Swearing #&@%ING impact on social media engagement

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Abstract

Question: How does swearing affect social media engagement?

Motivation:
- social media is an integral part of today's life,
- engagement is a core goal sought by individuals and invaluable to companies,
- swearing is an unexplored angle due to its taboo nature,
- understanding is the first step to handling profanities, and other controversial topics.

Approach: collect and curate data › craft and analyze features › build and interpret models.
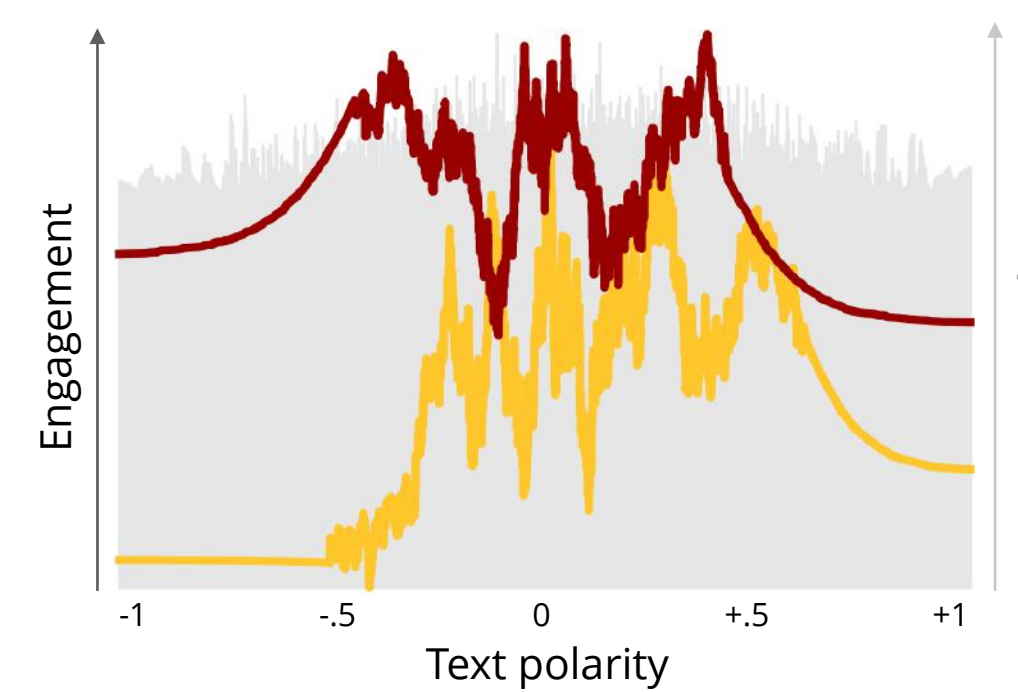
Data & Features
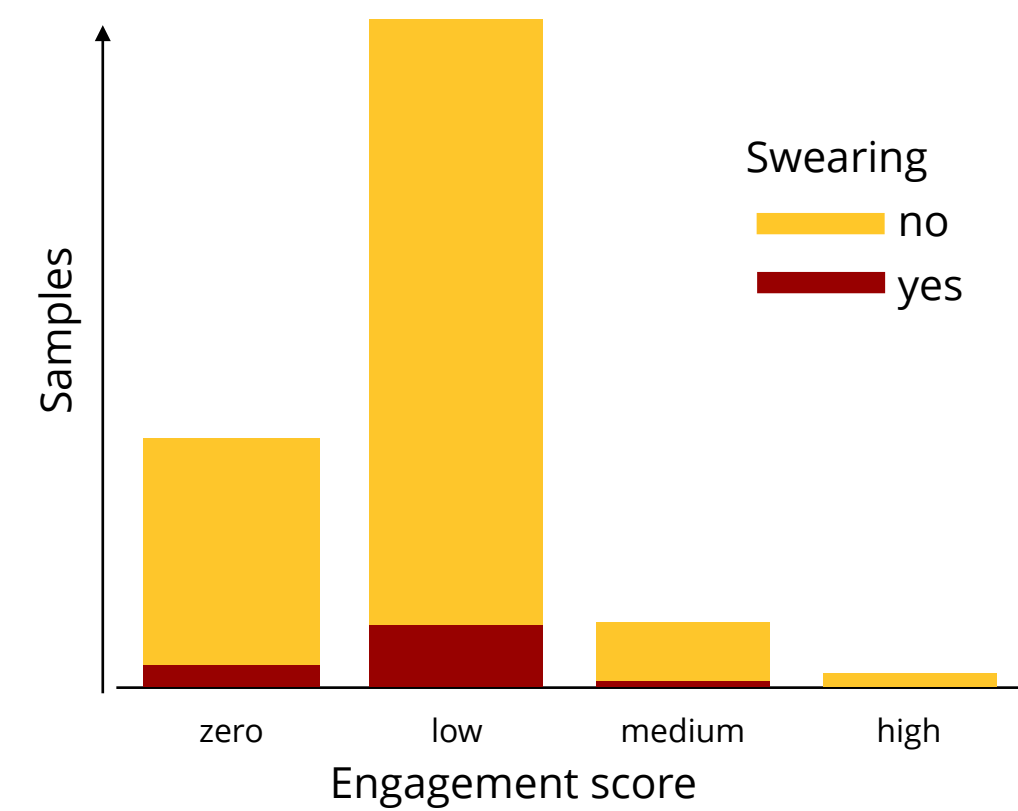
Data: 50M tweets, special attention to top 100 most popular users.

