

## 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

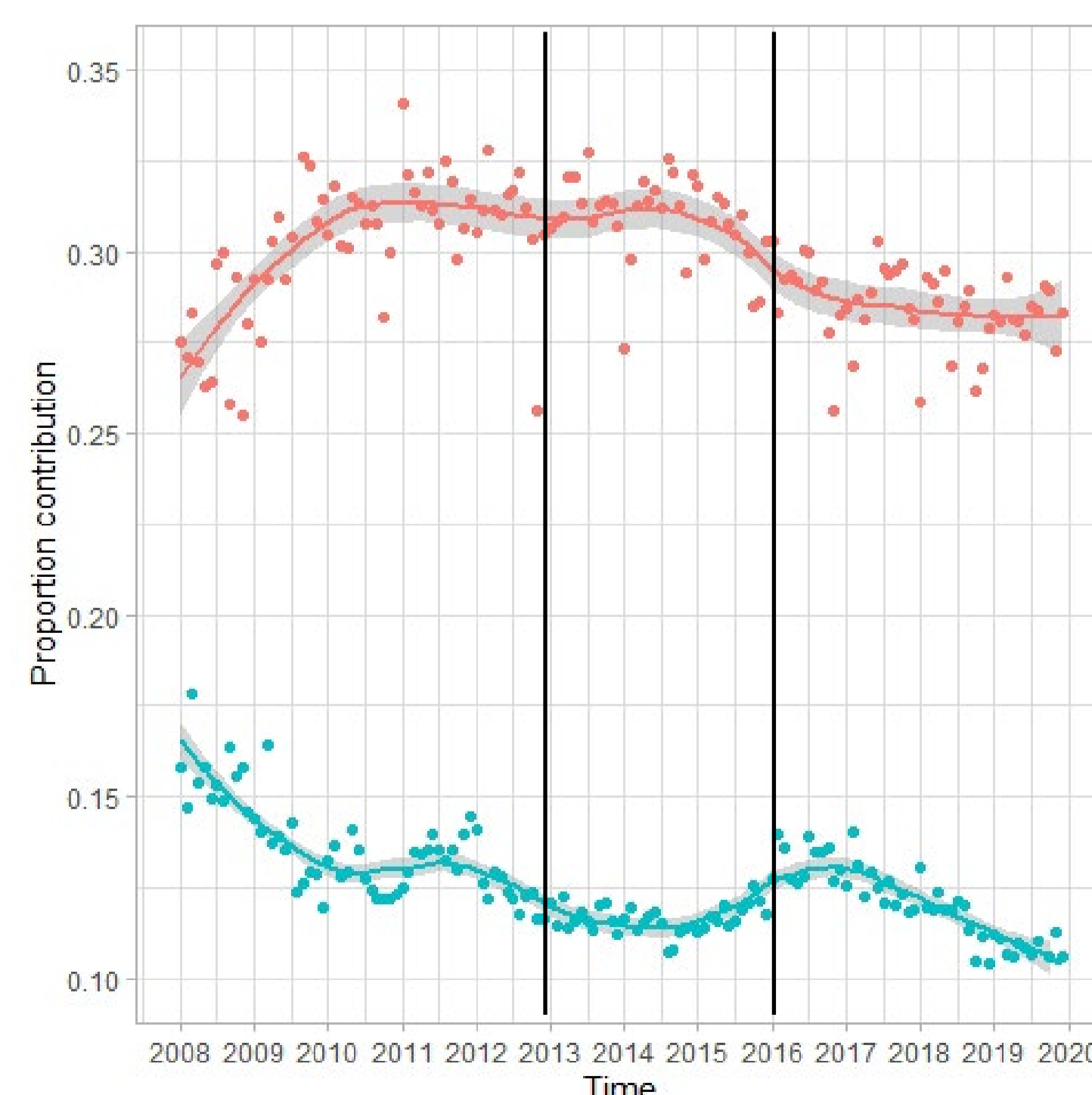
**More anecdotal** and **less generalized** discourse before legalization on Reddit

## 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**: 2<sup>nd</sup> most generalized
  - Types & Uses**: Most generalized but non-argumentative; skip

