

System Demo

Marco Rubio voted **against** the bipartisan Violence Against Women Act

Tip: Hover over the highlighted frame elements to view the definition.

Frame Elements:

- Agent:** Marco Rubio
- Position:** against
- Issue:** the bipartisan Violence Against Women Act

About Marco Rubio



Member ID: R000595

Marco Antonio Rubio (born May 28, 1971) is an American politician and lawyer serving as the senior United States senator from Florida, a seat he has held since 2011. A member of the Republican Party, he served as Speaker of the Florida House of Representatives from 2006 to 2008. Rubio unsuccessfully sought the Republican nomination for President of the United States in 2016, but won presidential primaries in Minnesota, the District of Columbia, and Puerto Rico.

[More info](#)

"... Marco Rubio's vote on this bill was recorded as **'Nay'**. The factual claim states that Marco Rubio voted **against** the bipartisan Violence Against Women Act. Since Rubio's **'Nay'** vote aligns with the claim that he voted against the Act, the information **supports** the claim."

Related Bills

Bill Title: 112 S 1925

Bill Summary: Violence Against Women Reauthorization Act of 2012 - (Sec. 3) Amends the Violence Against Women Act of 1994 (VAWA) to add or expand definitions of several terms for purposes...

[Show more](#)

Vote: **Nay**

Alignment: **Supports**

Bill Title: 117 HR 3233

Bill Summary: National Commission to Investigate the January 6 Attack on the United States Capitol Complex Act This bill establishes in the legislative branch the National Commission to Investigate the...

[Show more](#)

Vote: **Nay**

Alignment: **Irrelevant**

Bill Title: 117 HR 350

Bill Summary: Domestic Terrorism Prevention Act of 2022 This bill establishes new requirements to expand the availability of information on domestic terrorism, as well as the relationship between...

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Vote: **Nay**

Alignment: **Irrelevant**

Ted Cruz voted **for** background checks on all gun sales.

Tip: Hover over the highlighted frame elements to view the definition.

Frame Elements:

- Agent:** Ted Cruz
- Position:** for
- Issue:** background checks on all gun sales

About Ted Cruz



Member ID: C001098

Rafael Edward Cruz (born December 22, 1970) is an American politician and attorney serving as the junior United States senator from Texas since 2013. A member of the Republican Party, Cruz was the solicitor general of Texas from 2003 to 2008. In 2016, Cruz sought the Republican presidential nomination, emerging as a serious competitor to front-runner Donald Trump in a primary marked by intense, often personal, exchanges. Cruz initially withheld his endorsement after Trump secured the nomination, but became a strong supporter during Trump's presidency. In 2021, Cruz objected to the certification of Joe Biden's victory in the 2020 presidential election.

[More info](#)

"... Ted Cruz voted **'Nay'** on this bill, which **refutes** the claim that he voted for background checks on all gun sales. His **'Nay'** vote indicates **opposition** to the bill's provisions regarding background checks and other measures."

Related Bills

Bill Title: 117 HR 5746

Bill Summary: Freedom to Vote: John R. Lewis Act This bill addresses voter registration and voting access, election integrity and security, redistricting, campaign finance, and voting rights. Specifically, th...

[Show more](#)

Vote: **Nay**

Alignment: **Irrelevant**

Bill Title: 117 S 2938

Bill Summary: Bipartisan Safer Communities Act This act makes various changes to federal firearms laws, including to expand background check requirements, broaden the scope of existing...

[Show more](#)

Vote: **Nay**

Alignment: **Refutes**

Bill Title: 117 HR 350

Bill Summary: Domestic Terrorism Prevention Act of 2022 This bill establishes new requirements to expand the availability of information on domestic terrorism, as well as the relationship between...

[Show more](#)

Vote: **Not Voting**

Alignment: **Irrelevant**



Scan me to try the demo!

