Framing Social Movements on Social Media: Unpacking Diagnostic, Prognostic, and Motivational Strategies

Paper
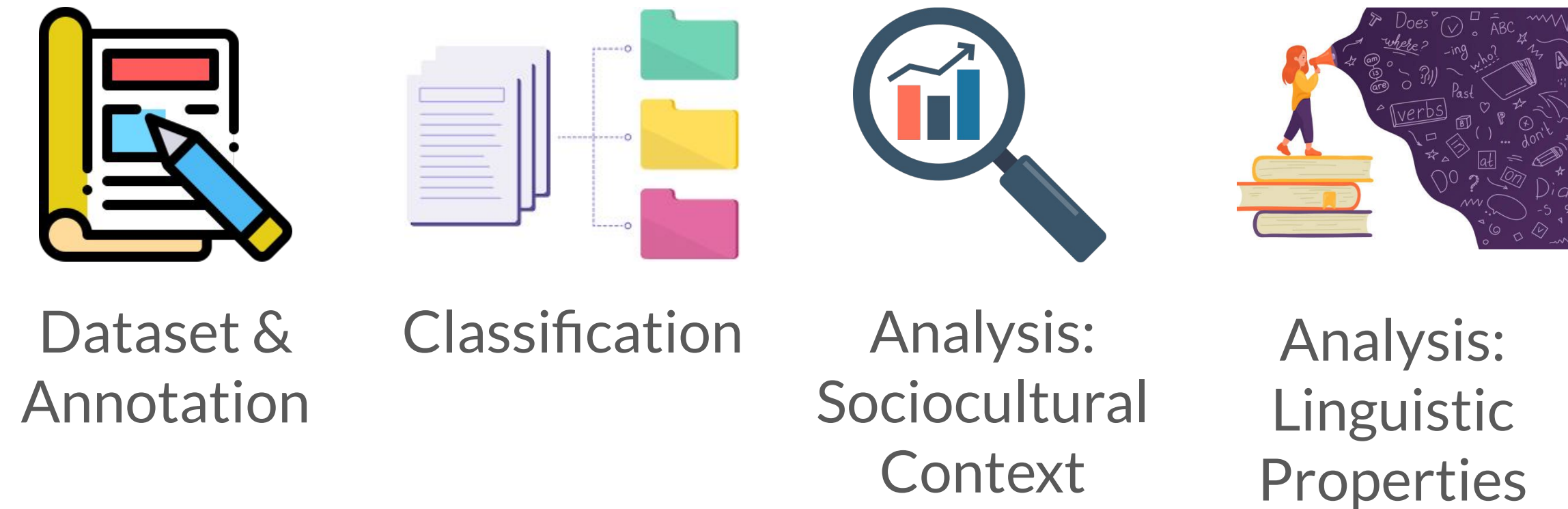
