

# Using Long-Lived Facebook Accounts to Understand Implicit Norms of Consent in Contextual Integrity

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## ABSTRACT

Facebook enables the sharing of personal content between billions of users. However, this ability also raises many privacy concerns. In this work in progress, we propose using long-lived Facebook accounts to help understand privacy violations caused by others, such as someone else posting about a user on Facebook. We anchor our analyses in the Contextual Integrity (CI) framework. Specifically, we have designed a study to identify the ways in which users enact the implicit norms of consent of post subjects, as well as how these norms are sometimes violated. We also aim to identify how users prioritize contextual parameters in constructing the norms. Our pilot studies hinted that (1) the post type plays an important role in deciding the norms of consent, and (2) the relationship between the post sender and post subject influences ways the parties mitigate norm violations. In this paper, we motivate this project and present our study design.

## CCS CONCEPTS

• Security and privacy • Social aspects of security and privacy • Usability in security and privacy

## KEYWORDS

Facebook, Norms of Consent, Contextual Integrity, Retrospective, Interview

## 1 Introduction

Today, social platforms like Facebook facilitate social interactions between billions of users by enabling them to upload posts and to like, comment, share, or tag those posts. However, the potentially personal nature of Facebook posts can lead to myriad privacy concerns about who can see or interact with the posts [1, 2]. Many existing studies investigate privacy violations in Facebook [3, 4, 5]. We feel that the framework of Contextual Integrity (CI) can provide an even stronger basis for dissecting information flows in social media and understanding the contextual norm violations.

Contextual Integrity is a privacy framework proposed by Helen Nissenbaum [8] that takes a normative approach to understanding user privacy and identifying privacy violations. CI asserts that privacy is preserved by appropriate flows of information that, in turn, conform to contextual informational norms. A contextual informational norm depends on five parameters: sender, subject, information type, transmission principle, and receiver. For instance, consider a post with the information type “vacation pictures,” and a sender and receiver who are not the subject. For example, if Alice posts about Bob to her friends, then Alice is the sender, Bob is the subject, and Alice’s friends are the receivers. In this case, the transmission principle might be to obtain the subject’s consent. CI has successfully been used in explaining several types of privacy violations in the real world, like the privacy of publicly shared content [9]. We note that existing studies primarily leverage CI to understand the contextual norms of consent from the point of view of the post sender (i.e., the

post uploader). They focus on inappropriate information flows in social media that violate norms of consent expected by the uploader of the post.

However, much of the Facebook content about a particular user (post subject) is created by another Facebook user, potentially violating the post subject's privacy [6, 7]. Such violations can happen due to posting items identifying personal information about a post subject, tagging or mentioning a user in a sensitive Facebook post without prior consent of the subject, or even due to unanticipated social interactions on a user's profile (e.g., a comment about how the post subject recently got heavily drunk). Often, post senders rely on implicit, rather than explicit, consent of the post subjects as there are no dedicated mechanisms for enacting the consent procedure. The post content and dissemination scope are largely controlled by senders. The post sender, but not the post subject, can delete a post. The extent and scope of implicit consent of the post subjects and the efficacy of existing mechanisms to enforce norms around the consent are not well understood. This shortcoming hinders systematic design and evaluation of inclusive privacy mechanisms that can protect the privacy of the post subject in addition to the sender's privacy. There is a strong need to investigate implicit informational norms of consent when the subject is not the post sender.

In this work in progress, we aim to use the Contextual Integrity framework to untangle the contextual nature of norms of consent and norm violations for post subjects. We plan to examine implicit norms of consenting mechanisms and norm violations through semi-structured interviews, grounding our study in participants' own long-lived Facebook accounts. We based our interview protocol and analysis plan on CI to understand information norms and possible violations thereof. Concretely, in this work in progress we aim to answer the following key research questions:

- RQ1: When the post subject is not the post sender (e.g., if the subject is tagged in a post), how do users perceive CI informational norms, the transmission principle, and the receiver set?
- RQ2: If the post subject is not the post sender, when does this result in violations of expectations around CI informational norms?
- RQ3: When does a mismatch of expected CI norms cause a privacy violation?
- RQ4: How do users mitigate privacy violations resulting from CI norm mismatches?

In the rest of this report, we briefly describe related work and present our study design, including the user screening survey, interview questions, and pilot results.

## 2 Background

In the space of online privacy on Facebook, research has primarily focused on actions around post senders. This is natural since the post senders have both the main responsibility and the agency to control the privacy settings of posts. However, a few studies have also examined the ownership of content, identifying that there might be privacy problems for tagged photos. Prior work investigated this phenomenon primarily by identifying cases via a survey where privacy conflicts took place [7, 10]. We differentiate our work from their approach in two ways. First, unlike earlier studies, we use CI to identify key norms around the implicit consent mechanisms of the post subject. CI provides us an effective way to systematically examine the context of the information flows and to investigate how norms of consent relate to the context. Secondly, we ground our study in enabling the post subjects to go through their specific content and identify both the norms and norm violations. Thus, in contrast to prior studies that rely on recall and self-reported behaviors, we focus on identifying the norms that users have enacted in practice.

## 3 Study

To answer our research questions, we are conducting semi-structured interviews of long-term Facebook users. Our interview is accompanied by a retrospective walkthrough of the participants' Facebook posts and activities, where we gravitate towards posts that likely led to uncomfortable situations for post subjects.