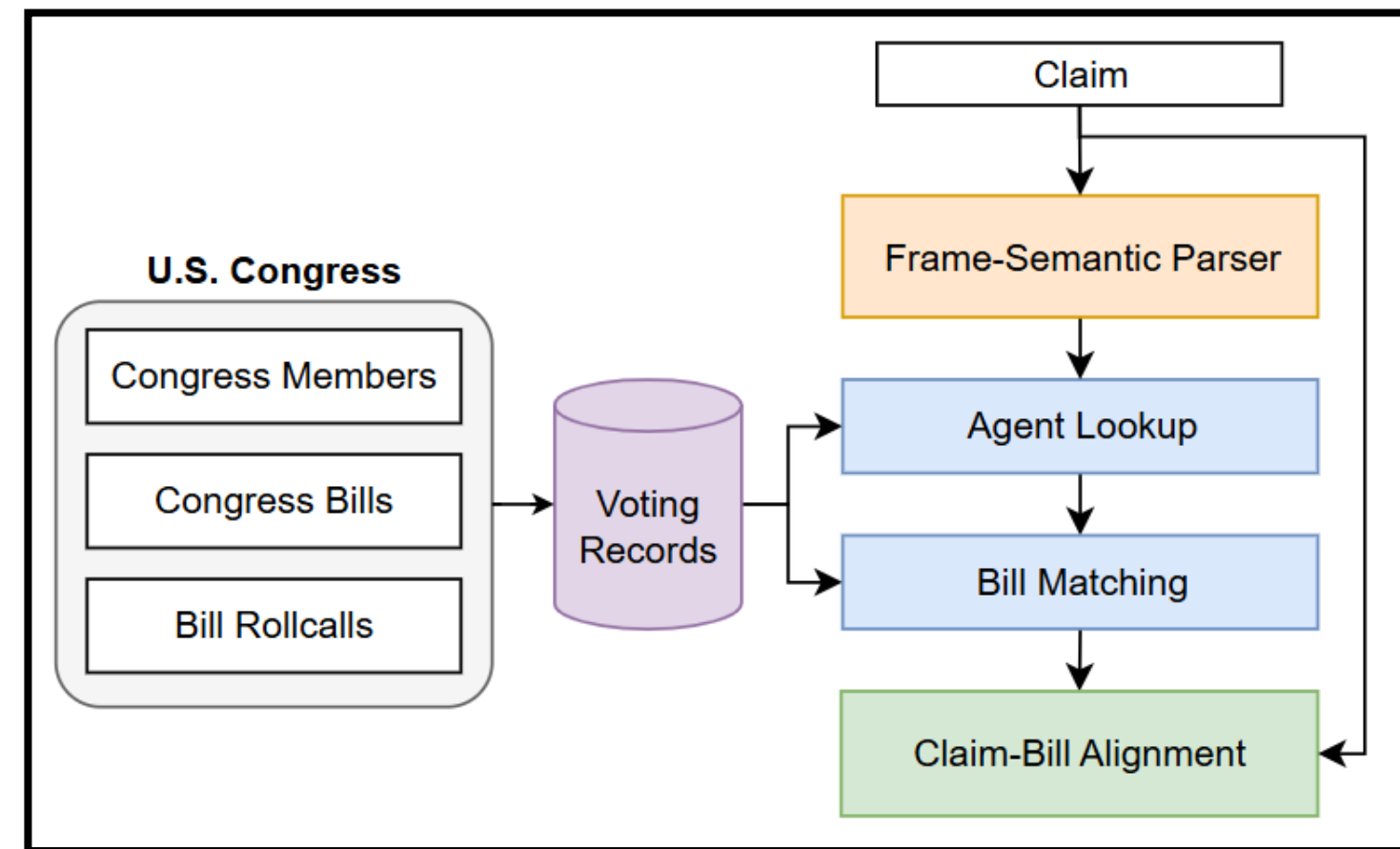
