Poli-see:

An Interactive Tool for Visualizing Privacy Policies

Wentao Guo, Jay Rodolitz, Eleanor Birrell
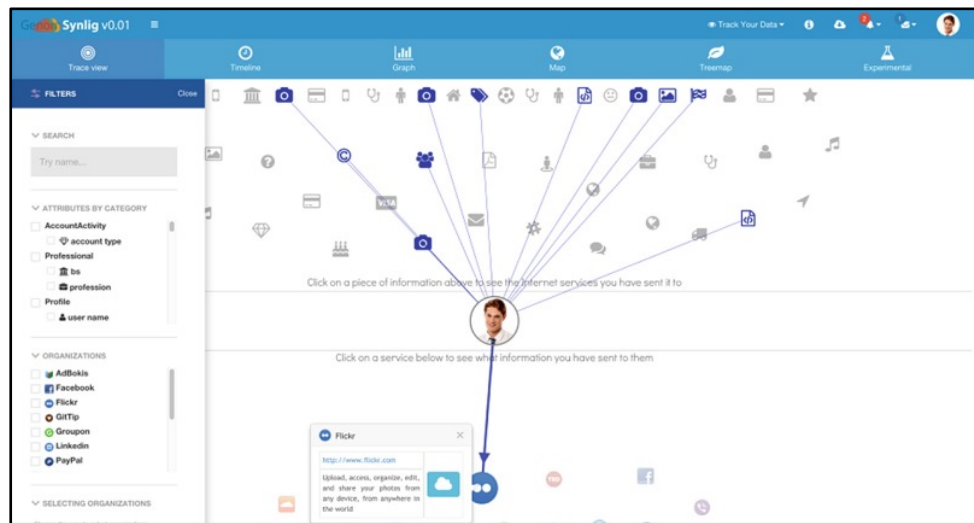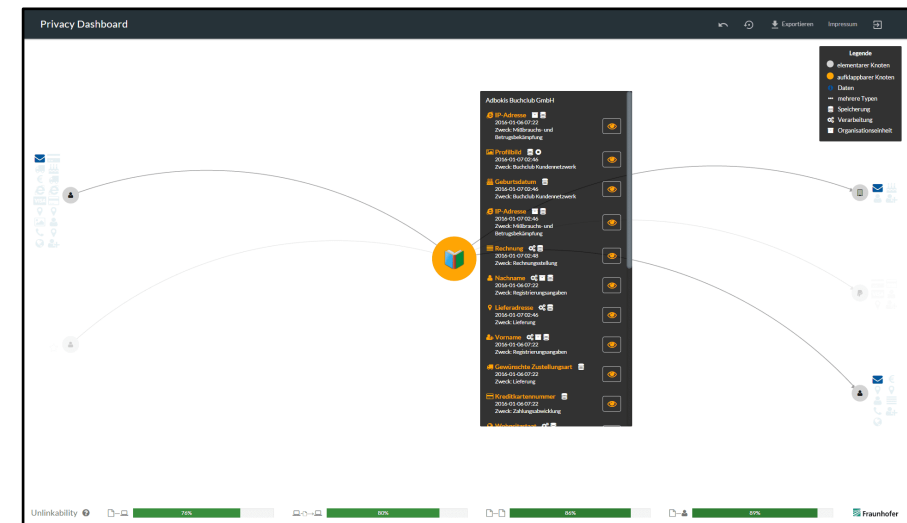
Pomona College

