

# Examining Political Rhetoric with Epistemic Stance Detection



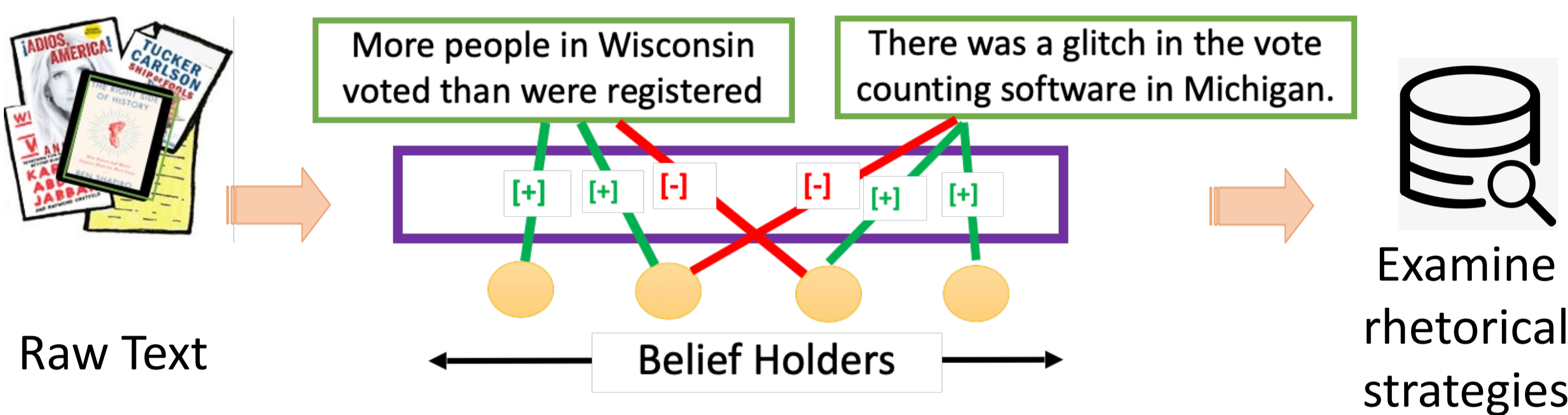
## Introduction

Political discourse is often studied via labor-intensive manual content analysis.

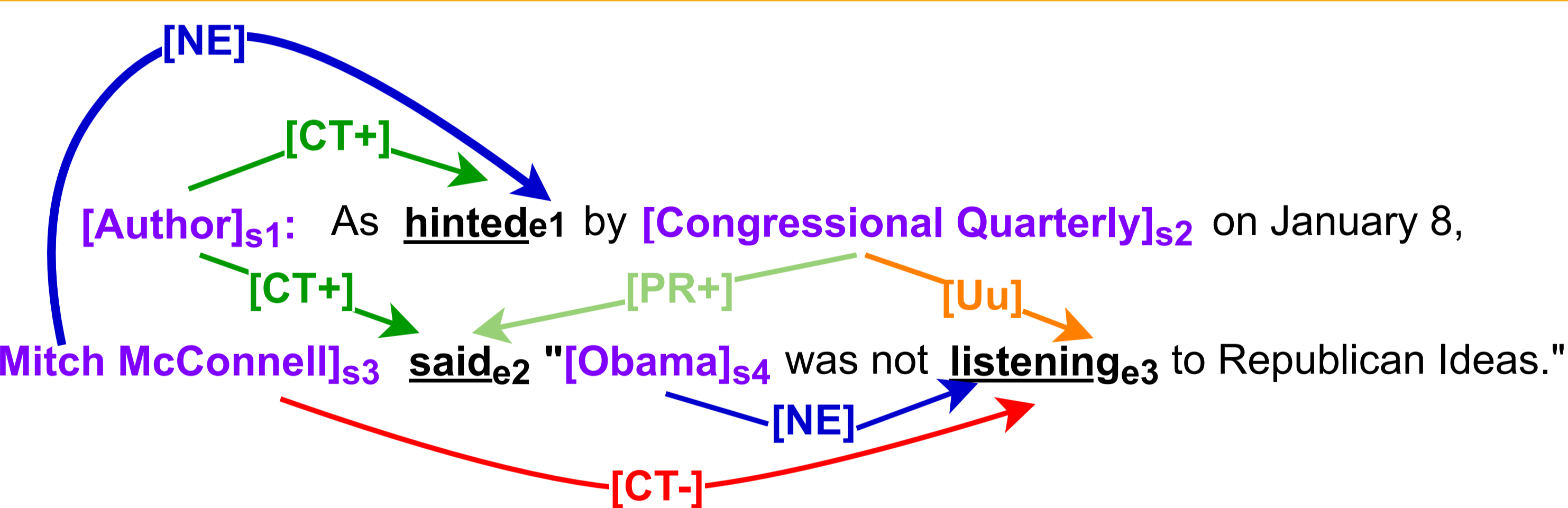
We propose to help automate such analysis by analyzing sources' epistemic attitudes towards assertions