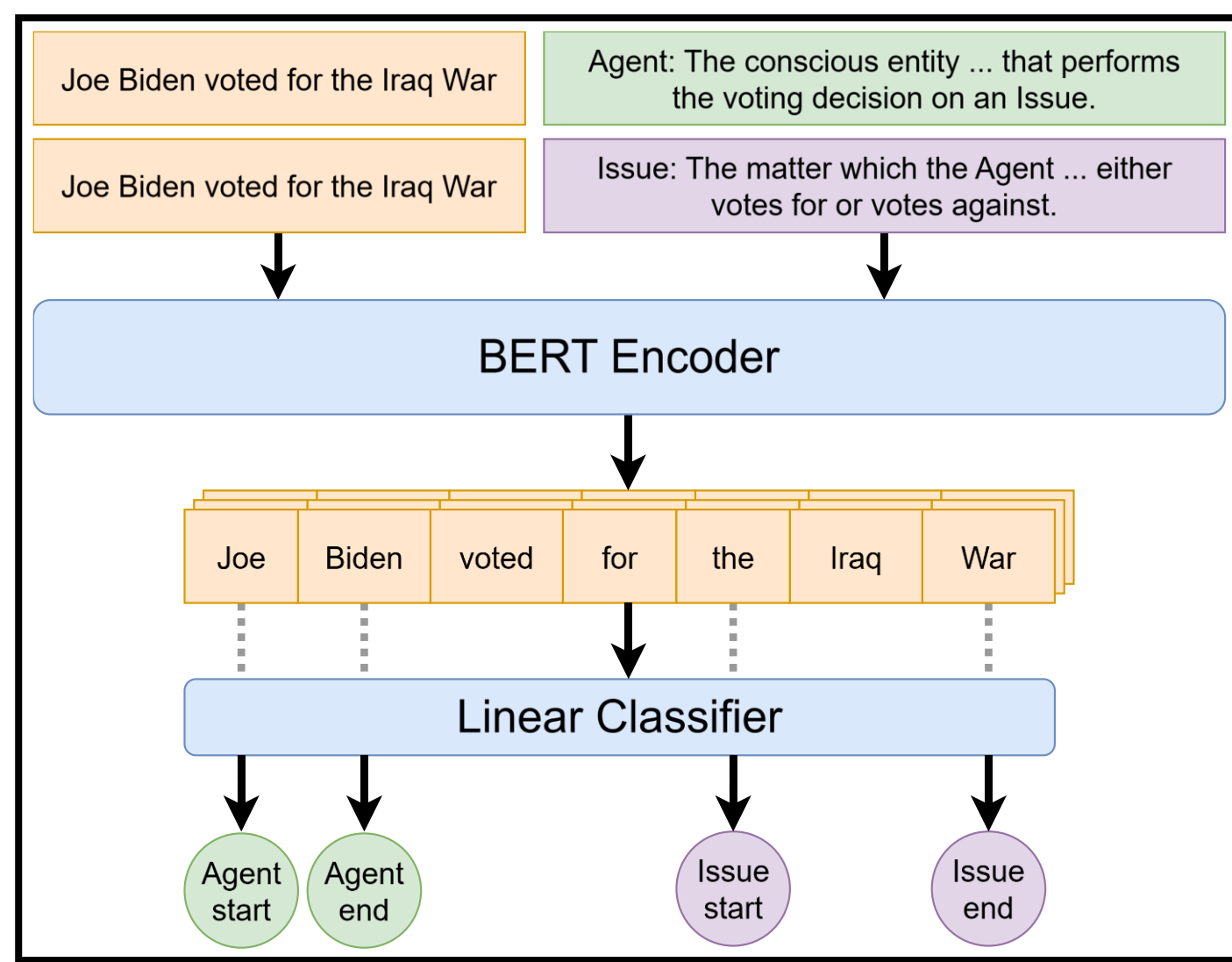
Methodology