Motivation

Current privacy policies fail to adequately implement informed consent

- Difficult to understand
- People don't read them

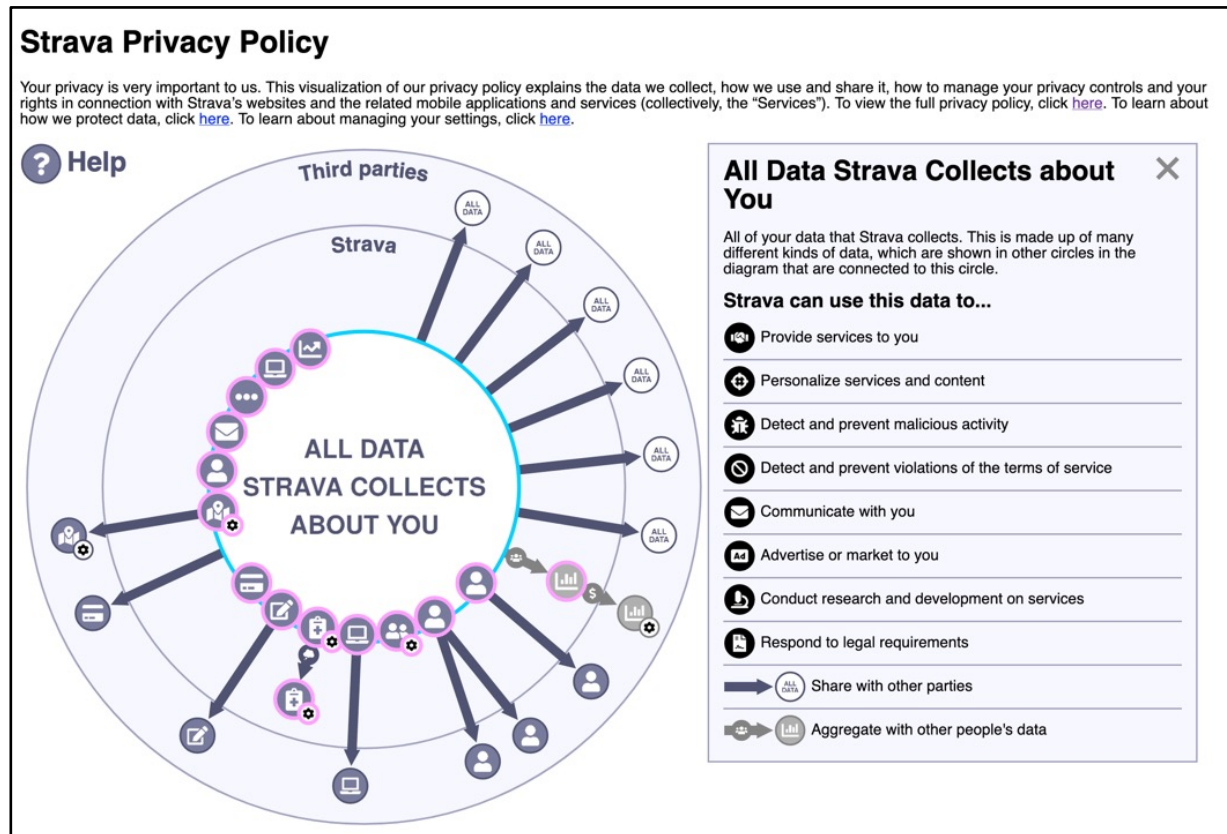Recent works on visualization-based tools for managing personal data

Fischer-Hübner et al. 2016

Bier et al. 2016

Poli-see

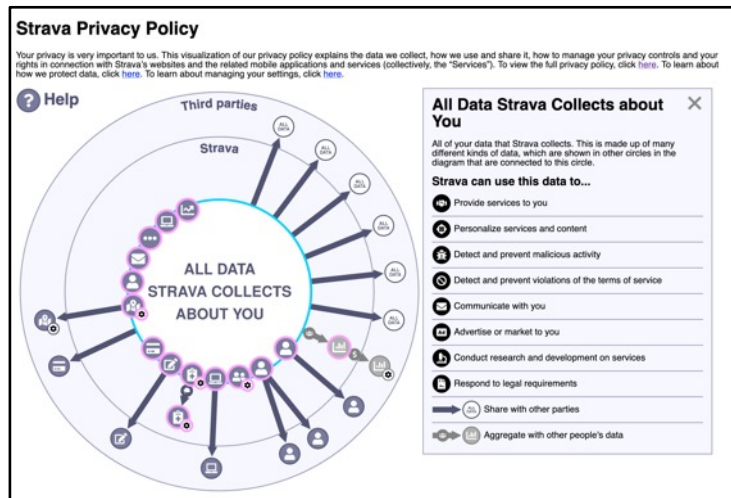Generates interactive visualizations of privacy policies