### Epistemic Stance

“what entity believes and communicates as true”



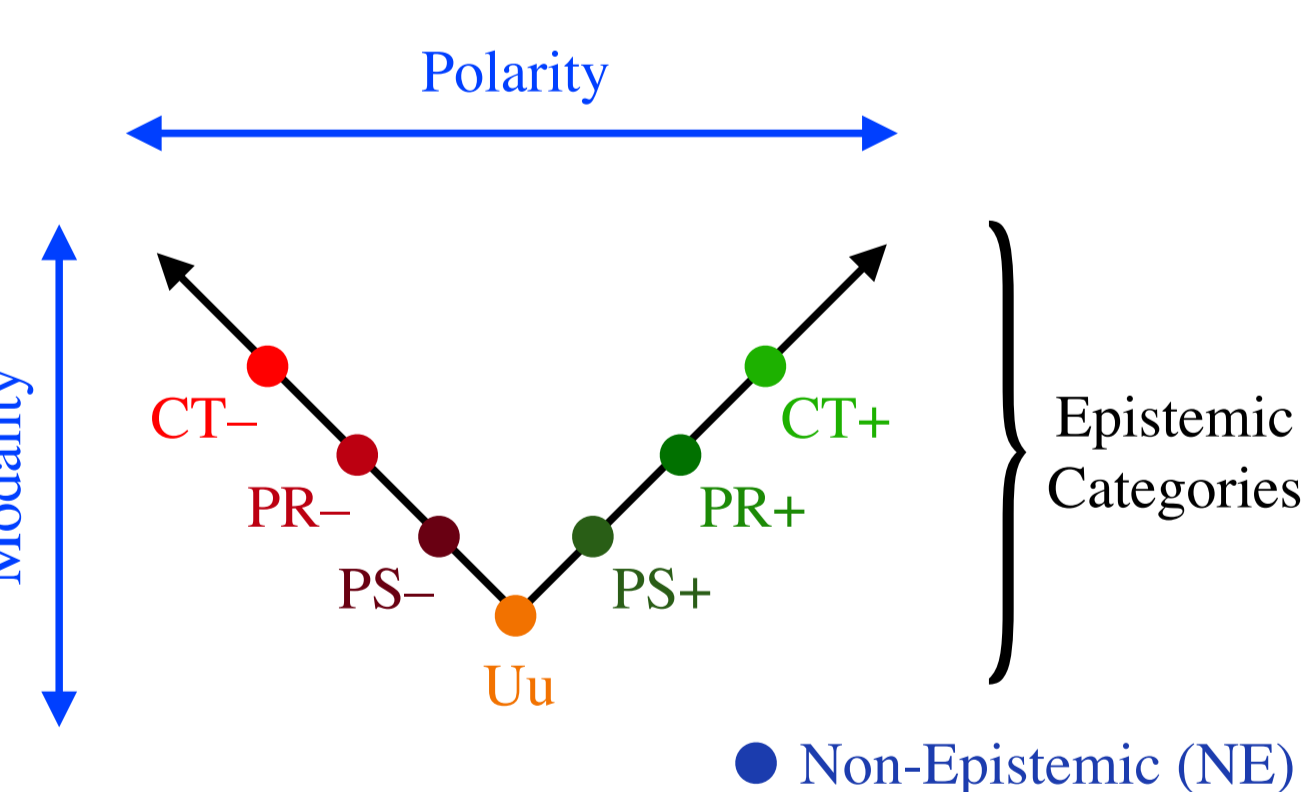
## Epistemic Stance



**[Source]** : A potential belief holder (author or an entity mentioned in text).

**Event**: States, processes, situations, propositions, facts, and possibilities.

**Epistemic Stance**: A **source's** belief about the described **events**.



Epistemic stances characterized along two axes

1. Polarity: Positive (+) and negative (-)
2. Modality: Possible (PS), probable (PR) and certain (CT)

e.g., **Certainly Positive**: The **source** *believes* that the **event** **certainly** happened.

