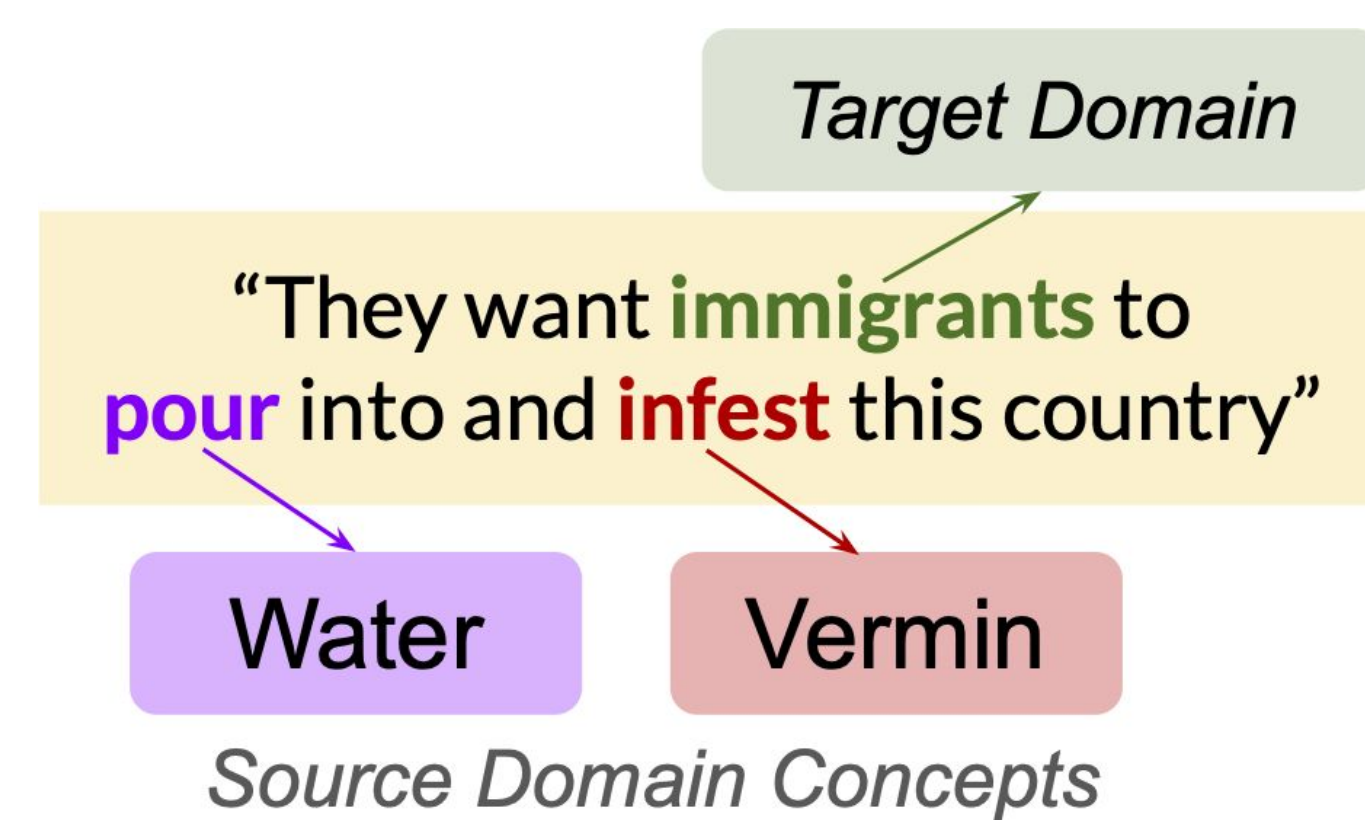


When **People** are **Floods**: Analyzing Dehumanizing Metaphors in Immigration Discourse with LLMs

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Metaphor: understanding and experiencing one thing in terms of another
[Lakoff & Johnson, 1980]