Design requirements:

- Collected data types
- Data sharing
- Data use
- Privacy controls
- Derived data

User Studies

In-person study – 24 undergraduate students recruited from the Claremont Colleges

Online study – 600 participants on Amazon Mechanical Turk

Poli-see

Annotated text policy
Wilson et al. 2018

Conventional text policy
(online only)

Methods

1. Factual questions on privacy policies for fitness-tracking apps

	Definitely no	Probably no	Unsure	Probably yes	Definitely yes
Does the policy allow Strava to collect information about your location?	○	○	○	○	○

2. Likert-type questions about user experience

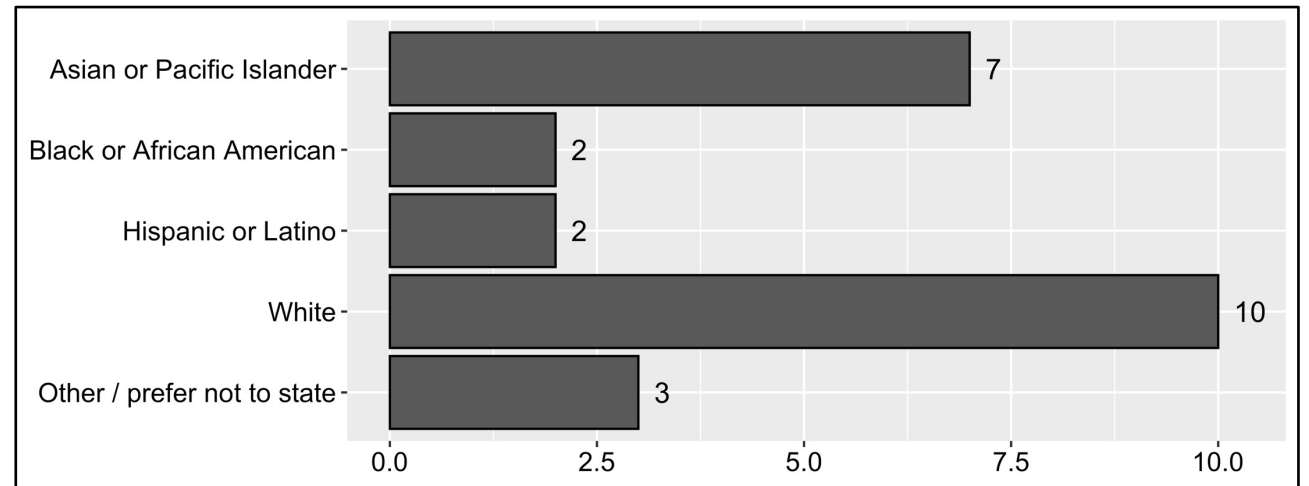|	Strongly disagree	Somewhat disagree	Neither agree nor disagree	Somewhat agree	Strongly agree
I feel that I understand how Strava uses my data.	○	○	○	○	○

3. Semi-structured interview *(in-person only)*

Demographics (In-Person Study)