## 3.1 Methods

Our study design consists of two parts: a screening survey and then a remote, semi-structured interview. During the interview participants also log into their Facebook account and share their screen.

**Screening Survey:** We created a short screening survey for selecting a population of active Facebook users. In this survey we ask questions about the social media platforms participants use, the frequency of usage, the reason behind their using or not using those platforms, and the participant's demographics. We will use the results from the screening survey to sample a gender-balanced set of participants, from a wide range of ages, platform usage, and other demographics.

**Semi-structured remote interview:** In the second part of our study, we will contact participants selected based on our screening survey to participate in a remote interview using video conferencing software. We will record these interviews. In selected parts, participants will share their screen. In our interview, first we will ask the participant to log into their Facebook account and share their screen with us. We then will ask participants to go through different Facebook pages. We will ask questions about each (e.g., about the participant's relationship with the friends shown on screen or whether the post on screen made the participant uncomfortable). We will repeat this procedure on four types of pages:

- i. **Collecting data on relationships with friends:** The interviewer will ask the participant to go over their list of friends and describe their relationship with each until reaching saturation.
- ii. **Collecting data on norms of consent around posts in which the participant acted as the post subject:** Next, the interviewer will direct the participant to Facebook pages that identify the posts where the participant was tagged or mentioned, as well as the posts that the participant removed from their timeline. These posts have two characteristics. First, in these posts the participants act as the post subject. Second, some of these posts (e.g., the hidden ones) are more likely to violate implicit norms of consent. For each of these pages, the interviewer will ask the participant to scroll down through the posts and answer a number of questions regarding contextual parameters for each post, norms, and norm violations from the post subject's point of view.
- iii. **Collecting data on norms of consent around posts in which the participant acted as post sender:** Next, in order to identify the norms of consent for posts where the participant tagged other users, we will ask the users to go through their timeline. We will ask questions to identify possible mismatches in norms of consent when the same person acted in the capacity of post sender, as opposed to post subject.
- iv. **Collecting data on tagging settings:** Facebook provides a settings page that consolidates user preferences for all available mechanisms to control the visibility of posts where the user is the post subject. This page includes mechanisms like "Review tags people add to your posts before the tags appear on Facebook?" with a Yes/No option. For each of the available settings, the interviewer will ask if the participants recall changing them. Subsequently, they will ask if the participant is happy with the current settings.

**Data analysis plan:** We are planning to code based on the parameters from the framework of contextual integrity, supplemented by open-coding to identify emerging themes. Specifically, we will use a combination of open, axial, and selective coding to separate out themes of norms and norm violations for implicit consent of post subjects.

## 3.2 Recruitment

We plan to recruit participants using Amazon Mechanical Turk (AMT) supplemented with flyers in three large U.S. cities to improve coverage. We will ask for English-speaking US participants. For AMT, we will require individuals to have more than 90% task approval. After a screening survey, we will invite participants to be interviewed via video conferencing. The semi-structured interview will take around 60 minutes. In total, we are planning to recruit around 50 participants for the semi-structured interviews.

### 3.3 Pilot

We piloted the screening survey as well as the interview script by recruiting from the authors' networks. Participants ranged in age from 25 to 45 and were female. One participant did not have any technical background, whereas two self-identified as working/studying computer science or related fields. We modified our study protocol after each pilot study to better identify retrospective accounts of contextual norm violations around implicit consent and to better understand the reasons behind such norm violations.

### 3.4 Preliminary Results

Throughout the three pilot studies participants revealed specific posts and incidents that made them uncomfortable. Their responses during the interview revealed that when others posted content about them, there were few instances where they were asked to consent by the uploader or even by the platform. Specifically, we note three key themes in the implicit norm violations.

First, the pilot participants felt uncomfortable when content posted by others contained information about the participants' own earlier lives. For example, they did not appreciate having pictures up from their college days. Notably, none of these posts contained content the participant deemed sensitive or damaging.

Second, participants self-reported that tagging without consent in posts with sensitive content (citing vacation pictures, videos of an office party) made them uncomfortable. This reaction to content did not depend on their relationship with the sender (in one case the sender was an acquaintance and in another was a close relative). However, the mitigating techniques differed based on the poster. The post made by the acquaintance was simply hidden from the Facebook timeline, whereas the interviewee expressed their discomfort explicitly offline to the close relative.

Finally, a very important theme was that participants had times when they felt uncomfortable with what friends commented on their posts. They perceived norm violations. One participant noted, "She should not have asked that question on my post." However, the participant also lamented that there is no way to handle such violations on Facebook.

### 3.5 Future Work

We are currently in the initial stages of deploying our study. Our pilot results indicate that the responses of our participants grounded in their specific accounts of incidents and posts on Facebook are likely to reveal key themes within the implicit norms of consent expected by post subjects. The results from our pilots hint that the information type plays a key role in deciding when a norm is violated. Moreover, the expected mitigation strategies might depend on the sender or more specifically the relationship between the sender and post subject. We hope that these norms will reveal expectations of post subjects regarding norms of consent, violations of those norms, and mitigation strategies for these violations. These will in turn aid the evaluation and design of more inclusive and effective access-control strategies in social environments.

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