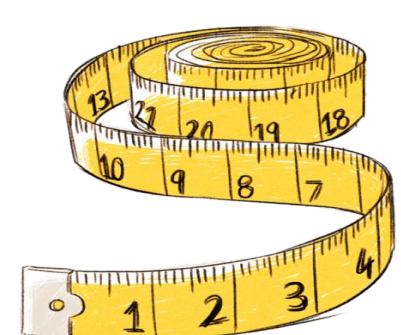
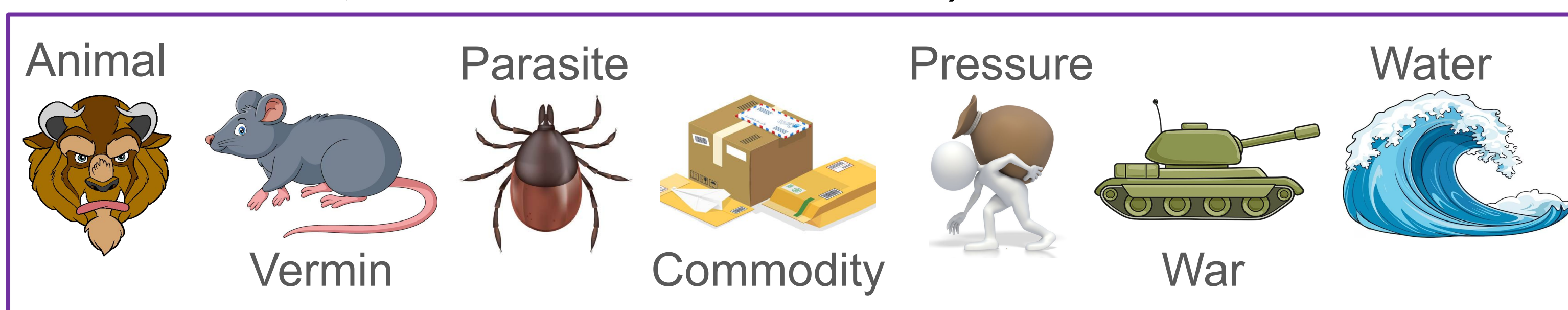


Metaphors are frames: they highlight some aspects of issues and shape interpretation of problems, causes, and solutions. [Burgers et al., 2016]

Metaphors can dehumanize: they liken people to non-human entities, putting them outside the realm of moral consideration [Haslam, 2006]

Metaphors can be conventional and seem neutral (*waves of immigration*)

Source Domain Concepts (curated from discourse analysis literature)