Preprocessing: general cleaning, lemmatization, emoji transcribing,

Engagement score:

$$log(1 + \frac{likes + 5 \times retweets}{followers} \times 100)$$

5.4% of all tweets use swear words.

Textual features: sentiment polarity, subjectivity, topic modeling, parts of speech, affective, cognitive nuances, punctuation, domain-specific: hashtags, mentions, links.

**Swearing features**: count, presence, severity, rarity, censorship.

Women get slightly higher engagement, regardless of swearing

Advanced features: demographics (education, income, gender) image content and hue, weather (temperature, humidity, conditions), date (hour, weekday, holiday status), semantic category (arts, technology, etc), user type (singer, actor, etc).
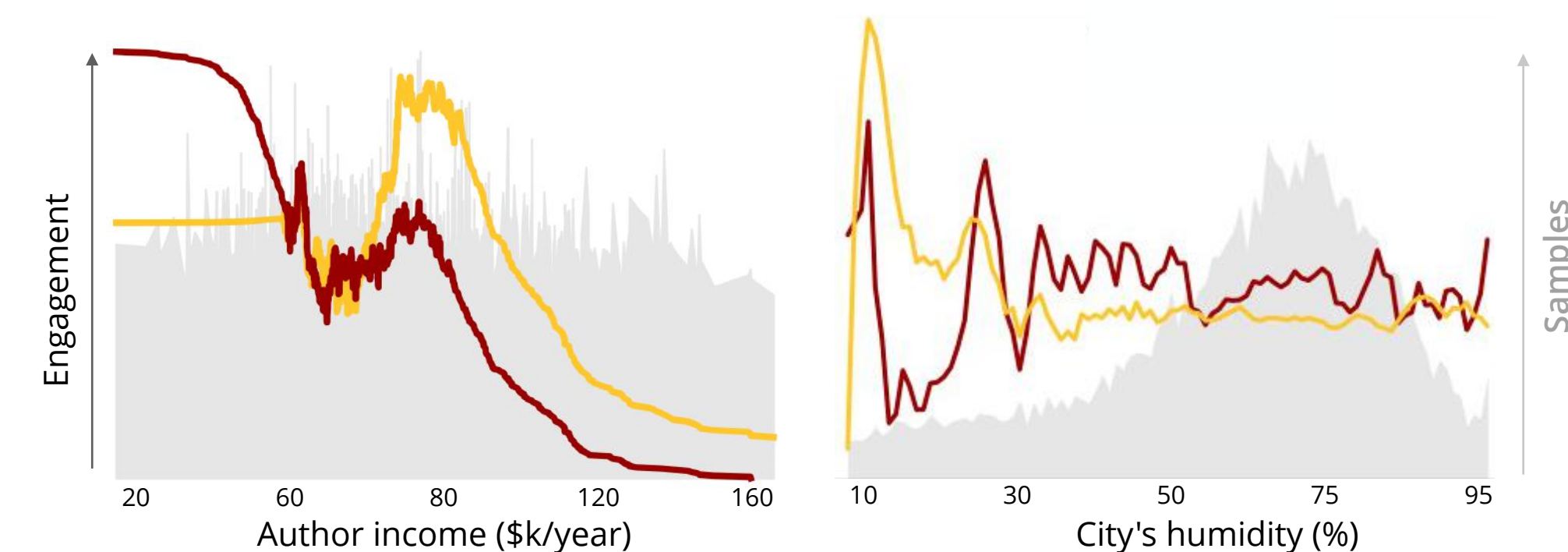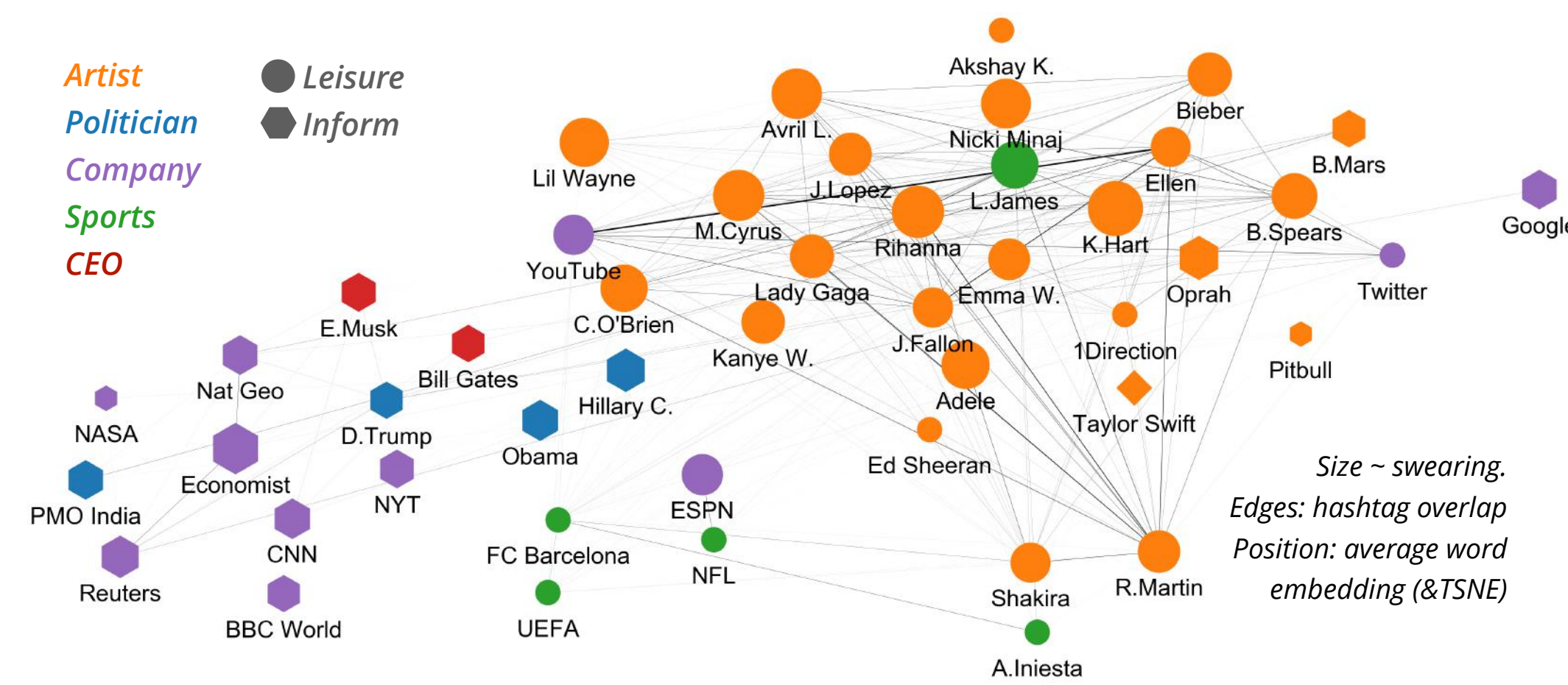
Analysis
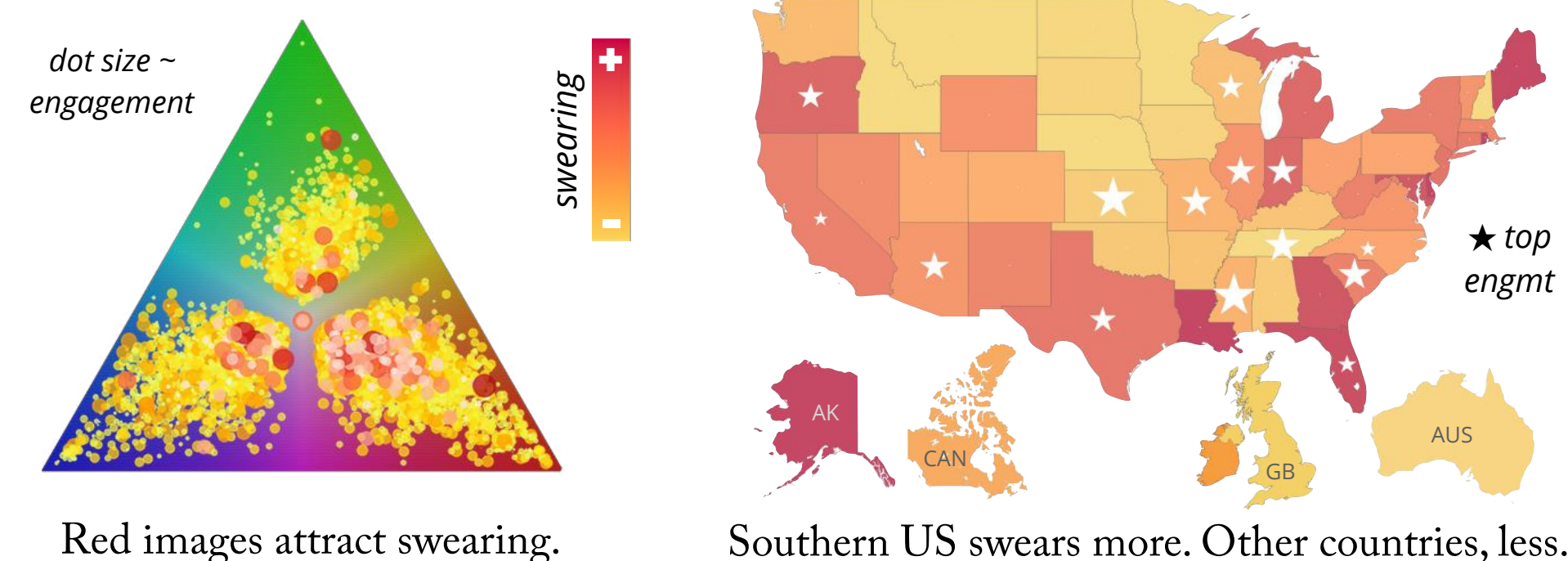
FEATURE IMPORTANCES