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How do people use **diagnostic**, **prognostic**, and **motivational** framing in Twitter messages related to social movements?
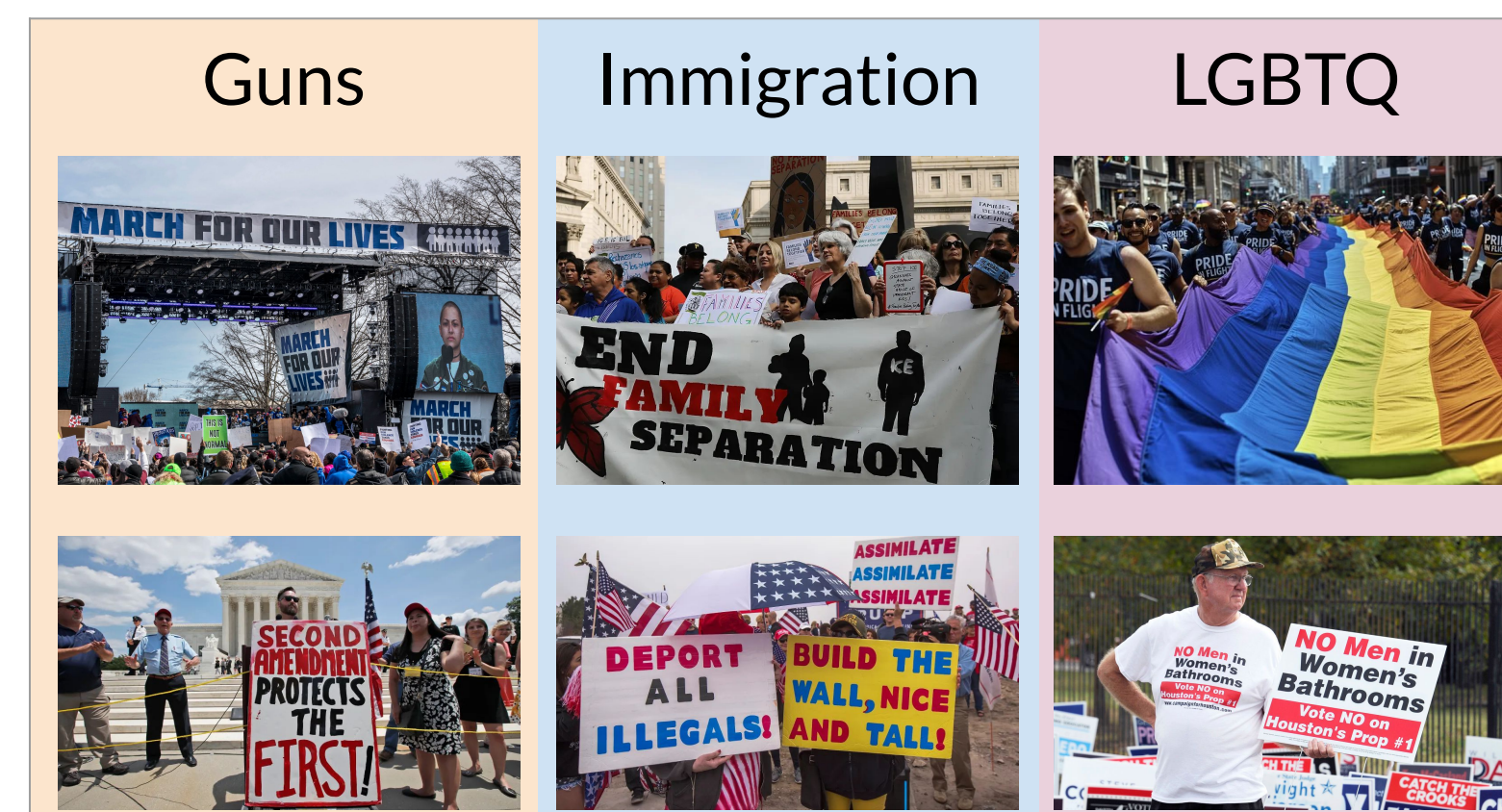
Dataset & Annotation Classification Analysis: Sociocultural Context Analysis: Linguistic Properties
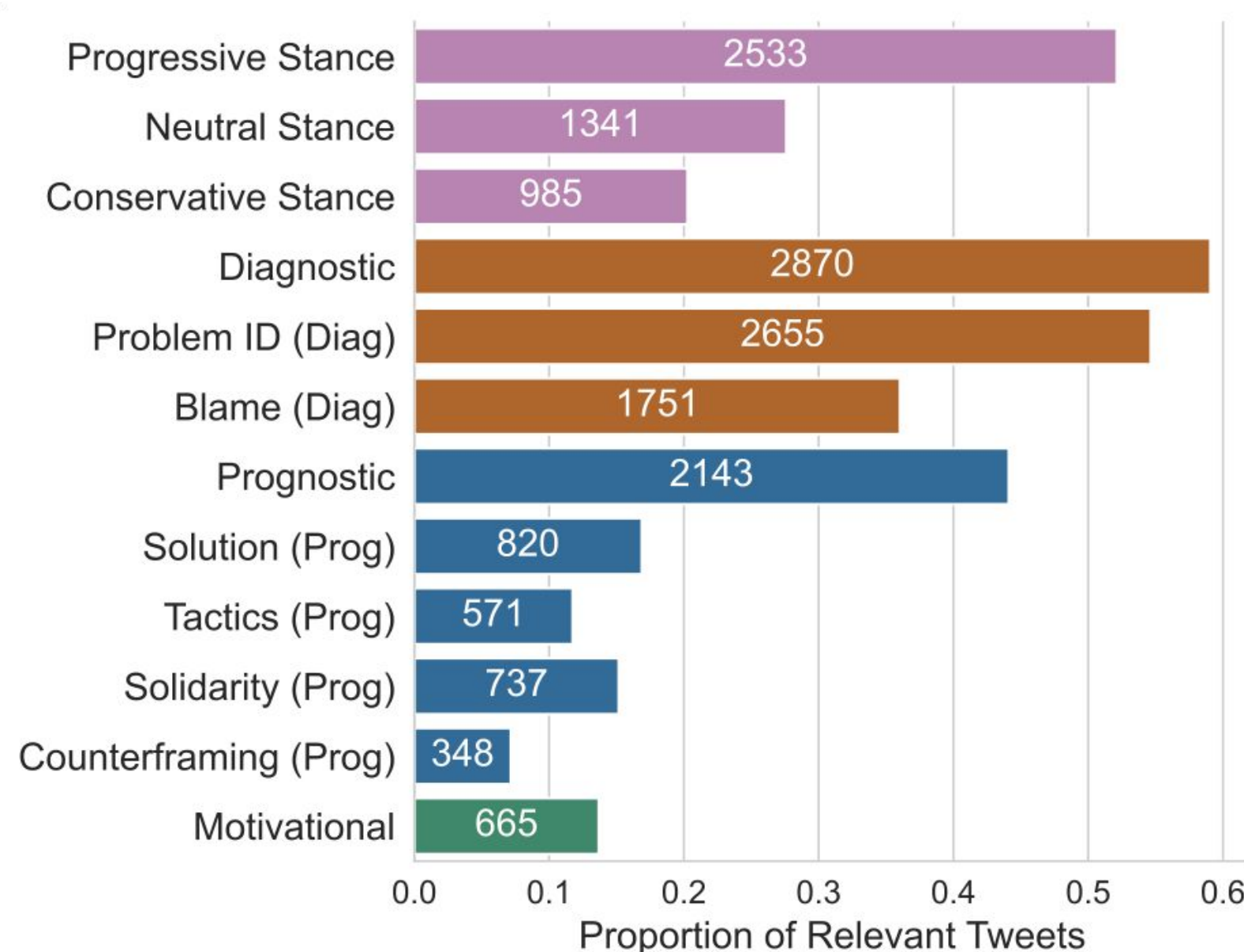
Motivation