e.g., **Uncommitted**: The **source** is **unsure** about the status of the event.

e.g., **Non-Epistemic**: **Does not make sense** to assess stance of this source-event pair.

Connections between epistemic stances and rhetorical strategies

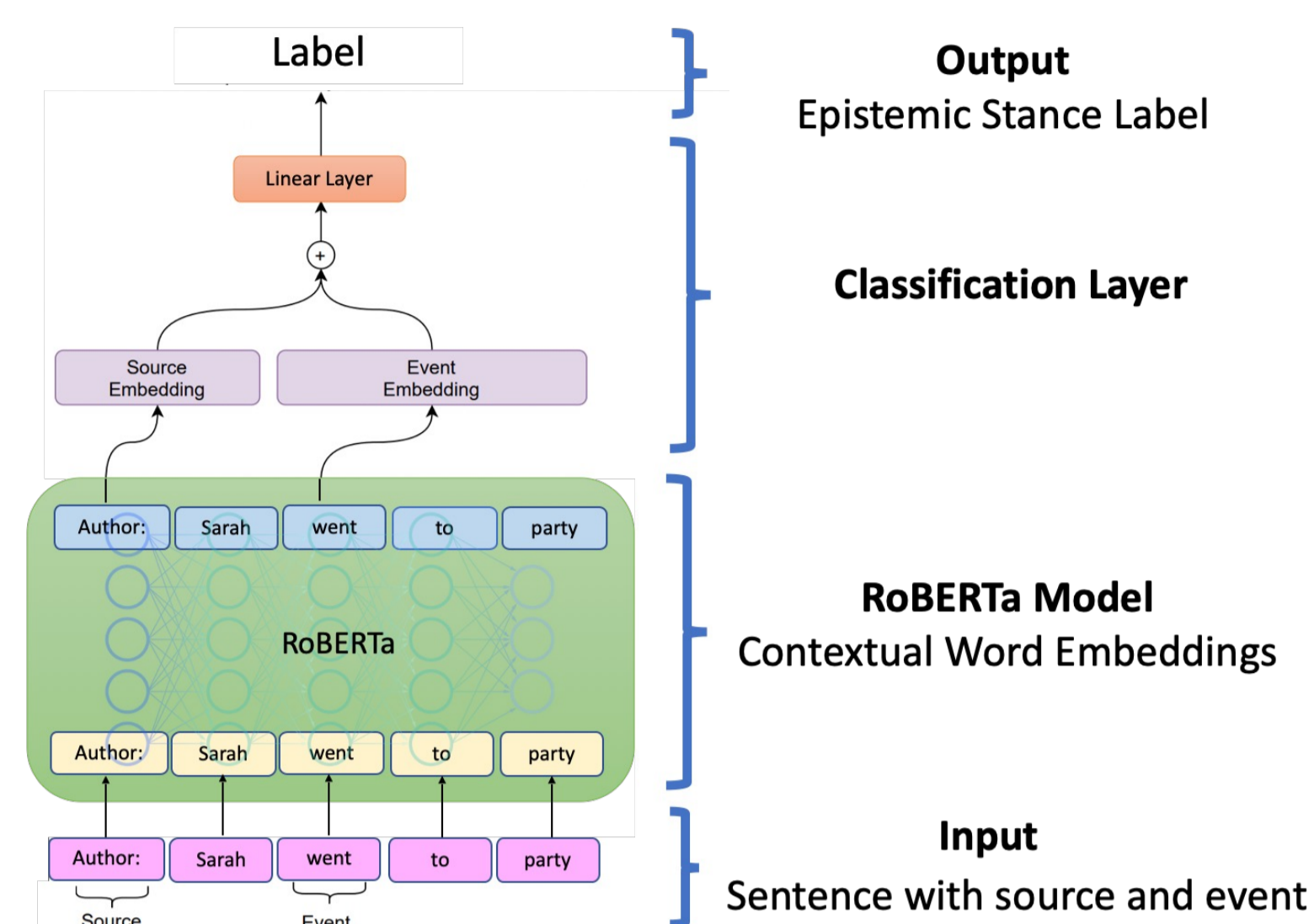
CT+/CT-	Highly committed
PR/PS	Hedging
Uu	Footing-shift, Citations