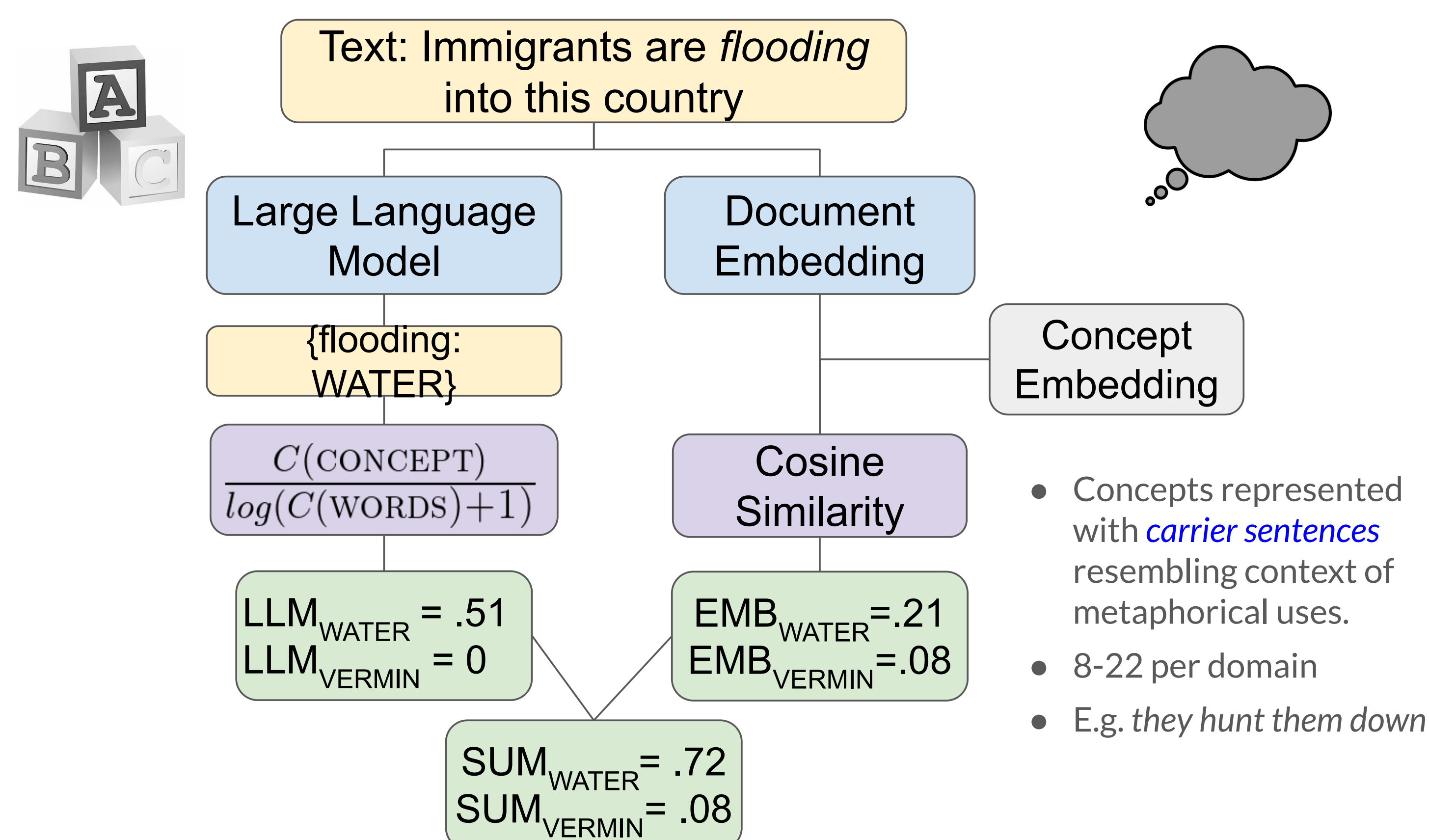


Measuring Metaphor

Word-level: source domain cued by specific words and phrases

Discourse-level: text evokes association with source domain

Our method leverages both word and discourse information



Immigration Discourse Data

Full data: 400K US tweets about immigration [Mendelsohn et al., 2021]

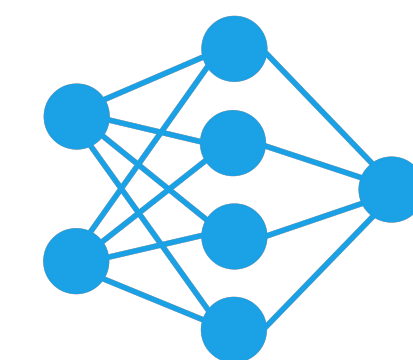
- Feb 2018 - Dec 2019, collected from Decahose & API in mid-2020
- Continuous ideology estimates from following network [Barberá, 2015]
- Includes **engagement counts** (favorites and retweets)

New annotated dataset: 1,600 tweets with metaphor judgments

- 200 tweets per source domain & domain-agnostic metaphoricity
- Approx. 8-9 binary annotations per tweet
- **Metaphor score**: % annotators who say a tweet is metaphorical with respect to the given source domain concept