All participants were current college students between the ages of 18 and 22
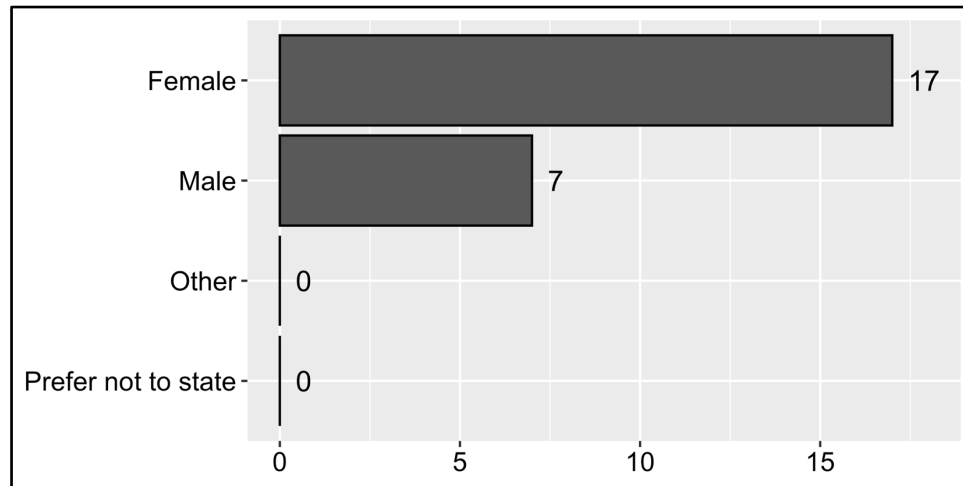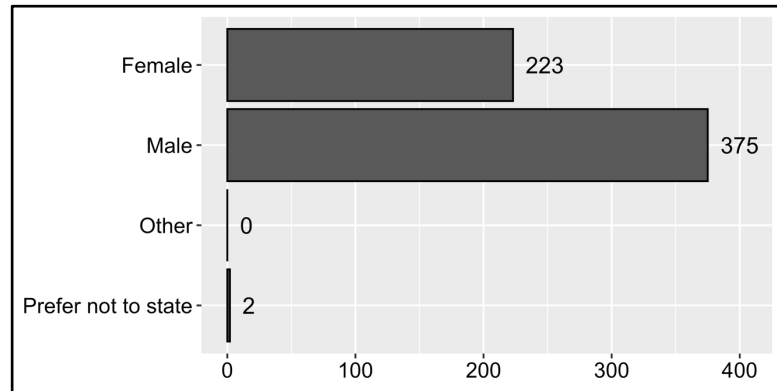
Demographics (Online Study)
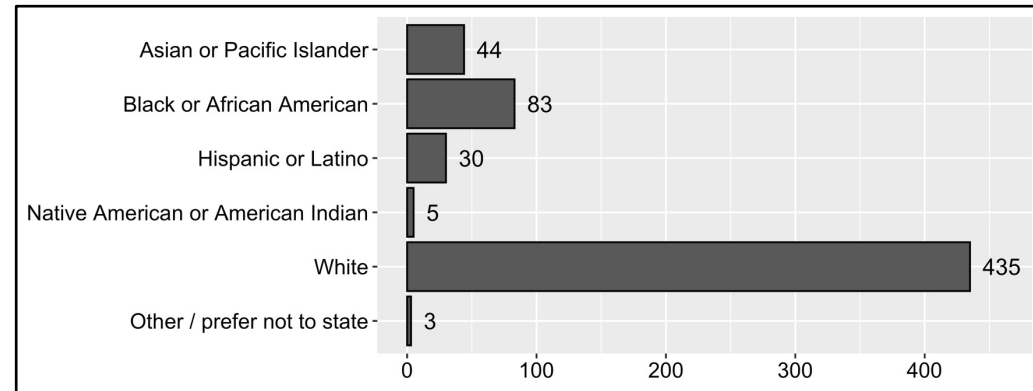
Gender