Frame-Semantic Parsing

- Enables **automatic structured extraction** of voting-related elements.

Vote Frame

- Agent:** The conscious **entity** executing the voting decision (typically a person).
- Issue:** The **subject** or matter that the Agent casts a voting decision on.
- Position:** The **stance** the Agent takes on an Issue (typically for/against).



System Overview

- Frame-semantic parser** extracts voting-related information from a given claim.
 - Agent** - lookup congress member.
 - Issue** - find relevant bills voted on.
- LLM** evaluates vote alignment to the claim.

Supports – The vote **supports** the claim.

Refutes – The vote **refutes** the claim.

Inconclusive – **Not enough information.**

Irrelevant – The bill is **irrelevant**.

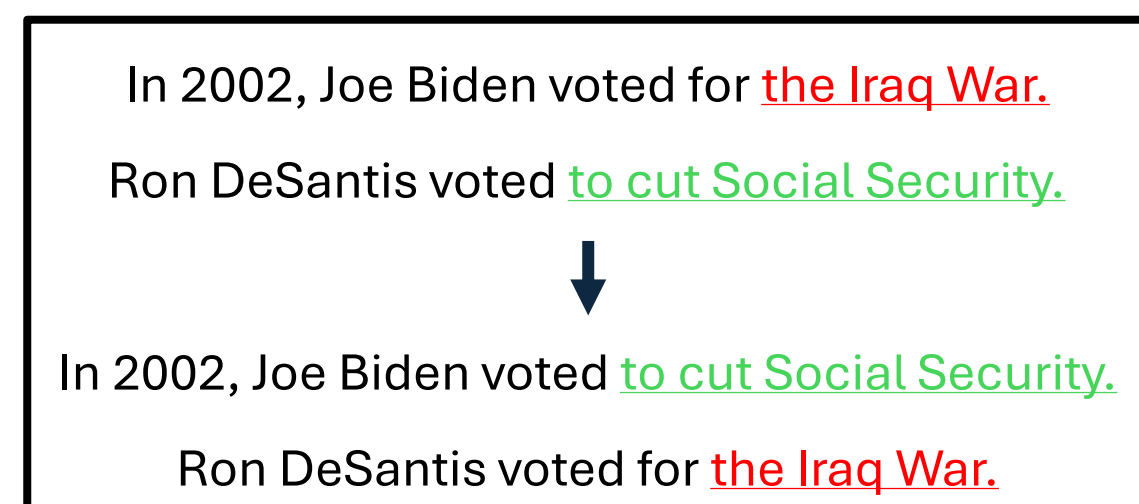
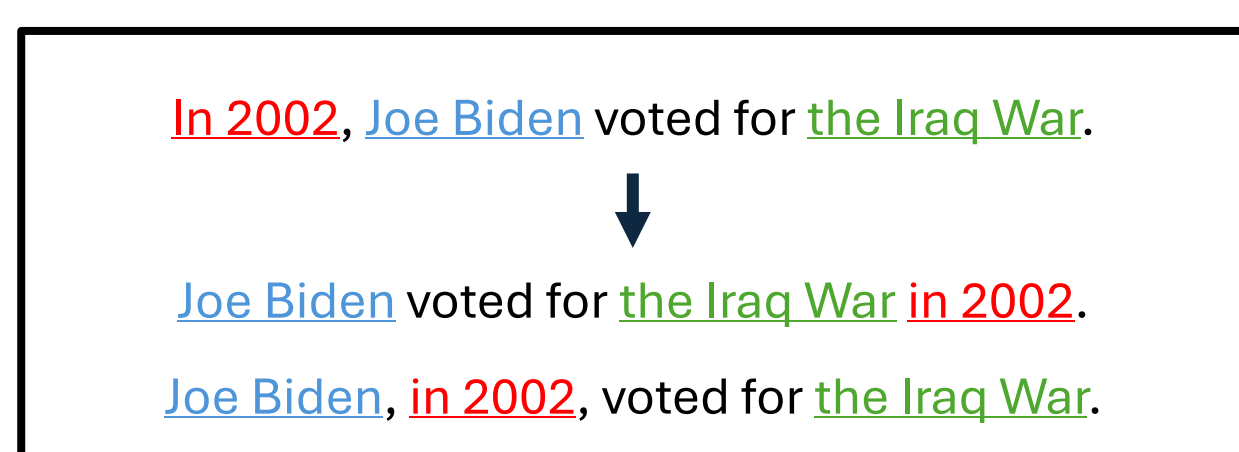
Data Augmentation