- Social movements create meaning through framing
- "Schemata of interpretation" that help people "locate, perceive, identify, and label" new information [Goffman, 1974]
- Collective action frames mobilize potential adherents and constituents, garner bystander support, and demobilize antagonists [Snow & Benford, 1988]
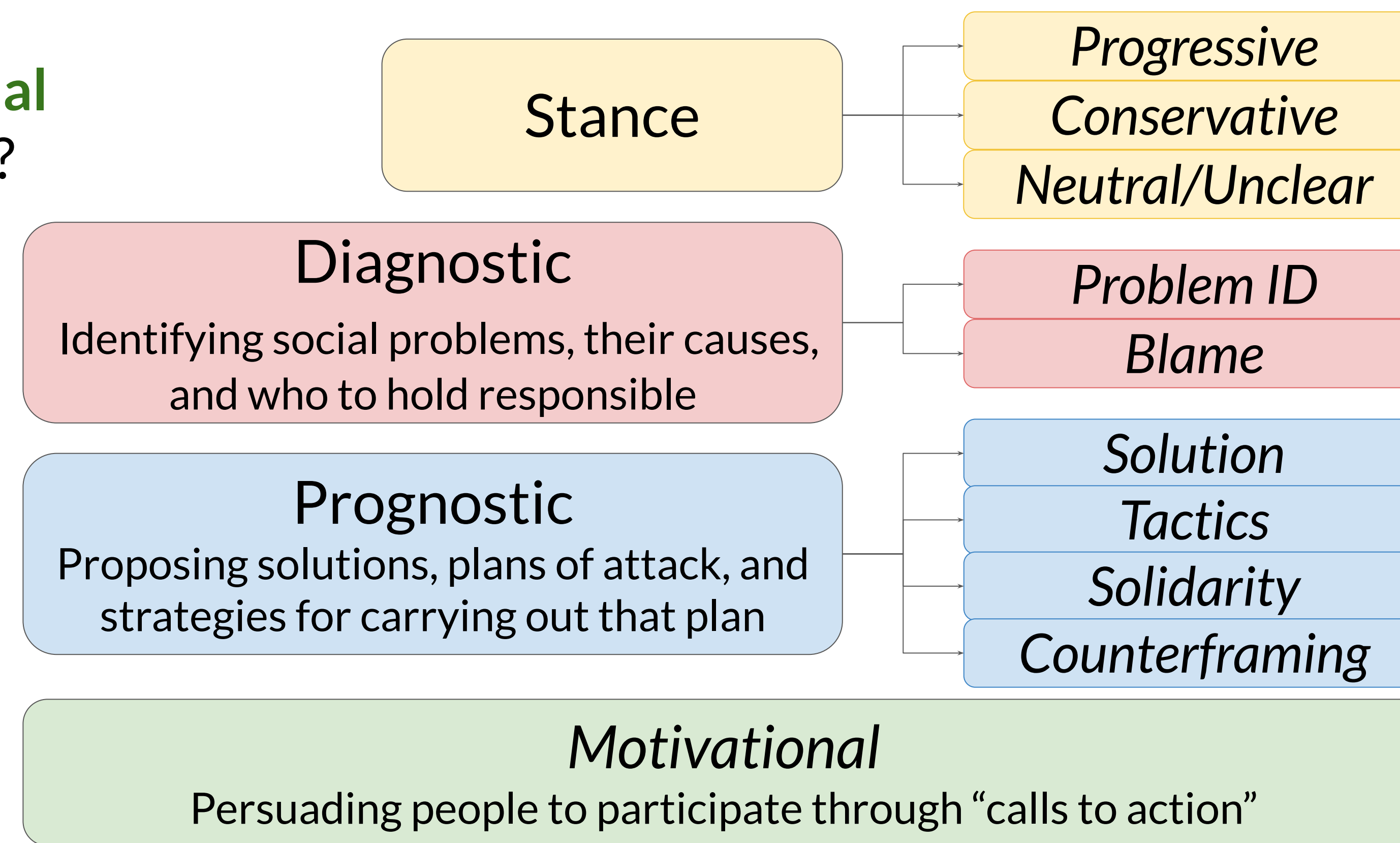
Dataset & Annotation