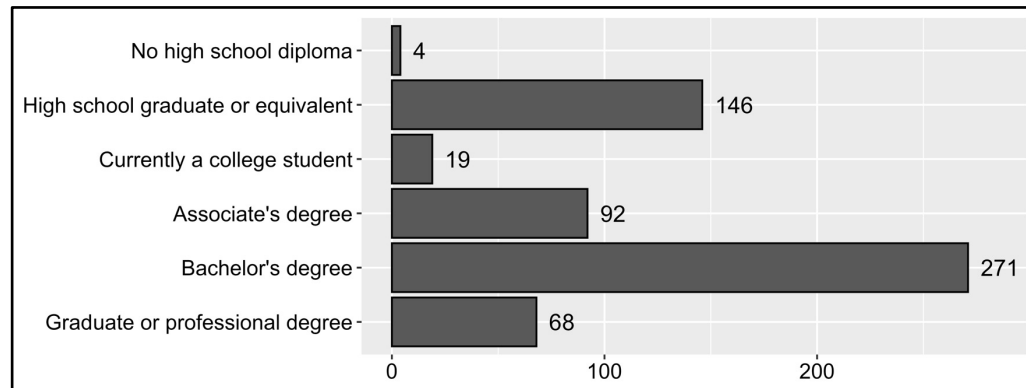|	
Female	223
Male	375
Other	0
Prefer not to state	2

Race / ethnicity

Asian or Pacific Islander	44
Black or African American	83
Hispanic or Latino	30
Native American or American Indian	5
White	435
Other / prefer not to state	3

Education

No high school diploma	4
High school graduate or equivalent	146
Currently a college student	19
Associate's degree	92
Bachelor's degree	271
Graduate or professional degree	68

Age

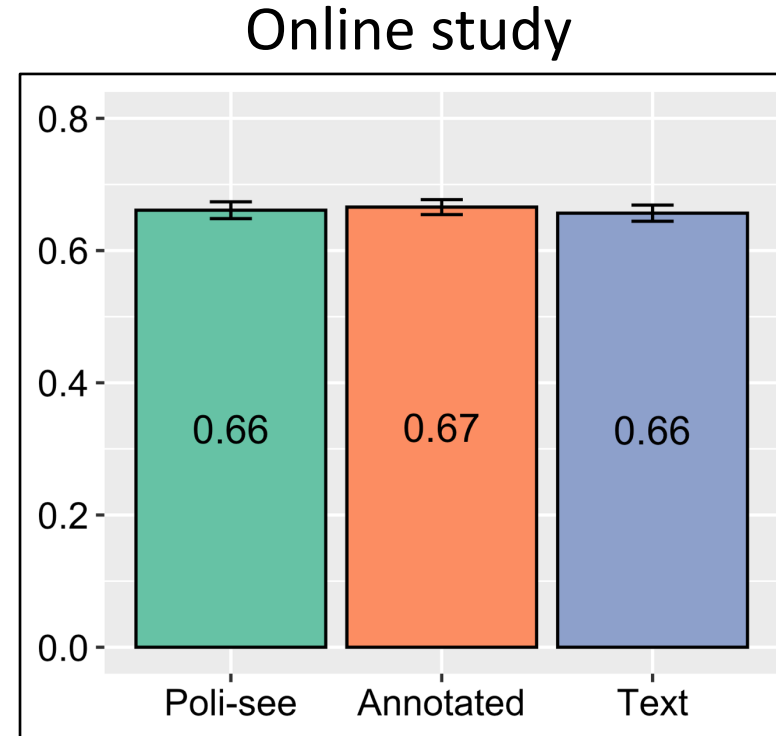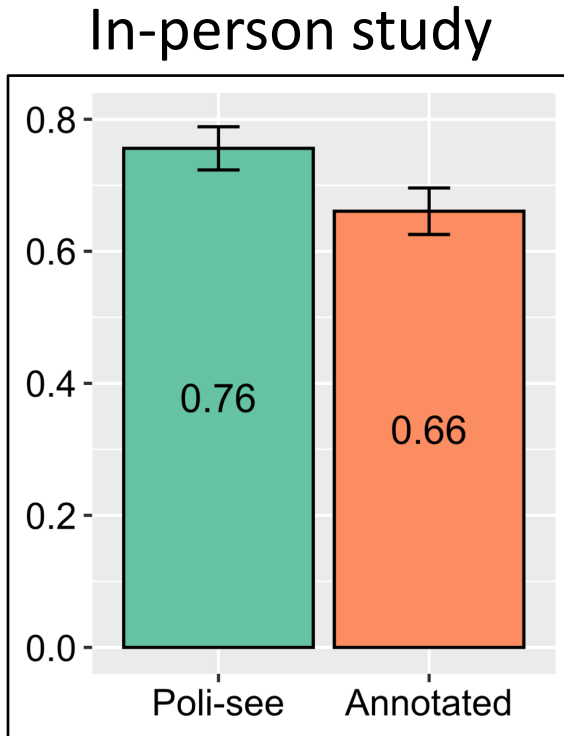|	
18–25	64
26–35	289
36–50	176
51–65	57
66+	14

