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Death, Identity, and the Social Network

DISSERTATION

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by

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DEDICATION

For the friends and family, both chosen and given,
who have supported me on this journey
and shaped who I am today.

TABLE OF CONTENTS

LIST OF FIGURES

LIST OF TABLES

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ABSTRACT

Death, Identity, and the Social Network

by

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Doctor of Philosophy in Information and Computer Science

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What happens to our accounts, data, and digital identities after we die? Over 550,000 US Facebook users will die in 2015, but their deaths will not necessarily result in the elimination of their accounts or their place inside a network of friends. This leaves friends and families with both the opportunity and challenge of incorporating digital identities into their practices of grief and mourning. Meanwhile, post-mortem digital identities require designers and administrators to address the ongoing use and maintenance of post-mortem data. In this dissertation, I present findings from mixed-methods research on digital afterlives. I identify how people interact with profiles after the account holder's death, describe "post-mortem social networking" practices, articulate the multiple and conflicting needs of survivors, and present design research addressing the management of post-mortem digital identities. Framed within the larger scholarship on digital identity, I argue

that digital identities are the byproduct of social performances that have been delegated into a technical system such that the system can re-present these performances. Through the study of post-mortem digital identities, I demonstrate ways that digital identities stand in as the deceased in both the social practices of friends and family and the technical functionality of social network sites.

[1]
INTRODUCTION

Like many people on social network sites, Ashley's recent birthday was celebrated with best wishes posted by friends to her profile. Affectionate messages that declare their love include promises to see her soon, and share favorite lyrics make Ashley's profile appear typical for a 23-year-old woman. However, amidst profile attributes describing her age, location, and that she is a "Strawberry Daiquiri," one personal attribute is not immediately clear: Ashley is dead.

The mass adoption of social network sites has resulted in an increasing number of profiles representing people who are no longer alive. Someone's death does not result in the elimination of his or her account nor the profile's place inside a network of digital peers. Instead, the behavior of friends, such as Ashley's, give a continued life to the digital identities represented by these profiles.

At first glance, these post-mortem profiles are deceptively un-remarkable. Kastenbaum argues that every culture has a function for "disposing of the dead", a means by which the body is removed, often marked by rituals (Kastenbaum & Aisenberg, 1972). These digital bodies, however, live on, representing the various moments of the individual's life – from the trivial to the profound – unaware of and omitting one of the most consequential events: the individual's death.

Even before the birth of the Internet, researchers have considered issues around our digital identities, who we are when we are online, and how individuals make choices about the way they present themselves on various platforms (boyd, 2008; boyd & Heer, 2006; boyd, 2008; boyd & Ellison, 2008; Bruckman, Curtis, Figallo, & Laurel, 1994; Dibbell, 1993; J. S. Donath, 1999; J. Donath, 2007; N. B. Ellison, Steinfield, & Lampe, 2007; Gershon, 2010; Gibbs, Ellison, & Heino, 2006; Hancock, Toma, & Ellison, 2007; M. Ito, 1999; C. A. C. Lampe, Ellison, & Steinfield, 2007; C. Lampe, Ellison, & Steinfield, 2008, 2006; Lea & Spears, 1992; A. Marwick & boyd, 2010; M. Poster, 1990; Mark Poster, 2006; Sproull & Kiesler, 1986; A. R Stone, 2001; Tidwell & Walther, 2002; Turkle, 1984, 1995; Van Gelder, 1985; Walther & Burgoon, 1992; Walther, 1992, 1996). The bulk of this research considers how individuals negotiate the features of these platforms, the effects of computer mediated communication, and the ways theses platforms shape the identities individuals present and the kinds of interpersonal activities people have. But how do these digital identities, and the types of interpersonal activities that occur, shift after someone's death?

The social practices described in the literature around social network site profiles demonstrate how profiles serve as both representations of the owner and a gathering place where the individual's network can interact. What has not been adequately addressed in the literature are the sociotechnical relationships between human and computational actors that result in these so-called digital identities, as well as how these digital identities are constructed by and serve both technical and social ends.