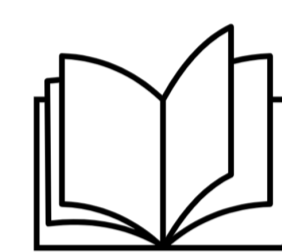
## Modelling

Fine-tuned RoBERTa model (Liu et al., 2019)

- Simple, making it accessible to social scientist users.
- Outperforms complex state-of-the-art models.



Model	F1 (%)
DeFacto (Saurí and Pustejovsky, 2012)	70.0
BiLSTM (Qian et al., 2018)	70.4
AC-GAN (Qian et al., 2018)	72.6
BERT (Jiang and de Marneffe, 2021)	66.8
RoBERTa (Ours)	73.6



## Case Study

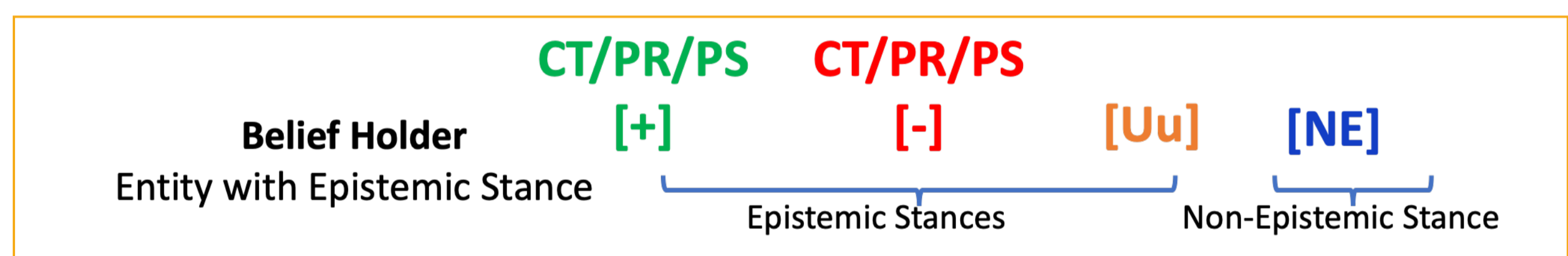
### Belief Holder Identification

Analyzing rhetorical strategies require understanding belief assertions of various entities involved in political discourse.

### Open Problem

How can we identify entities which hold beliefs according to the author of the text?

**Belief Holder**: A non-author source that holds at least one epistemic stance toward some event.



**Corpus**: Mass-Market Manifestos (MMM) corpus



- Political nonfiction authored by U.S. political opinion elites in English (1993-2020).
- 370 books (31.9 million tokens).
- 133 liberal, 226 conservative, and 11 independent books.



## Highlighted Findings

Belief holder citation practices for each U.S. political ideology

Left Cited		Right Cited	
Economists	Studies	Founders	Democrats
Women	Research	Media	Officials
Polls	Republicans	Poll	President
Scientists	Group	Obama	Conservatives
Groups	Friend	Government	Liberals

Widely cited belief holders appearing in  $\geq 100$  books

Interesting Patterns:

- ❖ Liberals respect technocratic authority (economists, scientists).
- ❖ Conservative respect semi-mythical founders and show derision for the media.
- ❖ Both sides frequently cite the opposition, though the right cites both conservatives and liberals.



Ankita Gupta  
UMass Amherst



Su Lin Blodgett  
Microsoft Research



Justin H Gross  
UMass Amherst



Brendan O'Connor  
UMass Amherst



Paper & References:

NLP+CSS Workshop  
EMNLP 2022