Results: Accuracy

With Poli-see, higher rates of accuracy on the factual questions in the in-person study

In-person study

Online study

Results: Simple vs. Complex Questions

Simple questions – single element of the Poli-see interface

- Does the policy allow Strava to collect information about your location?
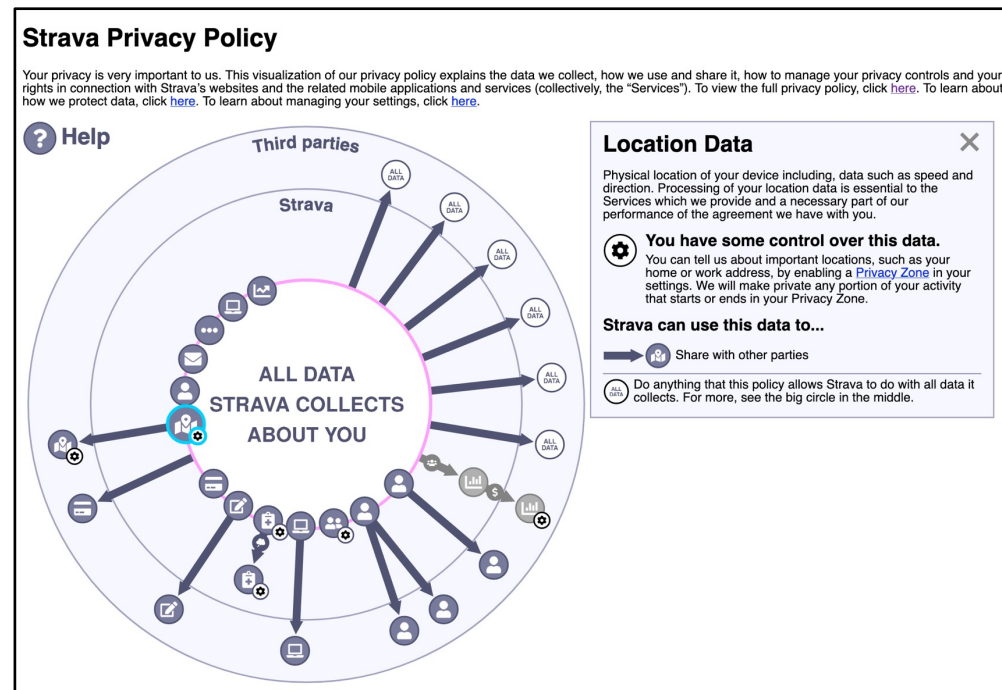
Results: Simple vs. Complex Questions

Complex questions – multiple elements of the Poli-see interface

- Does the policy allow Strava to use your location data to conduct research?

