphemisms:** Anti-vaccination posts contained more euphemisms and dysphemisms than vaccination-neutral posts. Dysphemisms related to dying occurred significantly more frequently in the anti-vaccination dataset than in the vaccination-neutral dataset.
- **Biblical references:** Anti-vaccination posts contained significantly more biblical references than vaccination-neutral posts.
- **Ingroup/outgroup language:** Vaccination-neutral posts contained significantly more ingroup and outgroup language than anti-vaccination posts.



Study I Summary (single-topic pilot study)

- **Consistent with my hypothesis, users of the anti-vaccination forum used significantly more thought-terminating clichés, dysphemisms about dying, and biblical references to express themselves than users of the vaccination-neutral forum.**
- Inconsistent with my hypothesis and with the literature (Mitra et al., 2016; Fong et al., 2021): Users of the vaccination-neutral forum used more ingroup and outgroup language to express themselves than users of the anti-vaccination forum.

Limitations:

- Comparing two forums from different sites (mixed culture, mixed ways of using the forums...)
- Sample size issue (vax-neutral dataset was small in comparison to the anti-vax dataset)

Study II addresses both of these issues.

2



Study II: Loaded Language on Conspiracy, Science, and WallStreetBets Subreddits

Datasets:

- Conspiracy and science subreddits (typically contrasted in the literature) vary greatly in narrative
- WallStreetBets is used as a control (it is typical of the profanity and anti-PC culture on Reddit)

r/conspiracy



r/science



r/wallstreetbets





Study II Results

- **TTCs:** Users of r/conspiracy were significantly more likely to use thought-terminating clichés to express themselves than users of r/science, followed by users of r/wallstreetbets.
- **Euphemisms/dysphemisms:** Users of r/conspiracy were significantly more likely to use euphemistic and dysphemistic language pertaining to dying, lying, and stealing to express themselves than both users of r/science and r/wallstreetbets. Across all concepts, dysphemisms were used more frequently than euphemisms.
- **Biblical references:** Users of r/conspiracy make significantly more biblical references than users of r/wallstreetbets, followed by r/science.
- **Ingroup/outgroup language:** Users of r/science use significantly more ingroup language to express themselves than users of r/conspiracy, followed by r/wallstreetbets. Users of r/conspiracy use more outgroup language to express themselves than users of r/science, followed by r/wallstreetbets.

Observed:

p < 0.001

	TTCs	Non-TTCs
r/conspiracy	125	27875
r/science	91	27129
r/wallstreetbets	72	46909
Total	288	101913

p < 0.001

	Euph+dys	Non-Euph+dys
r/conspiracy	272	27728
r/science	30	27190
r/wallstreetbets	46	46935
Total	348	101853

p < 0.001

	Biblical ref	Non-Biblical ref
r/conspiracy	825	27175
r/science	264	26956
r/wallstreetbets	548	46433
Total	348	101853

p < 0.001

	Ingroup	Non-Ingroup
r/conspiracy		
r/science		
r/wallstreetbets		
Total	348	101853

p < 0.001

	Outgroup	Non-Outgroup
r/conspiracy	5936	22064
r/science	5484	21736
r/wallstreetbets	5023	41959
Total	348	101853



Study II Summary (expanded comparison study)

- **Consistent with the previous study, users of r/conspiracy used significantly more thought-terminating clichés, euphemisms and dysphemisms about dying, lying, and stealing, and biblical references to express themselves than users of r/science.**
- R/conspiracy users also used more outgroup language than users of r/science, which is consistent with the literature on conspiracy theorizing and outgroup language.
- R/wallstreetbets did appear to function as a control.



Study III: Loaded Language on Parler on January 6, 2021

- This dataset of posts from Parler is from January 6, 2021, and was generously provided by Dr. Jennifer Golbeck who is a committee member on this dissertation.
- The dataset used in this study consists of 948,629 Parler posts.





