# ClaimBuster: Automated, Live Fact-checking

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UNIVERSITY OF TEXAS ARLINGTON

IDIR

## The Quest to Automate Fact-checking

### People make factual claims all the time

**Donald Trump**
Republican presidential candidate

"The Mexican government forces many bad people into our country."

in an interview with NBC – Wednesday, July 8, 2015

PANTS ON FIRE!
POLITIFACT

**Hillary Clinton**
Democratic presidential candidate

Says she "never received nor sent any material that was marked classified" on her private email server while secretary of state.

in an interview on MSNBC – Saturday, July 2, 2016

FALSE
POLITIFACT

### The "Holy Grail"

Source: Bill Adair

### Fact-checking is challenging

**Limited resources, time-consuming tasks**
- 96 active fact-checking sites in 2016 (PolitiFact .com, CNN, Washington Post, …)
- Several hundred professional fact-checkers
- One fact-check oftentimes takes one day

**vs.**

**Fast-spreading falsehoods and half-truths on the web and social network**

### ClaimBuster goals

- debates
- interviews
- speeches
- political ads
- social media
- web
- news

repository of fact-checks by professionals

CLAIMBUSTER

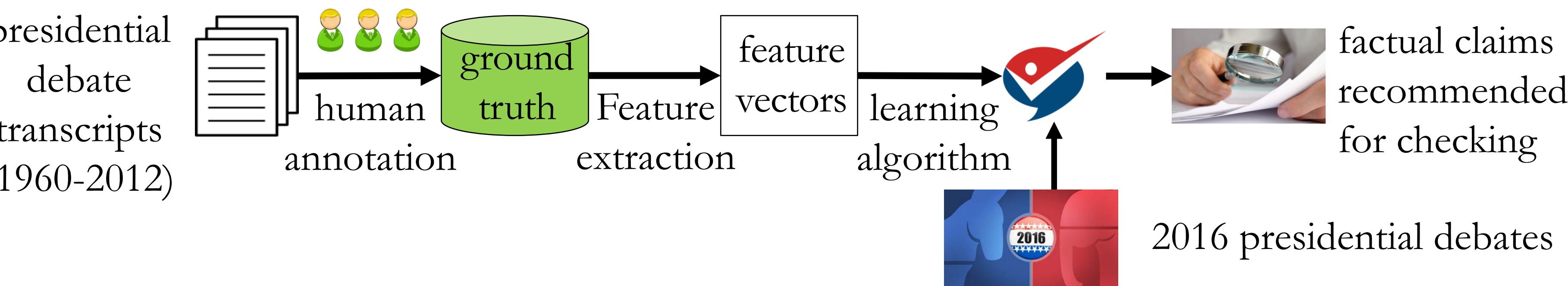**claimed detected and ranked by check-worthiness**

**matched existing fact-checks:** delivered via browser extensions, mobile and smart-TV apps

**new factual claims:** solicit analyses from professionals; algorithmic fact-checking

## Detecting Check-worthy Factual Claims

presidential debate transcripts (1960-2012) → human annotation → ground truth → Feature extraction → feature vectors → learning algorithm → factual claims recommended for checking

2016 presidential debates

### Classification

- Non-Factual Sentence (**NFS**) (Opinions, beliefs, declarations): But I think it's time to talk about the future.
- Unimportant Factual Sentence (**UFS**): Two days ago we ate lunch at a restaurant.
- Check-worthy Factual Sentence (**CFS**): He voted against the first Gulf War.

### Feature extraction & selection

**Sentiment:** 0.032    **Words:** state, legislature, 87, percent, democrat

I was in a state where my legislature was 87 percent Democrat.

**Part-of-Speech:** Noun    **Entity Type:** Quantity    **Concept:** United States

### Ground truth collection

Hundreds of participants; 1000 screening sentences to detect low-quality participants and spammers.

**OI: Wages are goings up for the first time in a decade.**

More Context

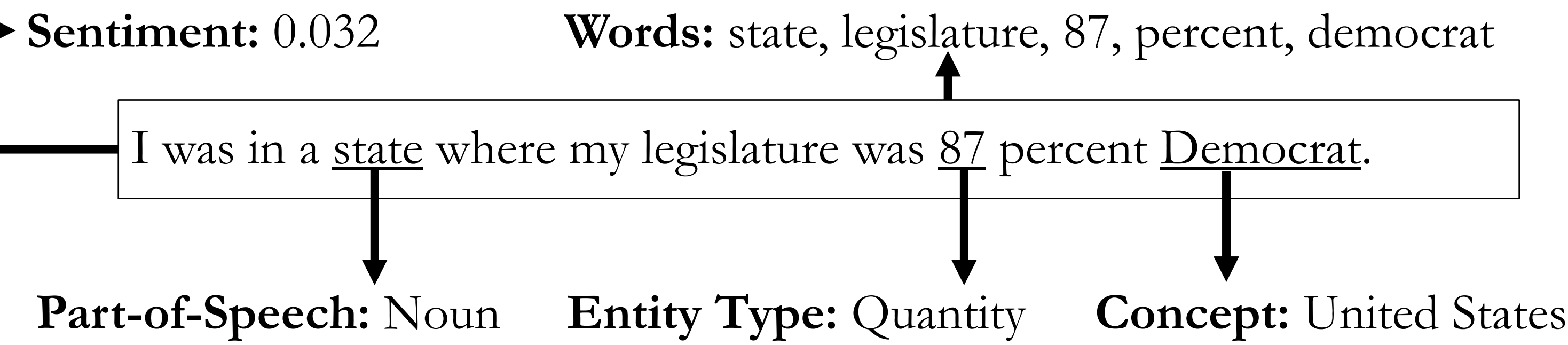Will the general public be interested in knowing whether (part of) this sentence is true or false?