Results: Accuracy (Online Study)

With Poli-see, higher rates of accuracy on the simple questions, but lower rates of accuracy on the complex questions

Simple questions

Complex questions
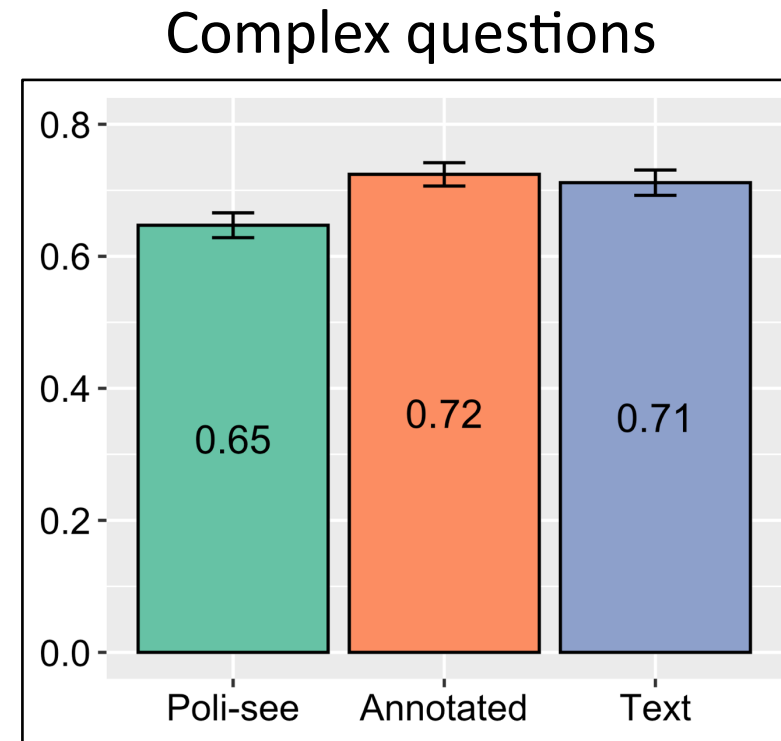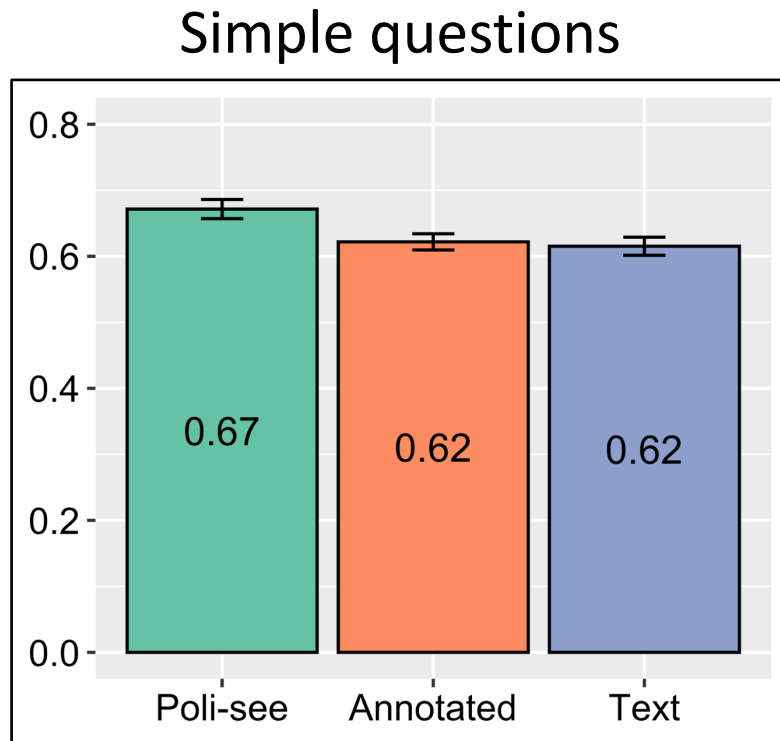
Results: User Experience (Online Study)