Study III Results: Thought-terminating clichés

	Parler	r/conspiracy	Anti-vax forum
Percent of posts containing TTC	0.30%	0.45%	0.83%

- Parler posts contained fewer TTCs than the anti-vaccination forum and r/conspiracy. The frequency of TTCs was closer to r/conspiracy, where 0.45% of posts contained at least one TTC.
 - Again, a criminal was shot. Traitors get killed, **it is what it is** and your incessant whining doesn't change one damned thing. Parler
 - **Think about it.** What is this country we live in that censors our President. Parler
 - **God works in MYSTERIOUS ways....**2 days ago I was a suicidal veteran with no where to turn.....NOW I AM A PISSED OFF COMBAT VET.....READY TO SACRIFICE MY LIFE FOR MY COUNTRY ONE MORE TIME.....LETS GO Parler



Study III Results: Euphemisms and dysphemisms

	Parler	r/conspiracy	Anti-vax forum
Percent of posts containing dysphemisms	4.79%	0.85%	1.23%

- As hypothesized, the Parler dataset exhibited a greater frequency of posts containing dysphemisms compared to the anti-vaccination and r/conspiracy datasets.
 - Consistent with observations in the anti-vaccination and r/conspiracy datasets, dysphemisms in the Parler dataset were more common than euphemisms.
-
- [Exclusive Video: Capitol Police **Execute** Unarmed Woman Carrying Trump Flag](#) Parler
 - [their was no **cheating** on November 3rd. Their would be no death today. The **cheating** States have a **Murder** to explain why?](#) Parler



Study III Results: Biblical references

	Parler	r/conspiracy	Anti-vax forum
Percent of posts containing biblical reference	6.83%	2.95%	3.05%

- As hypothesized, the Parler dataset exhibited a greater frequency of posts containing biblical references compared to the anti-vaccination and r/conspiracy datasets.
 - He sits in the heavens and he laughs! **Psalm** 2:4 They think they have this in the bag, they got another thing Comin! Parler
 - Dearest Lord please give the Patriots courage and discernment. Father please put a **hedge of protection** around them. Let Your Will be done Lord **Jesus**. We love You Lord **Jesus** it's in Your Name we pray Amen! Parler



Study III Results: Ingroup and outgroup language

	Parler	r/science	Vax-neutral forum
Percent of posts containing ingroup language	19.87%	12.12%	71.7%

	Parler	r/conspiracy	Anti-vax forum
Percent of posts containing outgroup language	17.49%	21.20%	62.37%

- **Let's** clear something up!! **We** LOVE DONALD TRUMP! But HE is NOT the REASON Patriots are in DC right now!!! Patriots went to DC FOR AMERICA!!! **We**'ve been SOLD like SLAVES to other countries because **OUR** REPRESENTATIVES are criminals! Parler
- Apply these crookedwith alot of pressure, **they** will fold or fck up, stand up say something, Make **them** very uncomfortable Parler