- There is **no** factual claim in this sentence.
- There is a factual claim but it is **unimportant**
- There is an **important** factual claim.

Submit    Skip this sentence    Modify My Previous Responses

### Real-time test during primary debates

Scores given by ClaimBuster to sentences fact-checked by professionals are significantly higher than scores to those not chosen for checking.

| Platforms | avg(YES) | avg(NO) | t-value | p-value |
|---|---|---|---|---|
| CNN | 0.433 | 0.258 | 21.137 | 1.815E-098 |
| PolitiFact | 0.438 | 0.258 | 16.362 | 6.303E-060 |

## Prototype and Development Status

### Monitoring political discourses and social media

ClaimBuster automated live fact-checking    Data Collection    Press    Acknowledgement

- Find factual claims in your own text
- 2016 US Primary Debates
- Hansard: Parliament of Australia

Tweets by @ClaimBusterTM

ClaimBuster Retweeted
**Bernadette Keefe MD** @nxtstop1
@GlennThrush Bornstein, Trump's doc also stated that Trump had recently lost 15 lbs. Maybe Trump weighed 267+15 = 283 pounds one year ago?

ClaimBuster Retweeted
**West Wing Reports** @WestWingReport
The $185 million fine against Wells Fargo (if it is actually paid) is set against $WFC's 2015 net income of approx $22 billion

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- Prototype
  idir.uta.edu/claimbuster
- Ground truth collection
  bit.ly/claimbusters

**NSF**    **KF**    **Funding**

**Closed-captions devices**

### Live coverage of debates

ClaimBuster automated live fact-checking    Data Collection    Press    Acknowledgement

2016 Republican Party Presidential Debate. Feb. 6, 2016, 8 p.m. EST
Venue: St. Anselm College, Manchester, New Hampshire. Broadcasted by: ABC News/IJReview.
Moderators: David Muir, Martha Raddatz, Mary Katharine Ham, Josh McElveen, George Stephanopoulos, Jon Karl
Participants: Donald Trump, Ted Cruz, Ben Carson, Marco Rubio, Chris Christie, Jeb Bush, John Kasich
Transcript    Source:    https://www.washingtonpost.com/news/the-fix/wp/2016/02/06/transcript-of-the-feb-6-gop-debate-annotated/

Chronological Order    Order by Score

Least Check-worthy  >=0.1 >=0.2 >=0.3 >=0.4 >=0.5 >=0.6 >=0.7 >=0.8 >=0.9  Most Check-worthy

**David Muir:** So let's get started.    We welcome you all to the debate stage here tonight.    We're going to tackle the issues Americans are most concerned about, the economy, ISIS, Homeland Security.    And here in New Hampshire, some of the most heated rhetoric yet over who is best suited to step in on day one, who has the experience, who has the temperament to be commander-in-chief.    Mr. Trump, Senator Cruz has said about you right here in New Hampshire this week, quote, "I don't know anyone who would be comfortable with someone who behaves this way, having his finger on the button.    We liable to wake up one morning, and if he were president, he would nuke Denmark."    Saying, quote, "That's temperament of a leader to keep this country safe."    I wanted to give you the opportunity to respond to this and to tell the American people tonight why you do have the temperament to be commander-in-chief.

**Donald Trump:** I actually think I have the best temperament.    I built a massive corporation.    I employ thousands and thousands of people    I've gotten along with people for years and years and years, and have tremendous relationships with many people, including politicians on both sides.    And no matter how you cut it, when I — when I came out, I hit immigration, I hit it very hard.    Everybody said, "Oh, the temperament," because I talked about illegal immigration.    Now, everybody's coming to me, they're all trying to say, well, he's right, we have to come to him.    I hit other things.    I talked about Muslims.    We have a problem.    Nobody else wanted to mention the problem, but I brought it

Note: You can select the text and annotate it. The underlined sentences are annotated.

I employ thousands and thousands of people.
ChengkaiLi
Add your annotation
Annotate

- Trump
- Cruz
- Carson
- Rubio
- Christie
- Bush
- Kasich

**Media coverage**

NewStatesman, THE SHORTHORN, Star-Telegram, New Scientist, NORDIC APIS, the guardian, catch news, NiemanReports, Poynter, FIRST DRAFT, journalism.co.uk, Austin American-Statesman, WIRED, ZDNet Korea, 5, the FACT-CHECKING PROJECT AMERICAN PRESS INSTITUTE, PolitiFact Texas