"Finding information in this policy was an enjoyable experience."
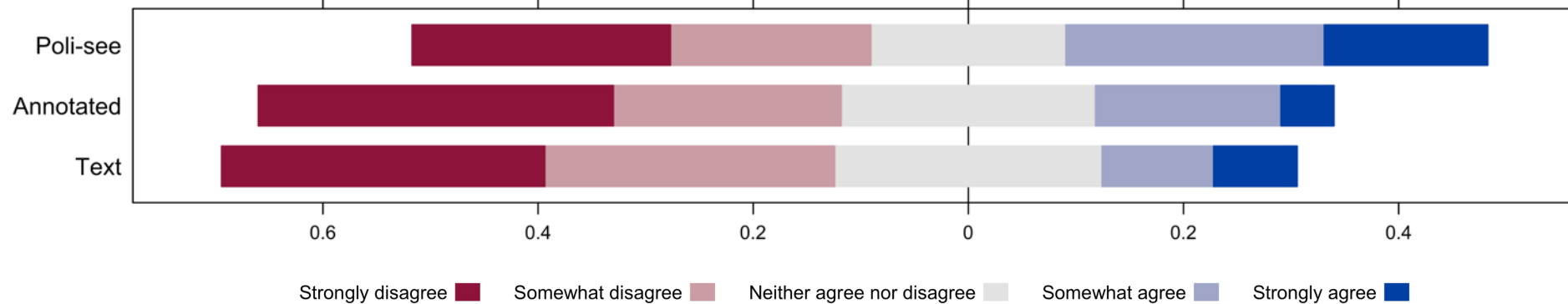
"If this were how [company] presented its privacy policy, I would be likely to look at this policy before deciding whether to use this service."

Recommendations

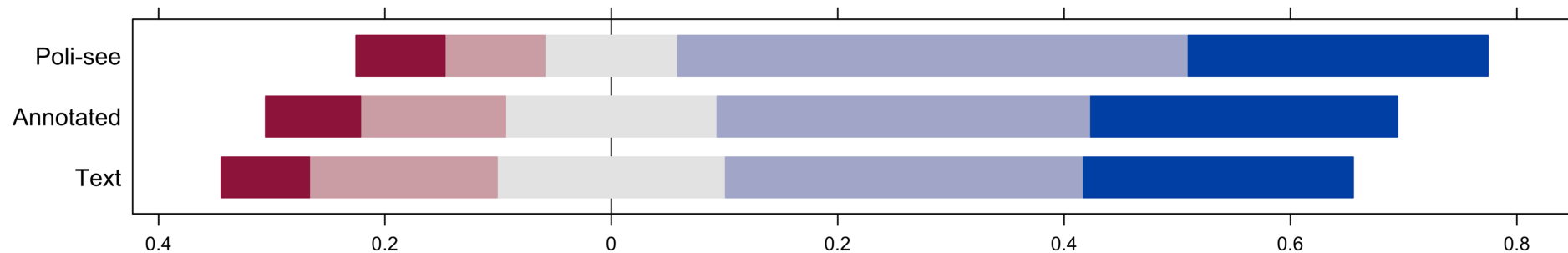1. Further work is needed to understand how to graphically represent **non-specific data sharing and use policies** clearly but without increasing visual clutter

2. Future work on graphical representations of privacy policies should consider how to ease the **learning curve** of an unfamiliar format for users

3. Related work on parsing privacy policies using NLP could be leveraged to generate standardized inputs for tools like Poli-see **at scale**

4. Future work on graphical representations should design for **accessibility** broadly

Thank you!

- We designed Poli-see: the first interactive, graphical representation of privacy policies

- We evaluated Poli-see in two user studies, demonstrating the potential for graphical representations to accurately convey data use practices to users in a manner that encourages user engagement

- We provide insights into the advantages and challenges of graphical privacy policy representations

Contact: Wentao Guo (wgtc2015@mymail.pomona.edu)
Co-authors: Jay Rodolitz, Eleanor Birrell