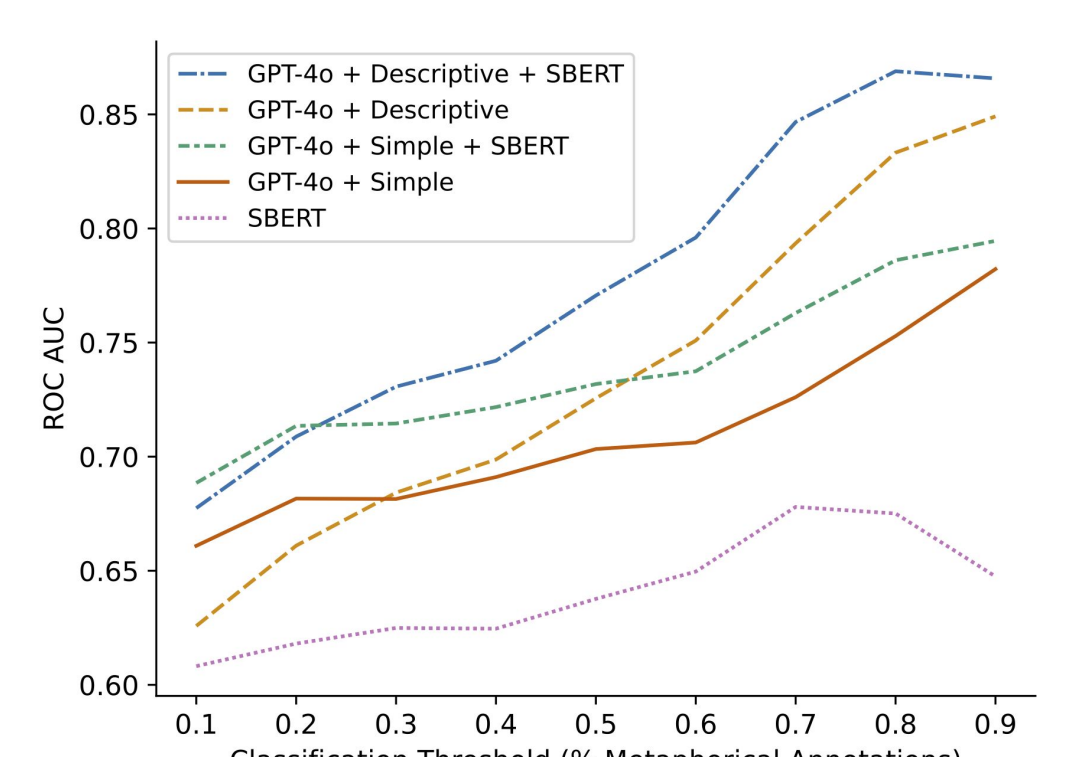
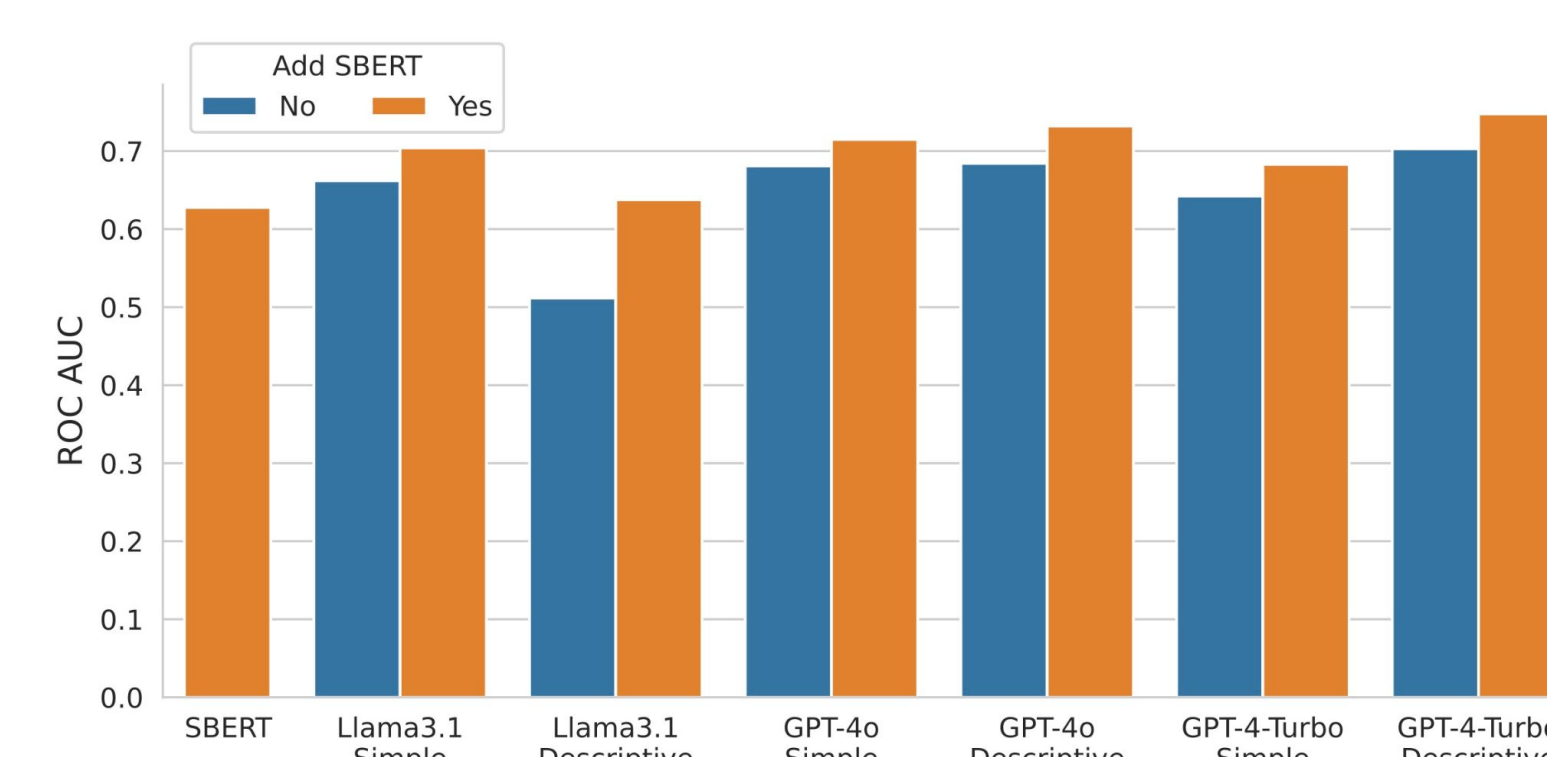
Evaluation: Spearman correlation, AUC@ varied thresholds (e.g. 30%)