XGB Regressor
0.78 R² score
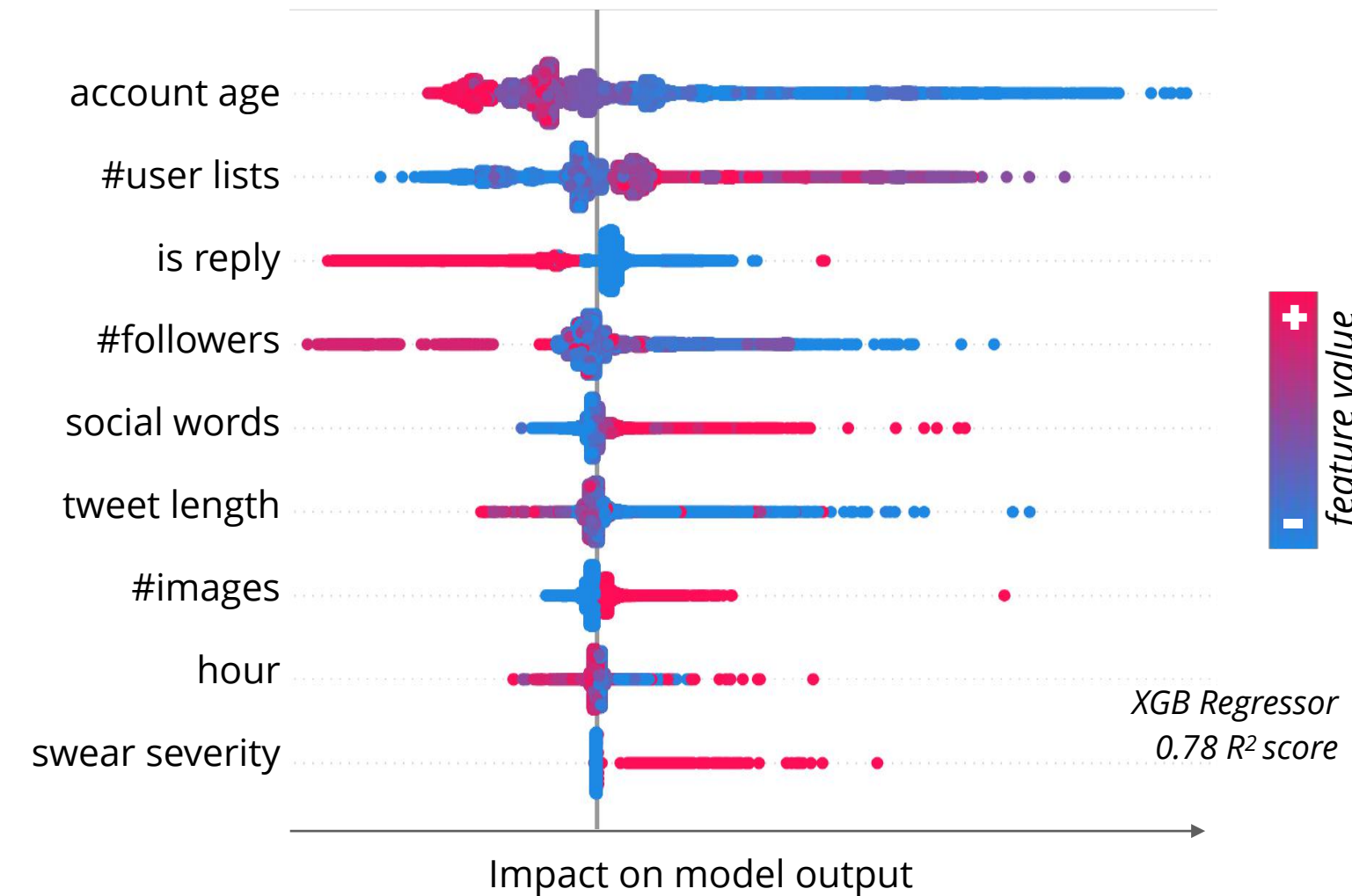
Including images, being part of lists and not mentioning positively impact on