## 4.1. Results

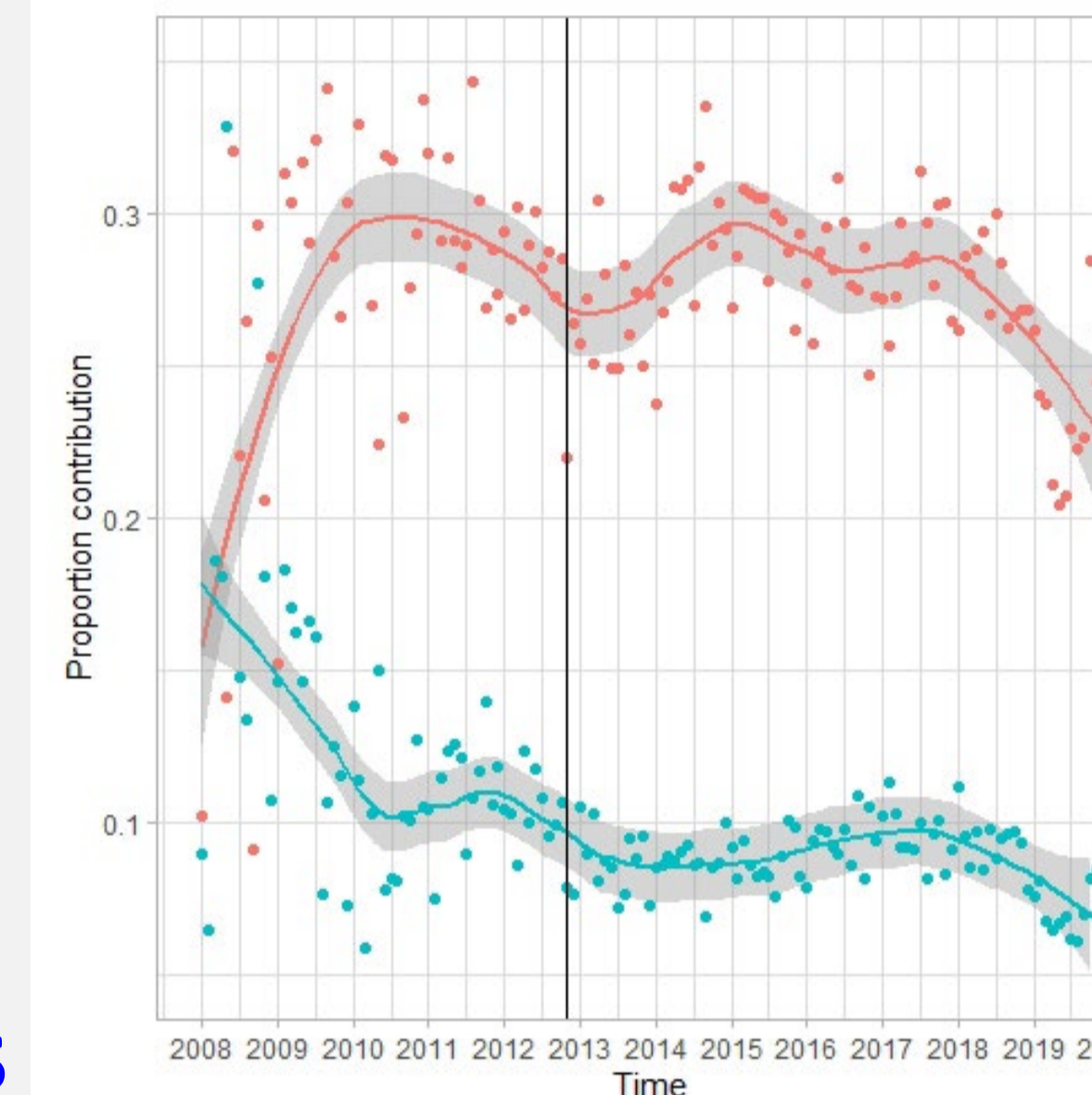
**Key Point 1: Anecdotal Experiences and Attitudes especially prominent During Transition (2010-2015), Crimes and Politics in Decline**



- 1st vert. line: **Colorado** legalizes recreational (**legalization spur**)
- 2<sup>nd</sup> 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

