# Shortening Terms of Service for Improved Readability

I Agree

I Have No Idea What This Says

Team 8:

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## What's the problem?

Terms of Service Agreements (ToS) are lengthy & difficult to understand

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## What has been done to address this?







### Understanding Copyright Law in Online Creative Communities

Casey Fiesler, Jessica L. Feuston, Amy S. Bruckman GVU Center Georgia Institute of Technology

Reviewed 30 Social **Networking & Creative** Community Sites

ToS were, on average, written at a college sophomore reading level and would take the average adult 8 hours to read





- Google keeps your searches and other identifiable user information for an undefined period of time
- Google can use your content for all their existing and future services
- This service tracks you on other websites
- Google can share your personal information with other parties
- Google may stop providing services to you at any time

We are a user rights initiative to rate and label website terms & privacy policies, from very good Class A to very bad Class E

## Data & Preprocessing

Scrape ToS with BeautifulSoup

7

Yahoo

Google

GitHub

Wikipedia Amazon

SoundCloud

Twitter

Cloudant

Instagram

Netflix

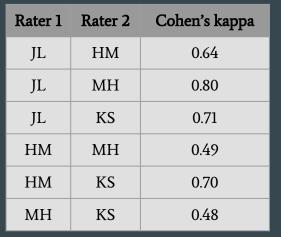
Facebook

Youtube

iCloud

Feature Engineering

length of paragraph count of spaces count of capitalized letters location of paragraph word count count of quotation marks sentence count count of parentheses average word count



Manual Classification

0 - not important 1 - important

•

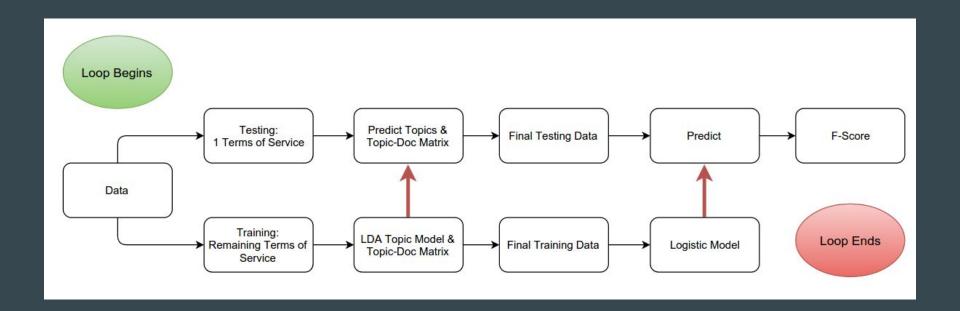
calculated Cohen's kappa

$$\kappa = \frac{p_o - p_e}{1 - p_e} = 1 - \frac{1 - p_o}{1 - p_e},$$

Topic Modeling

50 topics

## Modeling

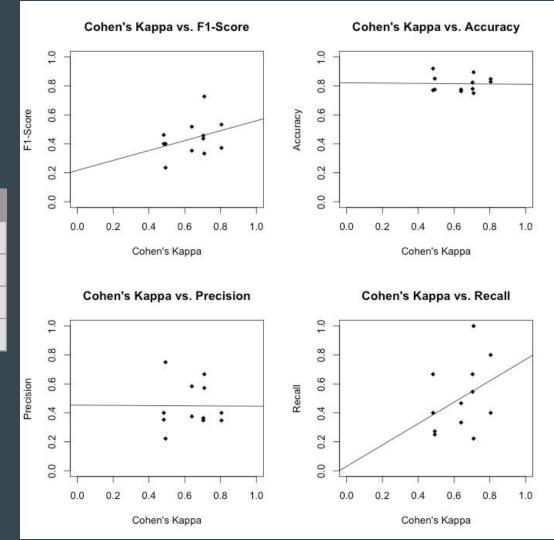


# **Analysis**

Company	Accuracy	Precision	Recall	F1
Instagram	0.75	0.57	1.00	0.73
Cloudant	0.85	0.40	0.80	0.53
GitHub	0.76	0.58	0.47	0.52
Netflix	0.77	0.35	0.67	0.46
Yahoo	0.82	0.35	0.67	0.46
iCloud	0.78	0.36	0.55	0.44
Youtube	0.92	0.40	0.40	0.40
Google	0.78	0.75	0.27	0.40
SoundCloud	0.83	0.35	0.40	0.37
Twitter	0.78	0.38	0.33	0.35
Amazon	0.89	0.67	0.22	0.33
Facebook	0.85	0.22	0.25	0.24
Average	0.82	0.45	0.50	0.44

## **Analysis**

Rater	Accuracy	Precision	Recall	F1
HM Average	0.70	0.45	0.65	0.51
KS Average	0.71	0.43	0.55	0.48
MH Average	0.79	0.34	0.48	0.46
JL Average	0.67	0.32	0.49	0.36



## **Prototype**

probs

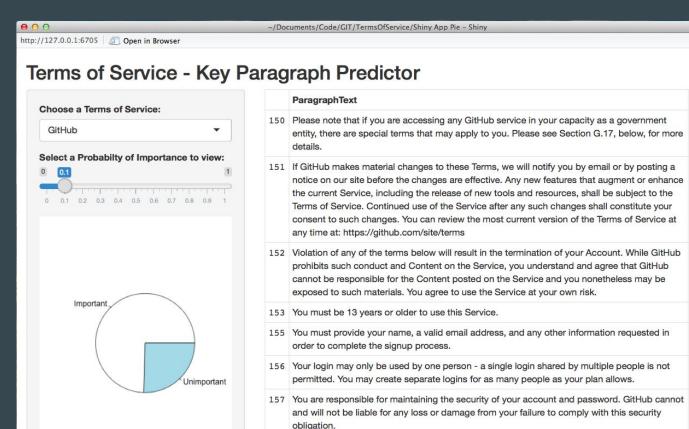
0.13

0.21

0.15

0.10

0.15



## **Future Work**

### Model Improvements

Improve web scraping capabilities to better capture ToS paragraphs

Incorporate experts in labelling/Cohen's Kappa process

Include more ToS

Explore subsetting ToS by company type (social media, content contribution, etc.)

### Web Application

Integrate model predictions as a website plug-in or stand-alone service

Build application that allow users to input a ToS and receive recommendations of which paragraphs to scrutinize

# **Questions?**



### References

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