engagement. Swearing, when (rarely) used, almost always causes an increase in engagement.
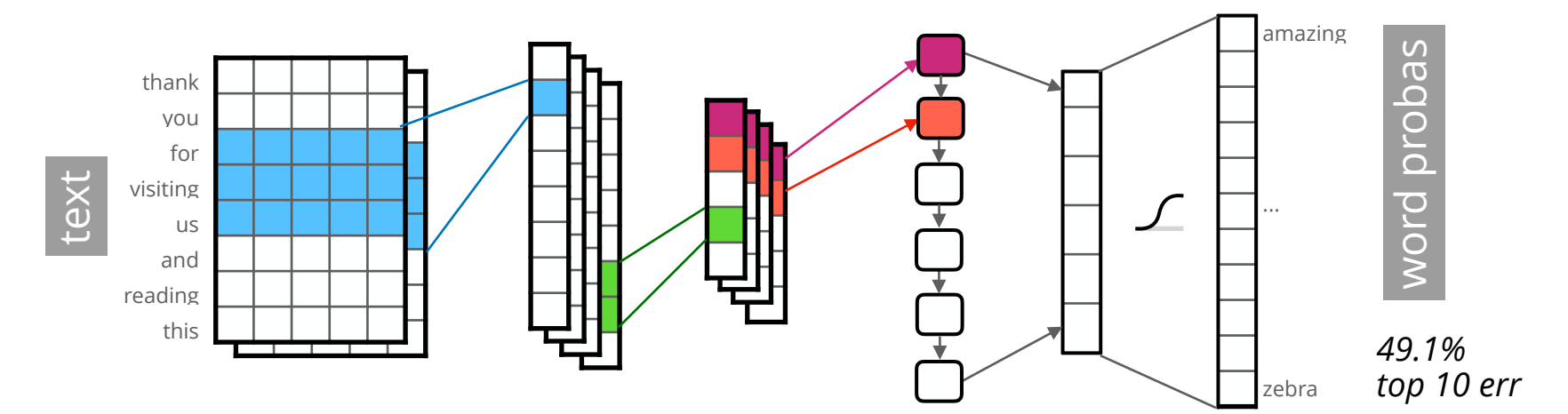
TOP USERS SEMANTIC CORRELATIONS