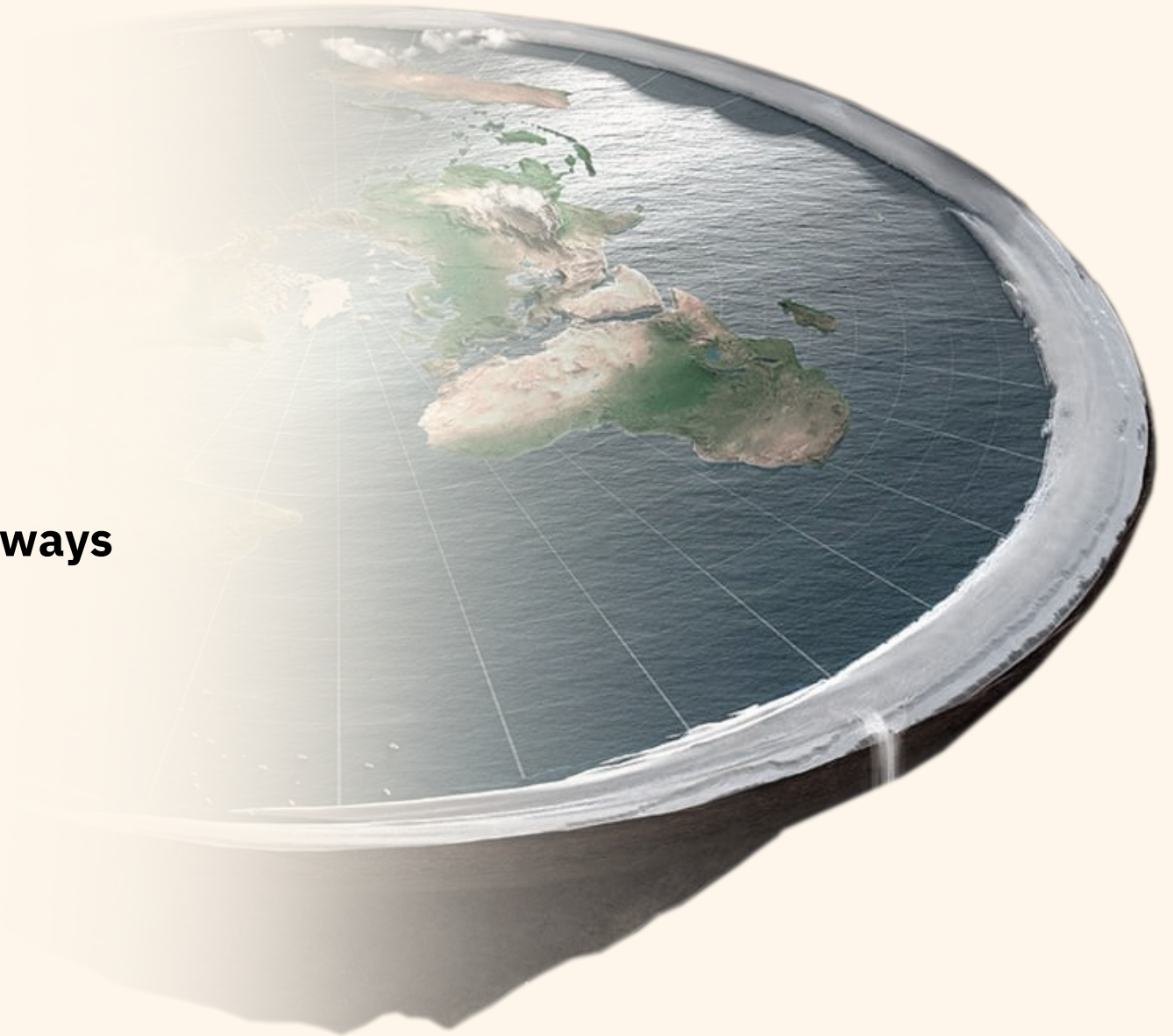


Study III summary (evaluative study)

- **Consistent with the two previous studies, Parler users exhibited parallel or greater usage of thought-terminating clichés, euphemistic and dysphemistic language, and biblical references to express themselves than users of r/conspiracy and users of an anti-vaccination parenting forum.**
- Overall, results for ingroup and outgroup language are mixed. After controlling better for community culture in Study II, this result may be attributed to to limitations of the tools when it comes to resolving pronoun referents.
 - LIWC does not distinguish between pronouns with antecedents and pronouns whose referent is omitted but understood in context.
 - Reference resolution remains a challenge in natural language processing more broadly.

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Discussion of Findings

- Research questions: How does language relate to belief in conspiracy theories? Are there linguistic markers of conspiracy theorizing?
- Hypothesis: Loaded language is a cognitively-motivated marker of conspiracy theorizing.
- The results of this research confirm the hypothesis: Loaded language, specifically thought-terminating clichés, dysphemisms about dying, lying and stealing, and biblical references are more frequently used when people talk about conspiracy theories.