- Decahose tweets from movements around 3 issues: *guns*, *immigration*, and *LGBTQ rights* from 2018-2019
  - Both progressive & conservative movements
  - 2 months per issue (1 high protest activity, 1 average)
- Keyword expansion with seeds from frequent hashtags during protest events

Guns Immigration LGBTQ

- **1.85M tweets** in full data
  - 822K guns
  - 763K immigration
  - 268K LGBTQ
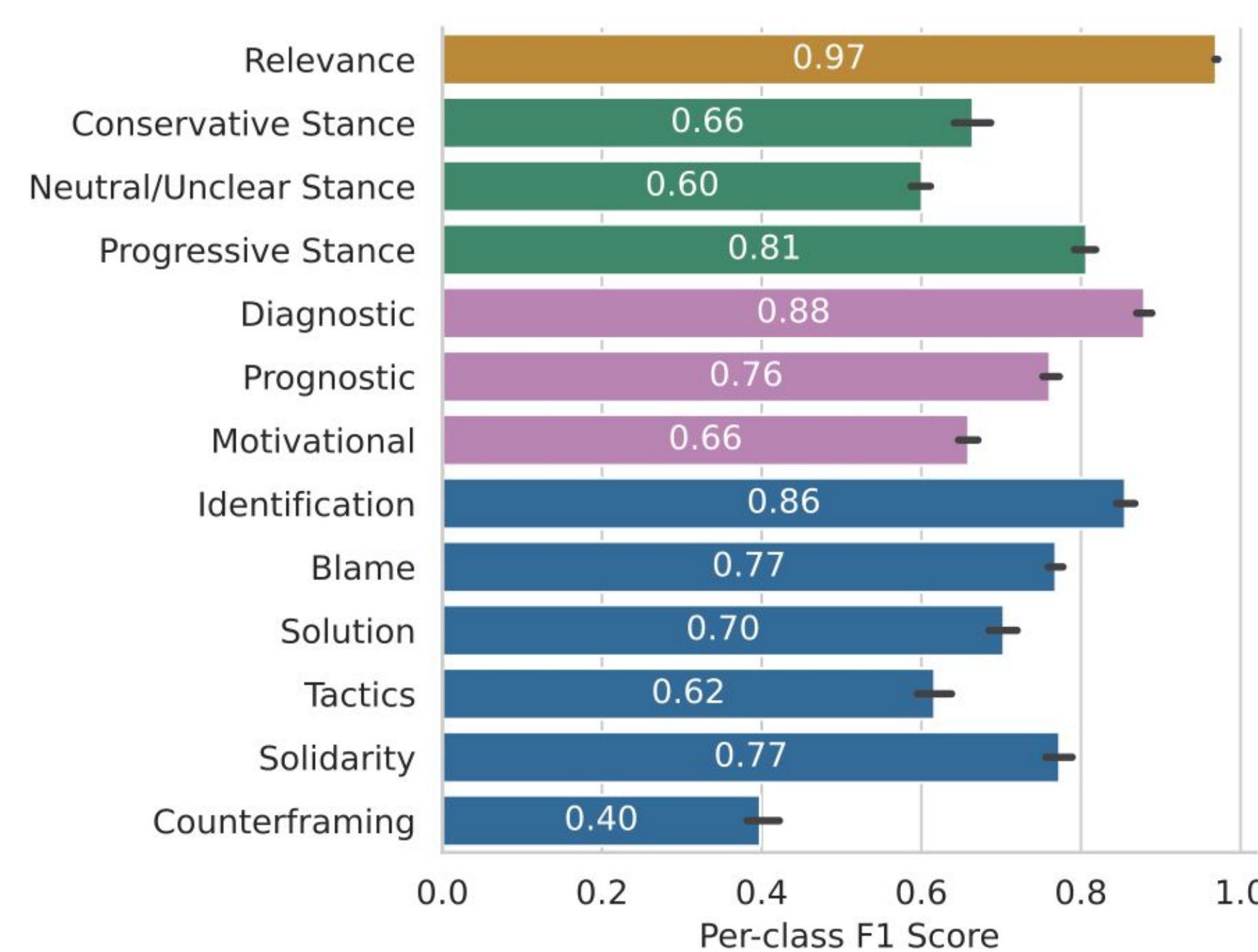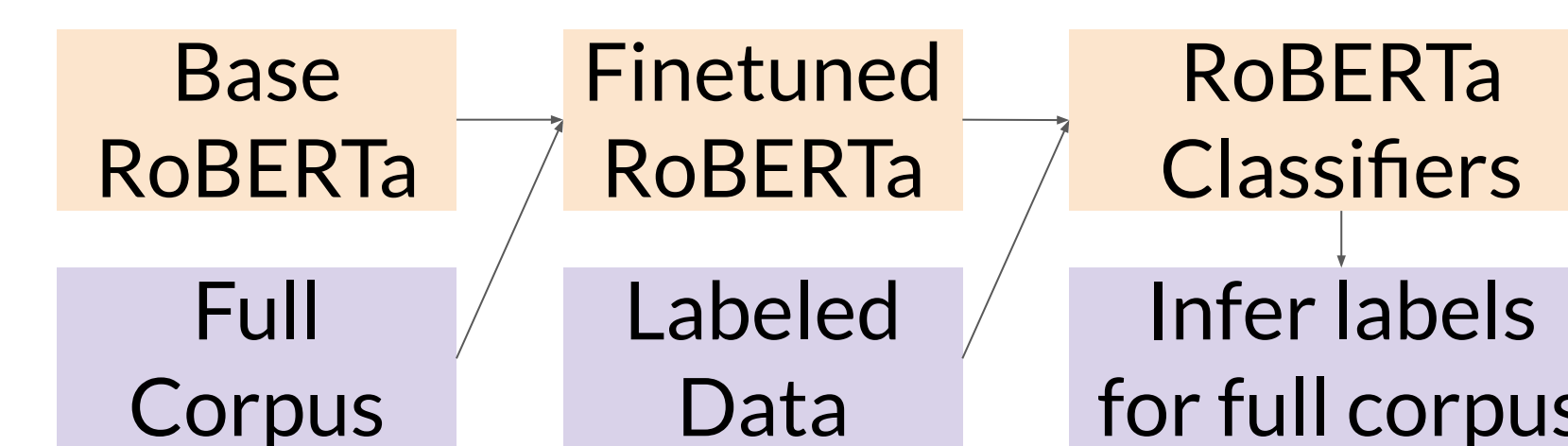- **6,000 tweets** manually labeled, 81% coded as relevant, further labeled for stance and framing