Check out our paper!
Full data available upon request



Models and Evaluation

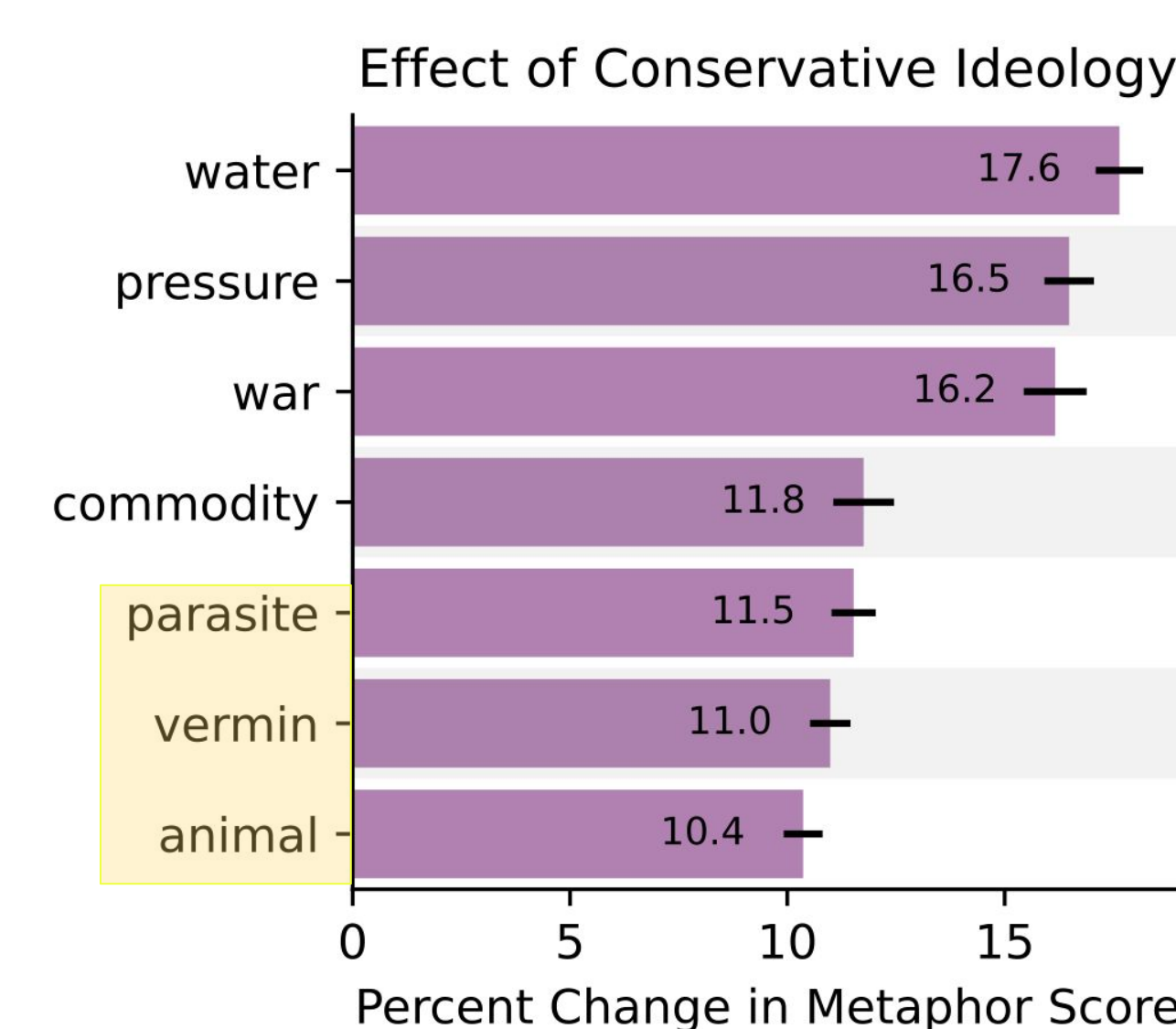
- **SBERT** for document and concept embeddings
- **3 LLMs**: Llama-3.1-70B, GPT-4-Turbo, GPT-4o (used for analysis)
- **2 Prompts**: simple, descriptive (all zero-shot)
- Discourse-level metric (SBERT) consistently improves performance