Frame Element (FE) Interleaving

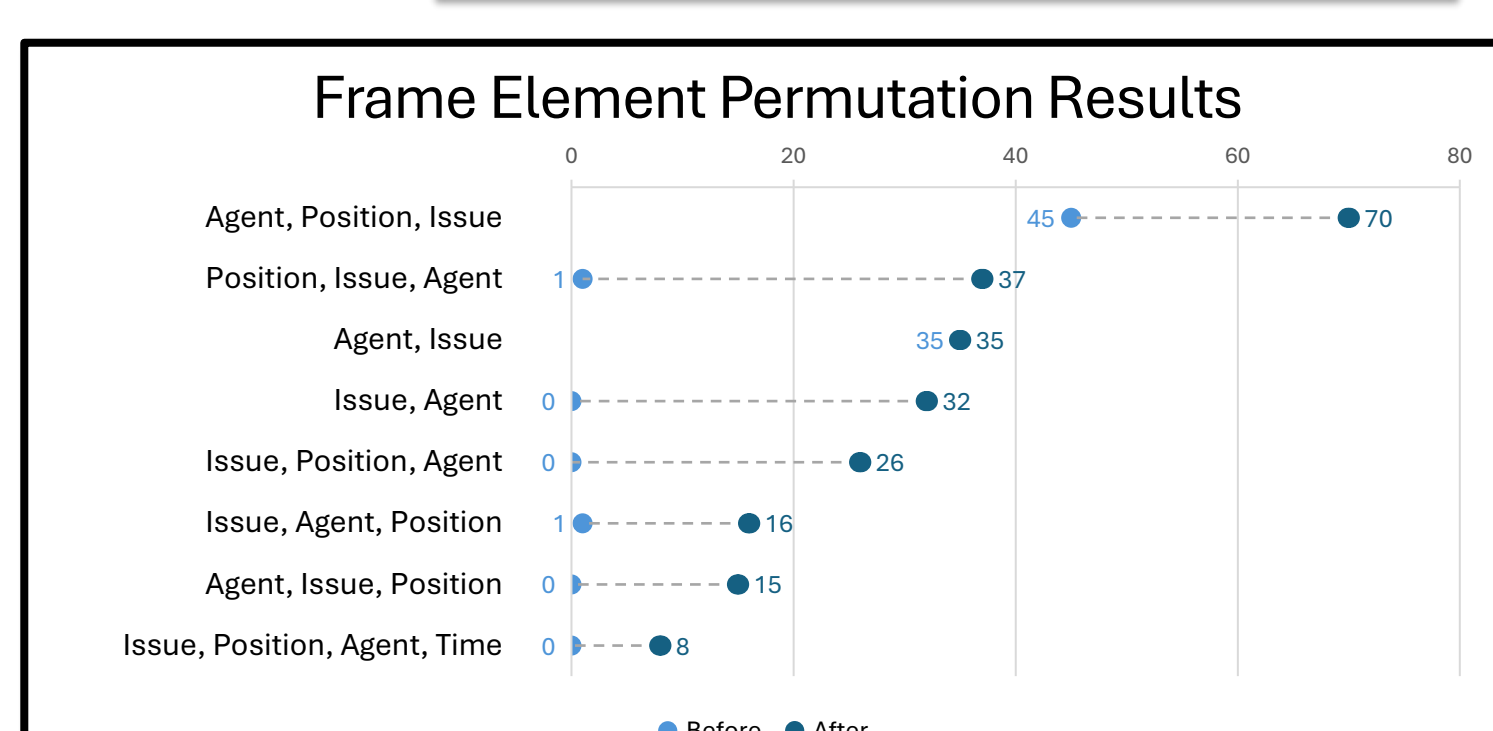
- Only **~100 annotated sentences** with Vote frame.
- Interleave sentences** using FEs from other sentences.
- 2ⁿ - 2 new sentences for **n** intersecting FEs.

Frame Element Permutation

- Sentences often follow the **same pattern**.
- To **avoid model bias**, we augment dataset with **re-ordered sentences**.
- 2^k – 1 new samples for **k** frame elements.



Dataset	# Train	# Test
Bill Match	0	79
Vote Frame	75	21
Vote GPT Negatives	81	24
Vote FE Permutation	290	73
Vote FE Interleaved	3,154	2,808
Vote FE HC Interleaved	1,697	2,808