Limitations of Study (1/2)

Do these findings hold over time? Are they just a snapshot of a moment in time/culture?

- Language is fundamentally diachronic. We can expect meanings to change, sounds to shift, and words and phrases to be adopted and abandoned, even within the span of a generation.
- That being said, it is plausible that these features could hold over time. Since they are cognitively inspired, some may hold even as language changes.

“Our ship was the victim of an unfortunate accident. Sorry about your crew, but as we say on Earth, ...'c'est la vie.'”



Limitations of Study (2/2)

This research isn't applicable to automatic content moderation systems in the near-term.

- The automatic detection problem for conspiracy theories is complicated by the need for algorithms to identify conspiracy theorizing language accurately and interpretably.
- Current AI systems fall short and attempting to improve models with hand-picked features (like loaded language) is a complex and labor-intensive task.



Limitations of Study (2/2)

This research isn't applicable to automatic content moderation systems in the near-term.

- However, this research provides an opportunity to enhance the content moderation done by humans with evidence based on the content, meaning, and function of actual language data – not opaque statistical patterns of the data.
- Providing human content moderators with lists of loaded language could serve as flags and heuristics, streamlining the content moderation process and alleviating some of the burden of their occupations.



Recommendations for future research

- Longitudinal study is recommended.
- Lots of open questions regarding loaded language and new large language models (LLMs) like OpenAI's GPT-3.
 - LLMs like GPT-3 are associated with established risks in terms of providing false or misleading information¹.
 - Misinformation from language technologies may amplify distrust in public institutions and epistemologies, which is both a risk factor and byproduct of conspiracy theorizing².



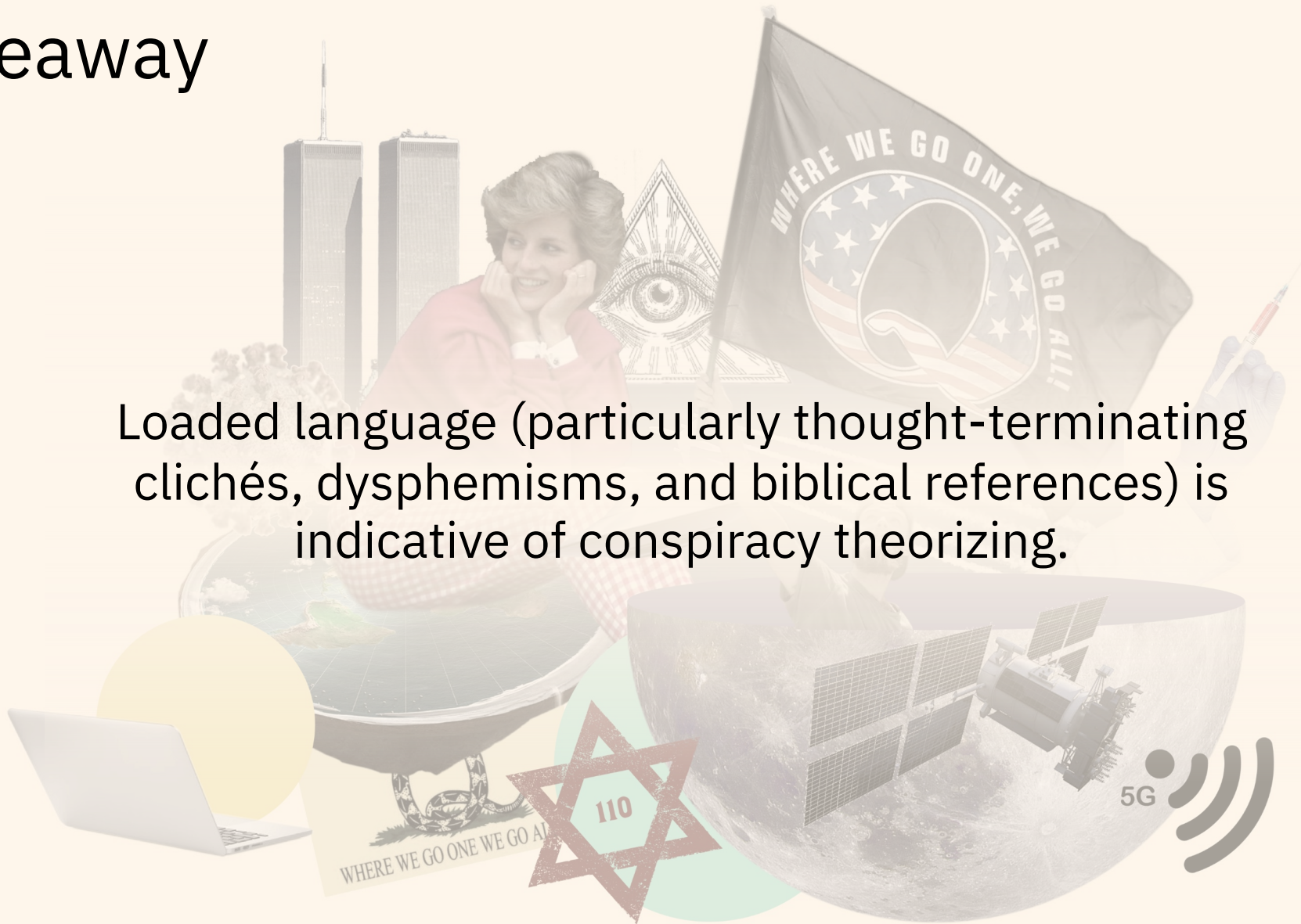
Implications of this research for the field