Why is it that Ashley's friends return to her profile page year after year to wish her happy birthday, share memories, and include her in events of their lives? What is the nature of our social network sites when our networks include the dead? How do we understand the kinds of representation that happen when individuals are no longer actively presenting themselves? And how is it that a system that is designed to represent individuals' lives could be unaware that they have died? How do digital identities stand-in for and represent humans?

1.1 BRIDGING SOCIAL AND TECHNICAL APPROACHES TO DIGITAL IDENTITY

Digital identity has been a central consideration in scholarly work on mediated communication and environments. Between Turkle's examination of self-invention on MOOs and MUDs (Turkle, 1995), and Rheingold's depiction of early online communities (1993), researchers have labored over how electronically mediated spaces allow us to present ourselves, to whom, and the subsequent social impacts (Silver, 2000). Such work has exploded with the growth of social media where, as

Sundén argues, through the construction of profiles, user-generated content, and the social environments themselves, we "write ourselves into existence" (2003).

While social scholarship on digital identity often accounts for the features of these environments, the infrastructure that enables these digital identities remains under examined. Problematically, digital identity as a term also refers to a central concept related to identification of users and other entities within technical systems. Emerging out of system accounts and network security, digital identity architects seek to design identification and authentication infrastructure in computational systems (Cameron, 2005; Windley, 2005). Digital identity architects are responsible for how people are operationally defined and represented within the computational system. The heavily studied social practices related to digital identity are built on top of an underlying identity infrastructure that constrains and shapes, not only how the system is used, but also the very legibility of the user to both social and technical actors.

I turn to social study of infrastructure studies (Bowker, Baker, Millerand, & Ribes, 2010) and the scholarship on delegation (Latour, 1992; Ribes, Jackson, Geiger, Burton, & Finholt, 2013) to bridge the social and technical approaches to digital identity. In line with the call to think about the "technical and the social together" (Leonardi & Barley, 2008; Orlikowski, 2007), I engage digital identities as sociotechnical constructions produced reflexively and collaboratively by social and

technical actors. This enables me to examine the work these constructions perform on our behalf and in our absence.

Adopting an infrastructure studies perspective and building on theoretical work on delegation as an analytical lens for studying digital identity, in this dissertation I argue that:

> *Digital identities stand in for the people they represent; digital identities are the byproduct of social performances that have been delegated into a technical system such that the system can re-present these performances.*

To support this claim and to study the ways that digital identities "stand in", I engaged in a long-term multi-method study of death in the context of social network sites.

1.1.1 WHY SOCIAL NETWORK SITES?

Digital identities on social network sites exist as a way for the system to identify who is using the system and to control access to content. However, as with many user-generated content systems, the digital identities that populate social network sites also build the foundation for the system content itself (boyd & Ellison, 2008). In their most easily recognizable form we call them "profiles." People sign into sites like MySpace and Facebook to amend or edit their own profiles, link their profiles to others (through "friending") and shared content (by "tagging" posts and photos), and see how others have done the same. People interact with others on social network sites as an asynchronous alternative to in-person interactions. The digital identities

constructed via social network site platforms, then, not only stand in for people when the social network site is capturing and encoding social connections, digital identities stand in for people in our social interactions as well.

Social media practices have been so deeply organized by the digital identity as a delegated representation that separating social and technical aspects of the representation can be difficult. The ways people interact with and on social networking sites are inextricably linked to and dependent on the presence of the digital identity. It can be difficult to see where an individual's act of self-presentation stops and computational re-presentation begins, let alone how the digital identity facilitates each. Studying social network sites allows me to examine how digital identities stand in over long periods of time and under shifting conditions.