Bill Matching and Alignment

Motivation

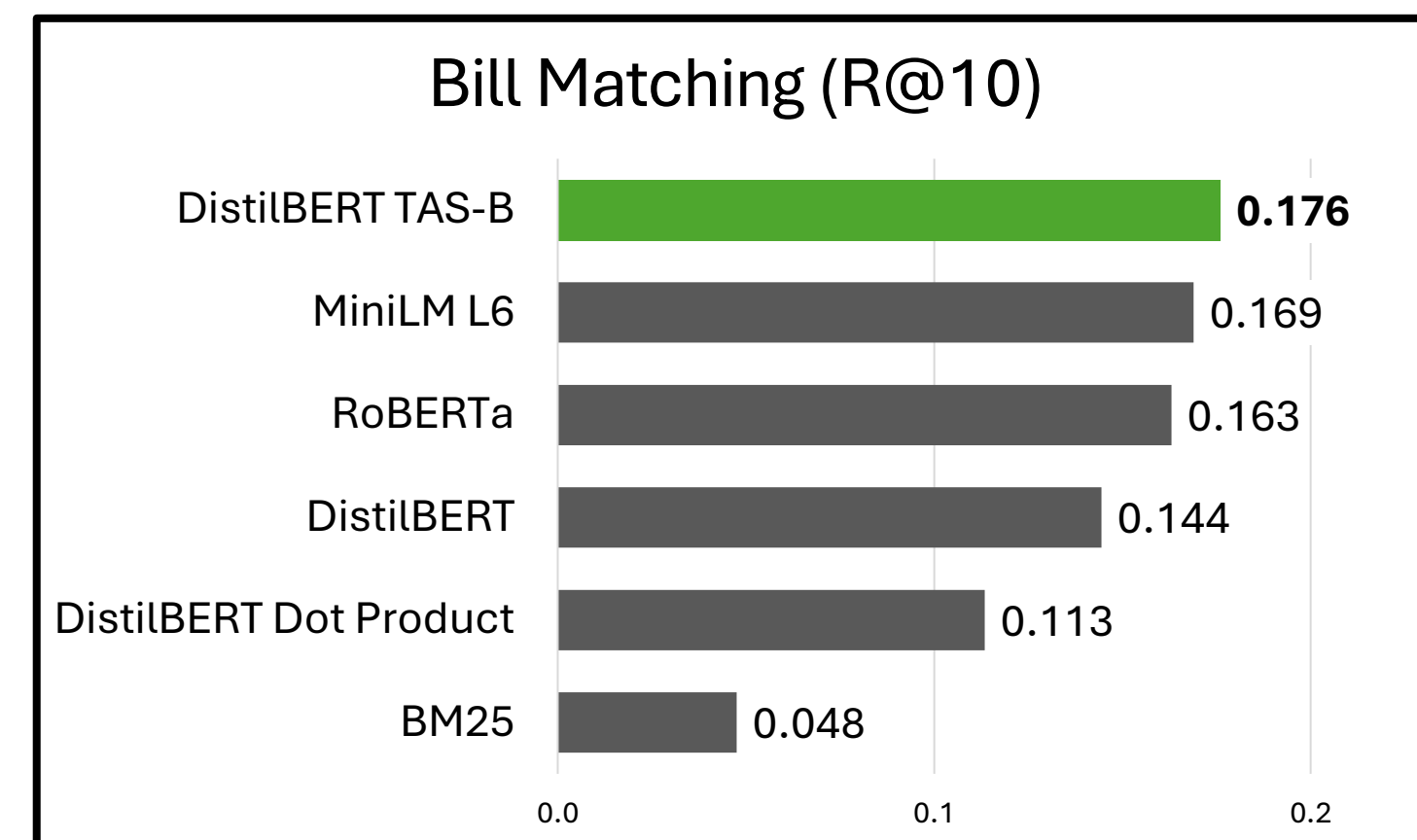
- Find bills given an **Issue** frame element
- May **indirectly** address a particular issue.
 - E.g., *"I voted against **abortion**."*
 - Cutting funding for women's clinics.

Manually-Created Dataset

- 79** voting-related claims from PolitiFact.
- 190** Bills mentioned in the "sources" section of the PolitiFact fact-checks.

Semantic Similarity Models

- Keyword search (BM25) **failed**.
- Experimented models were finetuned on MSMARCO dataset.



- Performance limited by U.S. Congress bills (Max R@10 = 0.568).