Progressive Stance 2533
Neutral Stance 1341
Conservative Stance 985
Diagnostic 2870
Problem ID (Diag) 2655
Blame (Diag) 1751
Prognostic 2143
Solution (Prog) 820
Tactics (Prog) 571
Solidarity (Prog) 737
Counterframing (Prog) 348
Motivational 665

Proportion of Relevant Tweets

Stance
- *Progressive*
- *Conservative*
- *Neutral/Unclear*

Diagnostic
Identifying social problems, their causes, and who to hold responsible
- *Problem ID*
- *Blame*

Prognostic
Proposing solutions, plans of attack, and strategies for carrying out that plan
- *Solution*
- *Tactics*
- *Solidarity*
- *Counterframing*

Motivational
Persuading people to participate through "calls to action"

Classification

4 supervised classifiers:

Relevance (binary)

Stance (3-class)

Core Framing Task (binary, 3-label) (e.g. *prognostic*)

Frame Element (binary, 7-label) (e.g. *tactics*)

Base RoBERTa → Finetuned RoBERTa → RoBERTa Classifiers
Full Corpus → Labeled Data → Infer labels for full corpus

Relevance 0.97
Conservative Stance 0.66
Neutral/Unclear Stance 0.60
Progressive Stance 0.81
Diagnostic 0.88
Prognostic 0.76
Motivational 0.66
Identification 0.86
Blame 0.77
Solution 0.70
Tactics 0.62
Solidarity 0.77
Counterframing 0.40

Per-class F1 Score

Variation across social context

Core framing tasks in high activity months

3 movement-level factors
- Issue area (guns, immigration, LGBTQ rights)
- Stance (progressive, conservative, neutral)
- Protest activity period (high or average)