1.1.2 WHY DEATH?

Death makes the expectations to which we hold digital identities acutely visible. Death challenges both the representational integrity of digital identities, and our expectations around how the alignment between the representation and the represented person are maintained. In the simplest terms, an individual's death marks a point at which the digital identity needs to reflect the changed mortal status if it is to remain an accurate representation. Changing a digital identity to indicate death

presumes, however, that the concept of mortality is included in the system's representational schema.[1]

Death also highlights how the partiality of the digital identity's representation extends beyond computational systems. People only ever have partial understandings and representations of each other as well. Death and mourning are times when others' need to re-negotiate and act on their own partial understandings and representations of the individual who has died. By articulating ways in which individuals continue to engage and interact with the digital identity, I demonstrate how the digital identity continues to stand in post-mortem, which has consequences for our understanding of how systems should stand in for users more broadly.

Post-mortem, it is unclear where the authority and responsibility for digital identities rest. The various social and technical actors only have a partial ability to represent the deceased authentically. As such, death in the context of social network sites allows us to see how the management of digital identity is negotiated, which actors are prioritized, and how human and technical actors act despite (or in light of) their partial understandings.

Death clearly demonstrates how the design of social network site platforms, intended to let people share their lives, fails to represent death. As a result, these platforms assume the digital identity will be maintained by a living and acting person. Accounts

[1] This was not the case for Facebook when I started this project, and while it has subsequently been added, it is not uniformly used or accurate. I provide a more in-depth history in Chapter 4.

and profiles, in the absence of their owners, remain present within the active social networks in which they were constructed. Friends and loved ones continue to visit these social spaces to memorialize and remember the dead. And the deceased's social media data continues to flow through the automated features of the platform. So we have a set of data that is more than just persistent: it is present, presented by the system, and experienced by a network of people.

1.2 ORGANIZATION OF THE DISSERTATION

The dissertation is organized around four chapters, each with a different topic focus on the data. In Chapter 4, I introduce the post-mortem profile. I start by describing my own initial encounters with post-mortem profiles and the memorializing practices made possible by their continued presence on social network sites. I then provide a technical history to account for the persistence of post-mortem profiles, describing a series of infrastructural shifts that have brought about the conditions in which post-mortem profiles continue on after death and are not removed from these systems. Finally, I outline a history of how one social network site (Facebook) has approached and managed death on their platform.

In Chapter 5, I explain how post-mortem profiles change over time as individuals continue to interact with and post messages to the deceased on these profiles. I highlight modes of address that reinforce the deceased's symbolic ownership of the profile, temporal patterns of messages, and describe three post-mortem social networking practices.

In Chapter 6, I shift my focus from the post-mortem profile to the experiences of interview participants and the role of post-mortem digital identities in grief and encounters with death. I describe the benefits and challenges associated with memorializing the deceased in a shared public setting, as well as the unexpected encounters that occur in modern social network sites as a result of the ways that digital identities are resourced and presented. The presence of post-mortem digital identities on social network sites expands the site in which we encounter death – socially, spatially, and temporally.

In Chapter 7, I consider the management of post-mortem identities in the absence of their account holder. In contrast to emerging trends that turn to models of inheritance for online accounts, I propose stewardship as an alternative for the management of post-mortem digital identities.

To contextualize and support my findings, Chapters 2 and 3 cover related work and methods, respectively. Chapter 2 provides a theoretical overview of the scholarship on digital identity that informs this dissertation, as well as the background for infrastructure studies and delegation as my analytic lens. The remainder of chapter 2 is comprised of literature that pertains to death and social network sites as an empirical domain. I start with a broad survey of death, grief, and bereavement, followed by social science literature that specifically focuses on the importance, construction, and maintenance of memories and memorials of deceased loved ones. I conclude by presenting existing scholarship related to death and social media. I

describe my methods in Chapter 3. I describe my orientation to and use of multiple methods, how I topically focused and scoped this project, and provide a historical account of my data collection and analysis efforts.

