

1. Motivation

- Two fundamental evidence types [1]:
 - Generalized** (“Legalization helps the economy”)
 - Anecdotal** (“My cousin was arrested & it ruined his life”)
- Experiments: Anecdote more persuasive** in health-related issues [2]
- Support for legalization grew from 35% to 67% in 2008-2019.** Did a surge in **anecdotes** play a role? Coincides with Reddit’s popularity. Is a surge reflected on **Reddit**?

2. Hypothesis

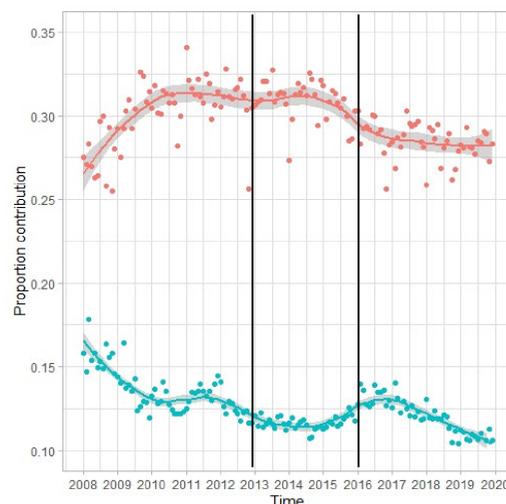
More anecdotal and **less generalized** discourse before legalization on Reddit

3. Methods

- Complete Reddit dataset (3,059,959 comments, ~300M words)
- Anecdotal: (1) events on (2) specific entities at (3) specific times** [3]
- Neural nets** of 425 news+Reddit docs classify (1)-(3) in all comments
- PCA on (1)-(3) classifies theme clusters as anecdotal/generalized** (81% var. explained)
 - Themes: **LDA** (Blei et al., 2003; 50 topics) with **agglomerative clustering**
- Neural nets to ID argumentation and + attitude** to legalization
- Three clusters** made up 2/3 of the corpus (in order of contribution):
 - Anecdotal Experiences and attitudes:** most anecdotal
 - Crime & Politics:** 2nd most generalized
 - Types & Uses:** Most generalized but non-argumentative; skip

4.1. Results

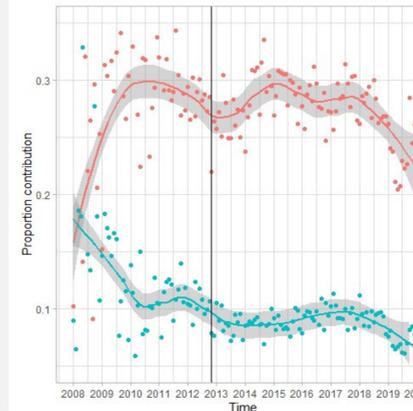
Key Point 1: Anecdotal Experiences and Attitudes especially prominent During Transition (2010-2015), Crimes and Politics in Decline



- 1st vert. line: **Colorado** legalizes recreational (**legalization spur**)
- 2nd vert. line: **California** legalizes (**end of legalization spur**)

4.2. Results

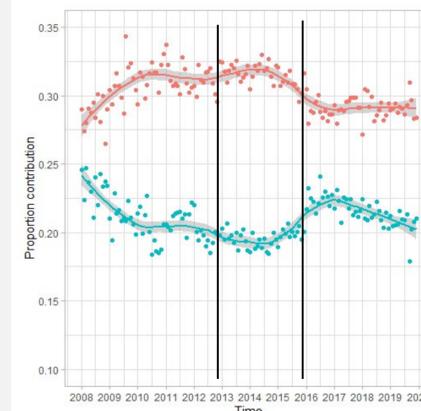
Key Point 2: Anecdotal Experiences and Attitudes Surged Ahead of Legalization in Pioneering States while Crimes & Politics Declined



- Figure: Colorado** comments (n=47,368); location estimated with Bayesian model. Vertical line: **legal. ballot initiative**
- Similar patterns for **Washington** (leg. Nov 2012) & **Vermont** (Jun 2013)

4.3. Results

Key Point 3: Anecdotal Experiences and Attitudes As Common in Arguments Supporting Legalization as in Non-argumentative Discourse



- Figure: All comments** inferred to contain persuasion attempts with positive attitude (n=742,714); Vert. lines like 4.1.

4.4. Final Twist

- Surge in **Anecdotal Experiences and Attitudes** due to outlier topic **character judgments**
 - E.g., “Users are not bad people.”
 - Highly **moralized** (moral measures not shown)
 - Highly **generalized** in linguistic features (about timeless traits of generic groups)
 - Clustered with **anecdotes** because of the words it uses (about what individuals and groups do)
 - Most common topic before legalization**, rapidly declines after

5. Discussion

- Generalized/anecdotal** language **quantified with machine learning** in Reddit legalization discourse
- Revealed **discourse correlates of mass attitude change** towards marijuana legalization
- Mixed evidence for **Hypothesis in (2): A surge in character judgments** at the expense of **crime and politics** discussions coincided with successful legalization
 - Like **anecdotes** in words, like **general** arguments in the points they made, and bound to moral values: Brought different types of evidence together in discourse
 - Useful for simplifying decision by moving **focus away from the complicated consequences** of policies (e.g., **Crimes and Politics**) to black-and-white judgments based on limited instances
- Limitations:** Reddit demographic bias, no comparison with polarized issues

6. References

- [1] Baesler, E. J., & Burgoon, J. K. (1994). The temporal effects of story and statistical evidence on belief change. *Commun Research*
- [2] Freling, (2020). When poignant stories outweigh cold hard facts: A meta-analysis of the anecdotal bias. *Org. Beh. & Hum. Dec. Pro.*
- [3] Finlayson, M. (2020, July). Toward Narrative NLP: The Utility of Adapting Modelings to the Narrative Case. Speech at *ACL2020*

Code & Data