Metaphor & Political Ideology

Conservative ideology → higher **metaphor scores**

But smallest effects for **creature metaphors**

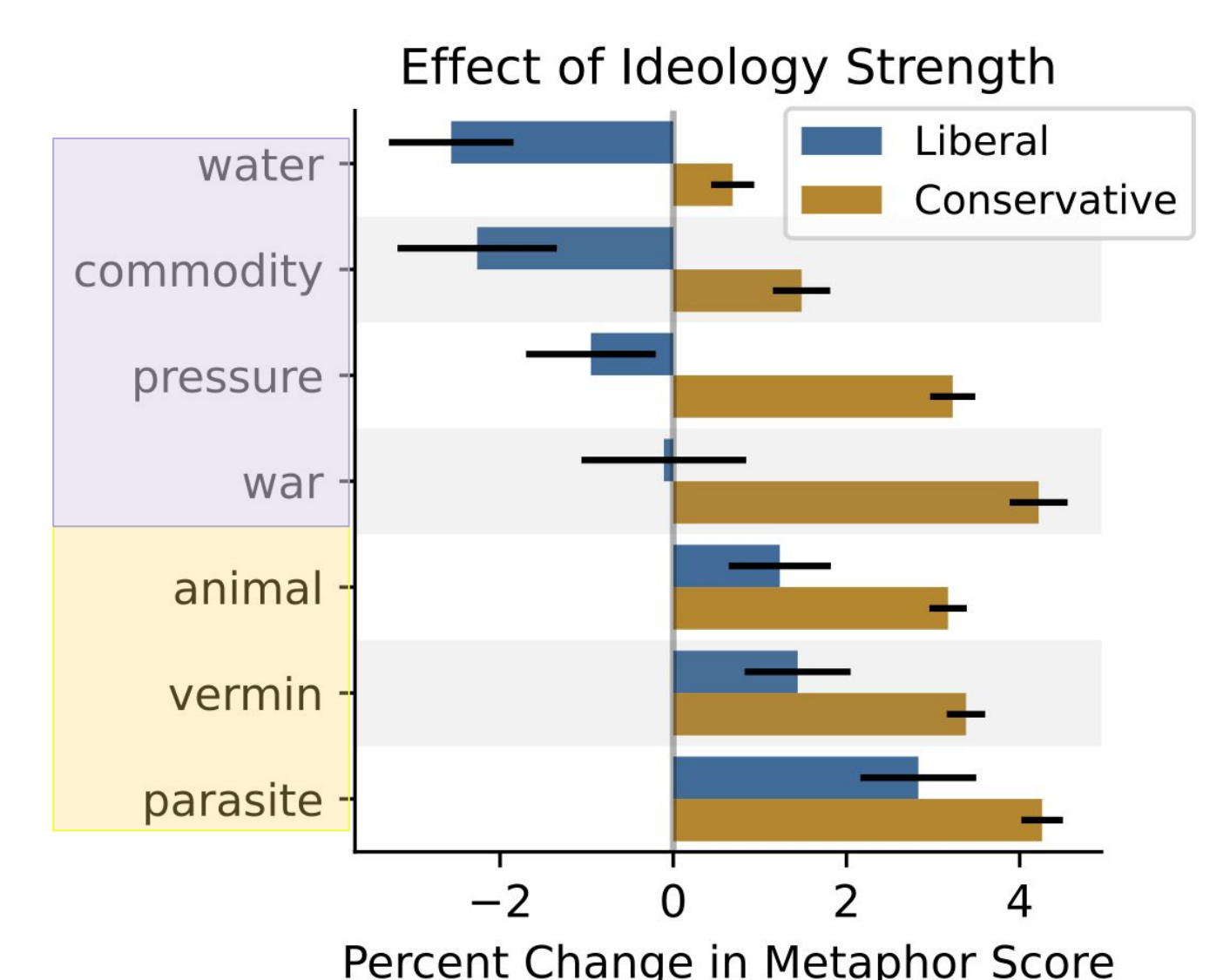


- **Policy alignment and threat sensitivity** vs. conventionalization
- Dehumanizing metaphors increase restrictive immigration policy support [Utych, 2018; Jimenez et al., 2021]
- Marginal effects from linear regressions with lots of controls

More **extreme ideology** is associated with...

Among conservatives: higher metaphor scores across concepts

Among liberals: lower **object metaphor** scores but **higher creature metaphor** scores



Qualitative analysis: **liberals** use dehumanizing metaphors straightforwardly, sympathetically, to quote and counterframe opponents & to criticize conservative immigrants



Metaphor & User Engagement

Tweets with **creature metaphors** get amplified more, especially those written by **liberals**.

- **Conservatives** may resist **extreme metaphors** [McCubbins & Ramirez, 2023]
- Metaphor effects are stronger among **liberals** than **conservatives** [Hart, 2018]