Finally, in my concluding chapter I revisit my thesis and describe how death highlights the limitations of how existing approaches study and implement digital identity. I conclude by outlining implications for studying digital identity from a socio-technical perspective.

[2]
RELATED WORK

My dissertation research sits at the intersection of social computing, Internet studies, and death studies. As such, I draw on a wide range of related scholarship. My survey of the literature is divided into three sections based on the role the literature plays in my dissertation. I start by providing background on digital identity scholarship. I describe two communities of scholarship and practice that have both focused on digital identity, but autonomously and with different objectives. Following my survey of digital identity, I turn my attention to the body of literature that informs my analytic lens. I describe infrastructure studies and the relevant work on delegation. Finally, I consider literature related to my empirical domain. I first consider approaches to death and dying from the social sciences, highlighting theoretical perspectives on experiences around death and bereavement and an ongoing connection with the memory and identity of the deceased. This is followed by a survey of technology-oriented research engaging personal archives, death, and

bereavement. Finally, I conclude with a review of related research investigating memorializing practices online on sites including cybermemorials, online obituaries, and social network sites.

2.1 TWO FIELDS OF DIGITAL IDENTITY

Examining the literature around digital identity is important for both the theoretical aim of this dissertation as well as an empirically understanding of post-mortem digital identities. Much like "identity", defining "digital identity" is fraught. Digital identity has been discussed extensively by at least two different schools of thought – one social and one technical – each using the term to refer to different concepts. Collapsing the scholarship into two groups is a gross simplification, however, I distinguish between the two bodies of scholarship based on the intellectual histories on which they primarily base their work, and around which their contributions are framed.

The first body of work is a collection of scholars, social and humanistic in their orientation, who write about digital identity, Internet identity, and online identity.[2]

[2] Throughout this dissertation I use the term digital identity when talking about both social and technical approaches. While digital identity, Internet identity, network identity, and online identity are all variously used throughout social and technical conversations, very recently there appears to be some consensus that "online identity" refers to the social identity an individual establishes within an online community, where "digital identity" refers to the data that uniquely identifies a person or thing (e.g., a user account and associated digital content) (P. G. Brown, 2014). I appreciate the clarity that academics want to bring to their research, but I am reticent to separate these two concepts inside my project. Separating the two approaches risks eliminating the ability to look at the interactions between people and the platform that are actively shaping, to say nothing of the potential to examine the kind of social work that technical identities are performing.

Building on identity literature from the social sciences, these scholars have focused on issues ranging from how individuals express themselves in online spaces, the relationship between digital identity and "the self", and the types of communal sociality digital identities enable. The second body of work, technical approaches to digital identity, is comprised of engineers and and designers who focus on how actors are identified within computational ecosystems. Their work can be traced back to user accounts and server and network management, and concepts including authentication, access, privacy, and encryption.

A clarifying distinction between these two approaches can be found in how they define digital identity in relationship to non-digital identities. Whereas the social approach generally considers digital identities as non-digital identities presented in a digital form and/or environment, the technical approach is less concerned about the digital/non-digital translation of identity and is focused instead on operationalizing discrete identifiable entities (human and not).

In the context of social computing, where these entities are often representations of people in non-digital environments, the relationships between social and technical identities become both more important and more difficult to disentangle. A central contention in my dissertation is that post-mortem digital identities demonstrate the limitations of both the social and technical approaches to digital identity and require that we properly theorize the two in relationship to each other. To support this argument, in this section I briefly survey literature on digital identity from both

social and technical perspectives. This is followed by a discussion of the need to bridge these two perspectives.

2.1.1 SOCIAL APPROACHES TO DIGITAL IDENTITY

The social approach to digital identity can most readily be found in the interdisciplinary fields of Internet studies and cyberculture studies where identity has been a central theme throughout their histories (Silver, 2000). While definitions of digital identity vary, Koosel (2013) gives us a straightforward definition: "Digital identities are who we say we are, when we are online" (p. 154). Between Turkle's examination of self-invention on MOOs and MUDs (1995), and Rheingold's depiction of early online communities (1993), Internet researchers have labored over how electronically mediated spaces allow us to present ourselves, to whom, and the subsequent personal impacts. However, as the Internet has become a more complex site of daily interpersonal behavior, so too has the collection of identity theories summoned to explain its myriad phenomena.