- Theory of linguistic relativity: hypothesizes that the language we speak influences the way we think.
- This thesis says: *thought* influences *language* in the sense that belief in conspiracy theories may be associated with specific language patterns.
- This research contributes to linguistic and cognitive science scholarship, helping us understand how conspiracy theorizing manifests in language and what language reveals about conspiracy theories and the people who believe them.



Key takeaway

Loaded language (particularly thought-terminating clichés, dysphemisms, and biblical references) is indicative of conspiracy theorizing.



Contributions

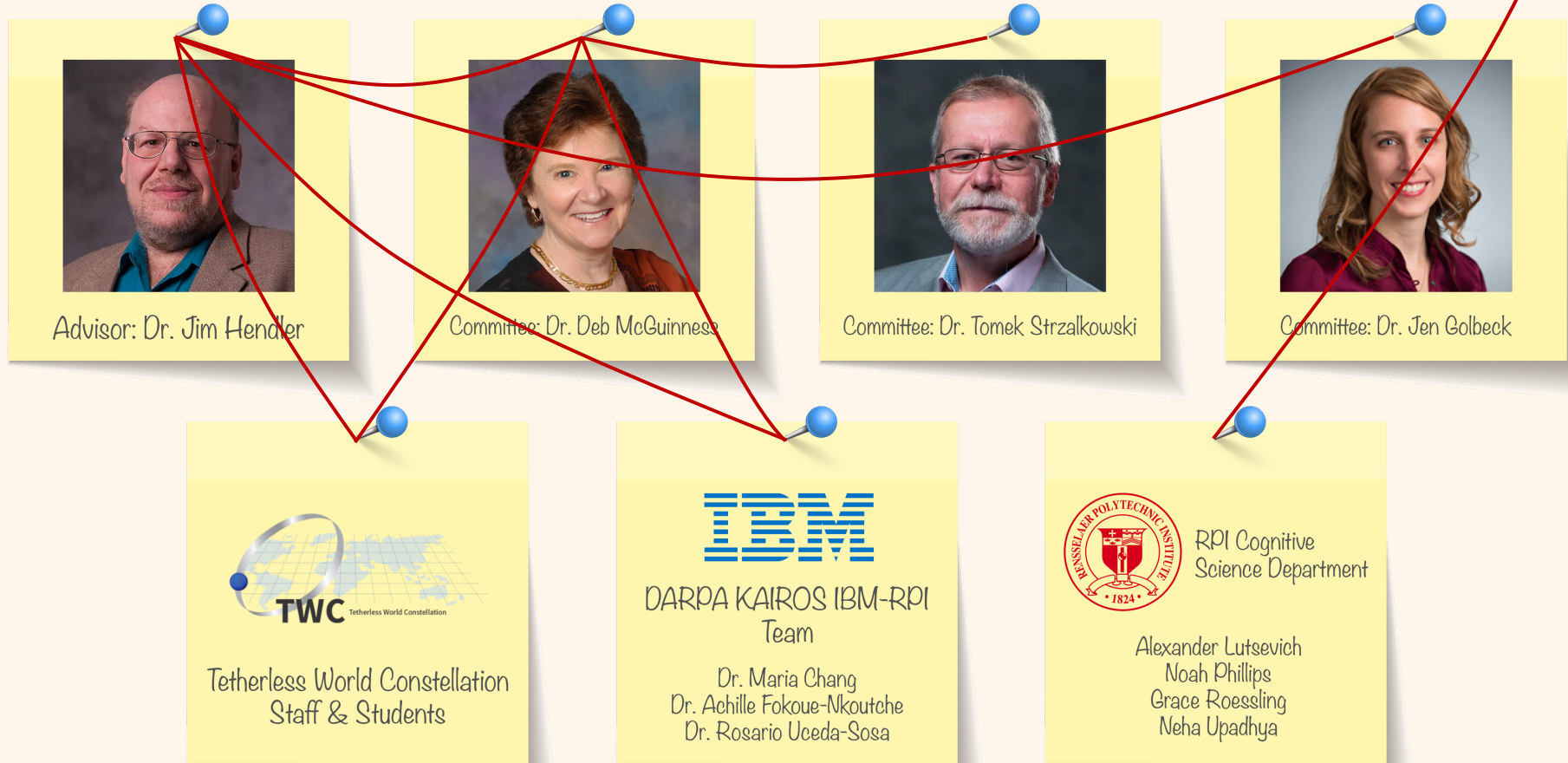
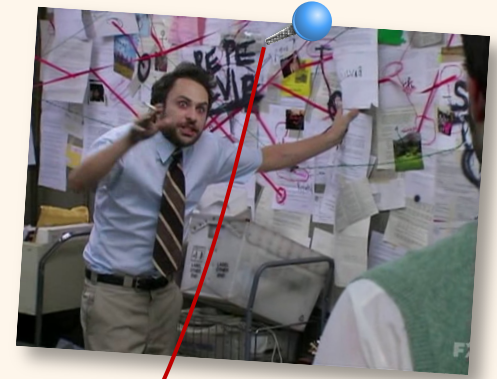
- I identified four types of loaded language related to conspiracy theorizing based on literature in the cognitive and psychological sciences.
- I developed inventories of loaded language as resources for this research and for future use.
- I developed semi-automatic methods for detecting loaded language in raw natural language text.
- I examined the frequency of loaded language usage in:
 - a preliminary single-topic pilot study.
 - an expanded comparison study.
 - an evaluative study.
- I showed that loaded language (particularly thought-terminating clichés, dysphemisms, and biblical references) is indicative of conspiracy theorizing.
- I showed that conspiracy theorizing is associated with specific language patterns, contributing to the first directed research on how cognition interfaces with the language people use when they talk about conspiracy theories.

Acknowledgements

Thank you!



Rensselaer



Questions and Comments

Let's **agree to disagree!** And make sure to **do your own research!**