Claim-Bill Alignment

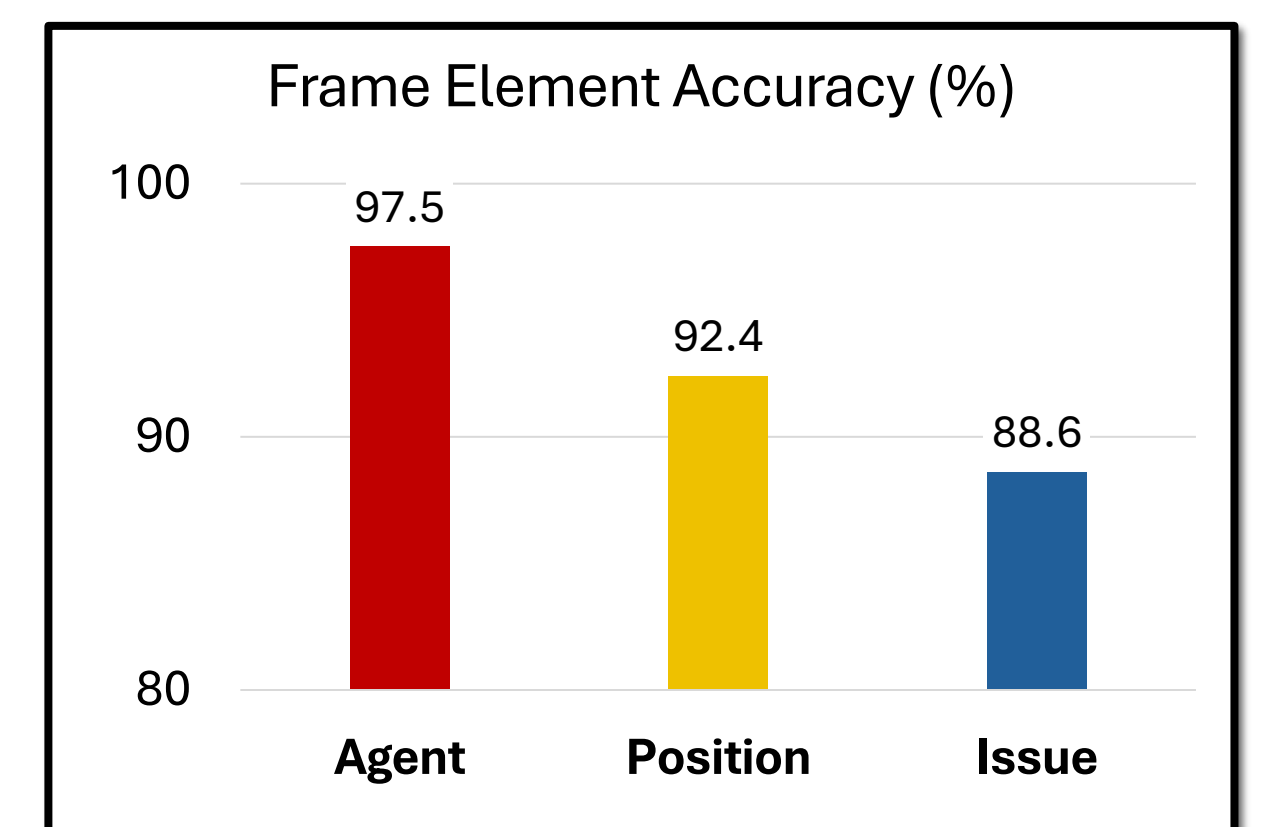
- Requires knowledge and reasoning on **explicit or implicit effects** of a bill.
- Only **Claude 3 Opus** and **GPT 4o** worked.

Results

Frame-Semantic Parsing

- Evaluated using **exact match** accuracy and macro F1 on frame and frame elements.
- Improved Frame Accuracy by **+1.7%**, FE Accuracy by **+6.2%**, and FE Macro F1 by **+17.1%**.
- Used RoBERTa **CoLA** model (HC) to filter low-quality interleaved sentences.

Model	Frame Acc	FE Acc	FE F1 _M
Random baseline	0.488	0.254	0.074
Most frequent baseline	0.974	0.372	0.060
Baseline w/o GPT neg.	0.974	0.853	0.613
Baseline	0.981	0.827	0.537
w/ FE <i>itl.</i>	0.998	0.851	0.681
w/ HC FE <i>itl.</i>	0.993	0.854	0.641
w/ FE <i>perm.</i>	0.962	0.845	0.637
w/ FE <i>itl.</i> + FE <i>perm.</i>	0.998	0.875	0.630
w/ HC FE <i>itl.</i> + FE <i>perm.</i>	0.990	0.889	0.708



Acknowledgements



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