2.1.1.1 Self-presentation and impression management

On social network sites, a digital identity is initiated by an individual who creates an account and populates their profile with personal information that the system will present on their behalf. Goffman's work on self-presentation and impression management (1959) has undoubtedly had the biggest influence on the social scholarship on digital identity, and is frequently used within scholarship on information and communication technology (*e.g.*, Benjamin, Birnholtz, Baecker, Gromala, & Furlan, 2012; Getty et al., 2011; Kane & Blandford, 2015; Zhao,

Salehi, & Naranjit, 2013). Goffman argued that identity was performed relative to social and situational rules, a notion of particular interest when considering online environments. Introducing the now prolific ideas of "front-stage" (public) and "back-stage" (private) selves, Goffman examined the different ways in which individuals perform when interacting with a group versus when they are alone. Goffman detailed a number of strategies by which people actively shape their front-stage selves, conforming to social expectations as they selectively self-present for social advantage.

Based on Goffman's work, in boyd's work on MySpace (2010), she sees the digital identities represented in MySpace profiles as "digital bodies" that "both uniquely identify a person and are the product of self-reflexive identity production" (p. 125). She continues:

> *[P]rofiles locate and are the combination of controlled self-descriptions in the context of social connections. As teens struggle with the ways they are seen and how they mark themselves in relation to those around them, I see identity work that combines the complex ways in which social norms, context, and people complicate acts of self-presentation and identity management. (p.125-126)*

In line with boyd, and Koosel's definition above (2013), digital identities are often regarded as the result of mediated self-presentation for a given context or audience.

In the context of social network sites, this is typically the profile.[3]

Examining post-mortem identities with only the lens of self-presentation, however, is problematic. Post-mortem, the self no longer exists. In effect, post-mortem digital identities are self-presentation in absence of the self. boyd's use of the term "body" is notable and points towards questions of when these data as representations serve to embody the ostensible owner. After the self has died, it is not entirely clear to what extent digital identities serve as self-presentations versus just presentations. Are post-mortem digital identities viewed as the self-presentation of the deceased, or does the intentionality and agency of the deceased fade, leaving us with just a presentation of artifacts from their life? Post-mortem digital identities compel us to consider the forms of identity construction, persistence, and maintenance that occur beyond the acts of a single individual and their mediated forms of self-presentation and to engage with the network and context in which these digital identities persist.

2.1.1.2 Audience, Networked Publics, and Context Collapse

Some additional considerations have been made about digital identity in the context of social media, social network sites, and what Ito refers to as "networked publics" (2008). In her study of teenagers on MySpace, boyd (2008a, 2010) identified four

[3] Many scholars, but not all, consider a person's digital identity to be the totality of self-presentations across all online environments or contexts. I approach digital identities as environment or platform-specific constructions for two reasons: First, the cross-platform approach to digital identity problematically reifies online/offline distinctions rather than focusing on context that can be comprised of both online and offline spaces. Second, collapsing all digital environments inappropriately suggests that digital identity data is interoperable between systems and can be easily aggregated.

features of digital content in network publics that result from the technological affordances of platforms like MySpace, each of which directly relate to the empirical data I present in this dissertation. Content in networked publics are notable for its persistence (it is automatically captured and archived), replicability (it is easily copied and reproduced), scalability (it can be made visible as large scale across the network), and searchability (it can be discovered via search).