Size ~ swearing.
Edges: hashtag overlap
Position: average word embedding (&TSNE)

Tweet accounts conform to their category, semantic content average and intent trends.

SWEARING & ENGAGEMENT

dot size ~ engagement

swearing

★ top engmt

Red images attract swearing.   Southern US swears more. Other countries, less.

ML Models

Placement: where and which swear word fits into this text?

word probas
49.1% top 10 err

Reuters, NBA, Google — B.Mars — K.Hart, C.O'Brien
least   swearing fitting   most

- *Google*: Hi there, **dummy**, try these tips if you're unable to connect [...]
- *Barack Obama*: Happy 4th of July. God bless you, God **f***** bless America!
- *Emma Watson*: Don't forget to vote on Thursday, no **damn** excuses!

Attention: what'd be a tweet's engagement, and what words matter the most?

engmt 0.34 MSE

attention
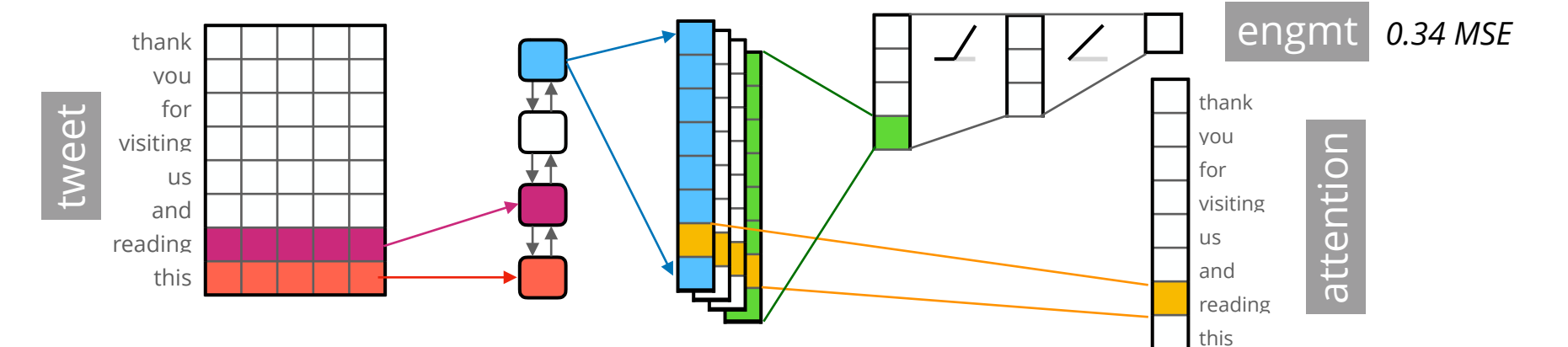
B.Gates, M.Carey, L.James — B.Mars — Rihanna, K.Hart, Z.Malik
decrease   artificial tweets engagement   increase

When a swear word was most focused (2.23x more likely), actual engagement was +28%.

- You will get there... But it's so **f***** **hard** and frustrating at first.
- Screaming **"congrats"** to **amp** my brother! Love the s*** out of you!

Discriminator: how characteristic would this tweet be for this user?

plausibility

89.3% test acc
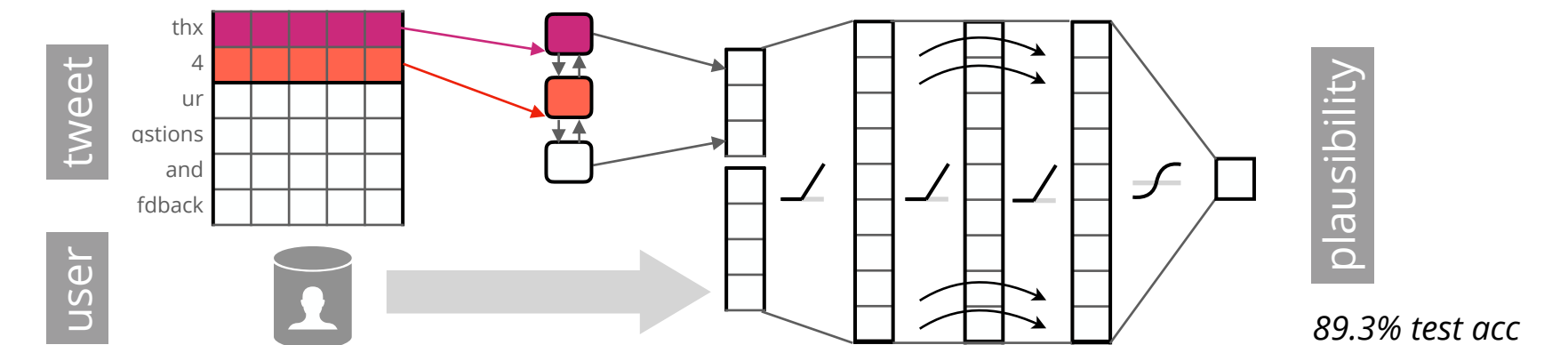
On artificial tweets: 7.14% classified as plausible (6.8% average plausibility).

Conclusions

1. Swearing, while not very prevalent, increases engagement in certain contexts.
2. Swearing roles: aggression / emphasis /affection /comedic effect.
3. Tweet- and user-features are predictive of engagement.

Next steps:
- Study long term ramifications of swearing, and effects of incorporating swearing
- Personalized real-time feedback to optimize social media engagement
- Other platforms: reviews, longer text, anonymity, video, correlation to current events