2 message-level factors
- Author role (journalist, SMO, other)
- Interaction type (broadcast, reply, quote tweet)
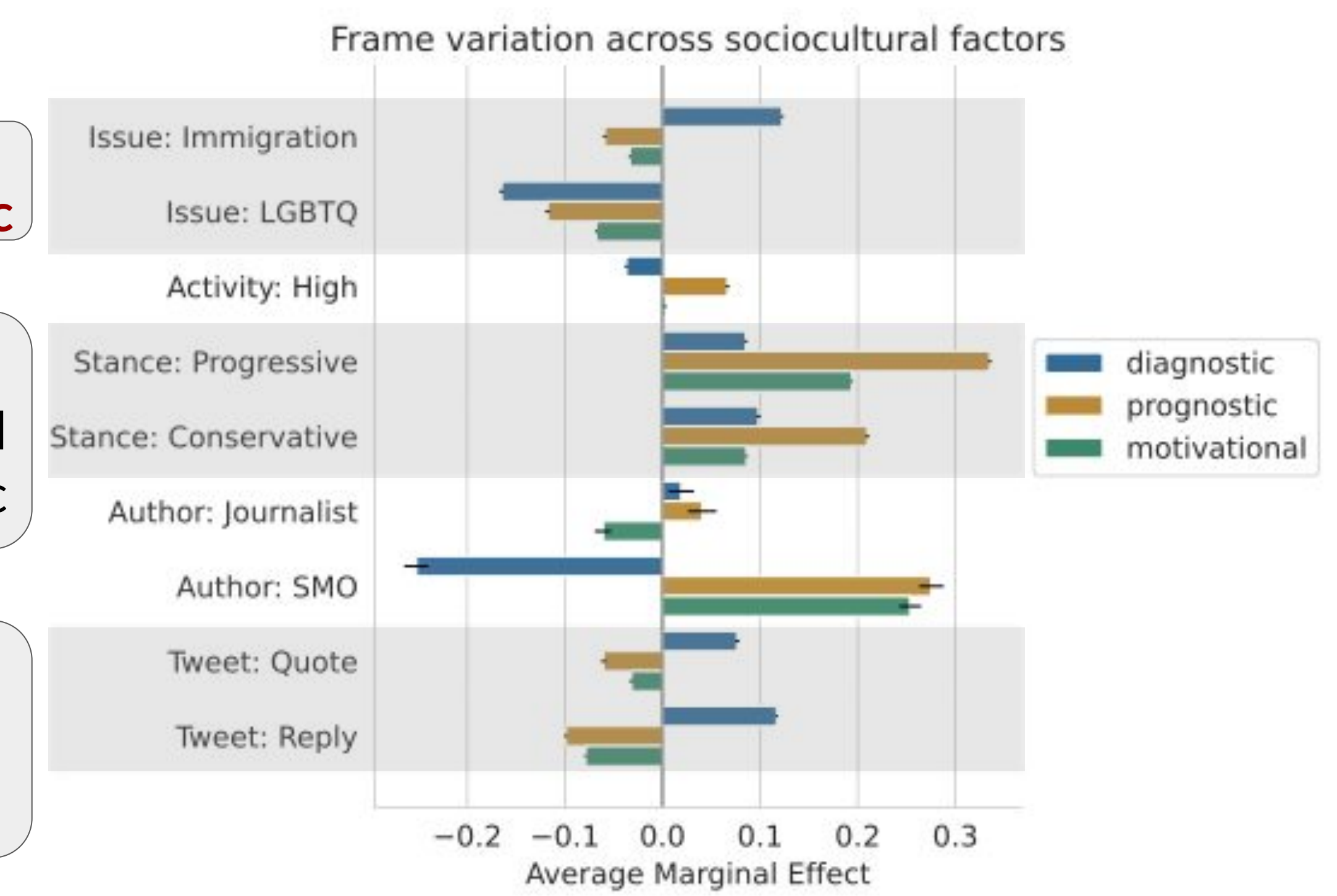
Logistic regression models for each framing task

Guns → most **prognostic**
Immigration → most **diagnostic**

Unique role of **social movement organizations**→ way more **prognostic** and **motivational** than journalists or the public

Broadcasts → **prognostic** & **motivational**
Replies → most likely to use **diagnostic**
Quote tweets → in-between

Frame variation across sociocultural factors

Issue: Immigration
Issue: LGBTQ
Activity: High
Stance: Progressive
Stance: Conservative
Author: Journalist
Author: SMO
Tweet: Quote
Tweet: Reply

Average Marginal Effect

diagnostic, prognostic, motivational

Linguistic properties of frames (methods: parsing, log-odds, and more regressions)

Pronoun person marking
Diagnostic: 3rd person (*they*, *their*)
Prognostic: 1st person (*we*, *our*)
Motivational: 2nd person (*you*, *your*)

Moral language
Diagnostic: adjectives of disapproval (*bad, sick, disgusting, wrong, evil, cruel*)
Prognostic: deontic modal verbs signaling obligation (*need, should, must*)

Verbs and their arguments
Diagnostic: violence (*kill, attack*) and neglect (*refuse, ignore, fail, lie*)
Motivational: join movement (*join_today*), pass/support legislation (*tell_congress*)