The result of networked publics is that the self-presentation that Goffman described happens in relationship to an unknowable audience, complicating attempts to differentiate one's presentation based on the audience. As Marwick (2010) writes, "The networked audience is the real or imagined viewers of digital content who are connected to the content creator and each other. Many Web 2.0 sites digitize formerly ephemeral social information, causing all manner of complicated social problems as this information moves across boundaries and contexts" (p. 8).

The size and scale of networked audiences can result in complications with online self-presentation as diverse audiences are connected to and interact with one's digital identity. The unknowability of the audience presents challenges for the individual trying to selectively forward an ideal self-presentation, a challenge that is only compounded when various audiences are collapsed on to each other. Context collapse (boyd, 2008a) has been used to describe "the process through which various connections representing different aspects of one's identity are flattened into an unnuanced, one-dimensional group such as 'Friends' or 'contacts'" (Ellison, 2013;

c.f., boyd, 2010; Marwick & boyd, 2010; Vitak et al., 2012). Context collapse is most readily recognized in the common concerns expressed when one's social network site "friends" are comprised of both friends and family, personal and professional contacts, or friends from different parts of one's life.

Networked publics and context collapse are often discussed from the perspective of the person self-presenting – typically an individual managing their social network site presence — and attempting to construct, maintain, and repair boundaries amoung social groups and life contexts (*c.f.*, Nippert-Eng, 1996). Because individuals perform in a variety of social contexts, Goffman believed that an individual may develop a number of front-stage selves. The performance of an identity, however, can "also become institutionalized in terms of the abstract stereotyped expectations to which it gives rise, and tends to take on a meaning and stability apart from the specific tasks which happen at the time…" (p. 27). For Goffman, the front-stage self can become "a fact in its own right" as others come to expect behavior in line with that identity (p. 27).

However, context collapse is certainly experienced by those who visit profiles of friends and find that their own socially-contextualized understanding of their friend has been collapsed with other social groups. When diverse audiences with differing expectations of a front-stage occupy the same space, what types of issues arise? Do friends perceive boundaries in the same way the profile owner does? And do those boundaries create tensions between various audience members, or does cross-context

participation provide a desirable form of interaction? The type of public space that digital identities create and the forms of context collapse they enable play a key role in this dissertation as people engage with digital identities when the deceased is no longer able to manage the boundaries between social and life contexts.

Persistence is a key feature of self-presentation in networked publics, but the dramaturgical framework of self-presentation begins to become brittle when the presumed actor is not actively performing to and managing the audience's impressions. The acts of self-presentation one engages with on social media are in anticipation of an audience rather than in synchronous dialog with an audience. We are then left with questions about what types of self-presentations can be persisted and how the technology entrusted with persisting these performance conceptualizes the data it captures and persists. I directly consider this issue later in this chapter, but for the moment it is worth noting that the design of social network sites presume the account holder will manage the content on their profile and resolve any issues as they arise. However, in their absence, questions about management of the identity and disparate audiences become apparent. Additionally, we are left with questions about how the facets of a social network navigate each other when engaging with the same profile.

2.1.1.3 Unified vs. Fragmented Identities

One primary division in digital identity scholarship revolves around a distinction between unified vs. fragmented identities. The scholarly investment in unification and fragmentation is the result, in part, of a larger debate about "identity" fueled by

critical scholarship (notably within cultural, feminist, and queer studies) that has touched much of academia after the post-modern turn. Early cybertheorists heralded the potential for technology to free people from and let them transcend the body, opening up the potential to remake identity in the process (Stone, 1995; Turkle, 1995). Plant (1997) and Haraway (1998), meanwhile, have both argued for embracing a fragmented self. Turkle (1995), while sympathetic to the fragmented, ultimately retains a unified self – presumably because of the primacy of this notion in the psychoanalytic tradition (cf., Erikson's notion of "ego integrity"; Erikson, 1963).

Other scholars have argued against the utility of scholarship on identity (online and off). Scholars like Braidotti (1994), for example, find inspiration from Deleuze (1973) and have rejected identity altogether (*c.f.*, Parisi & Terranova, 2001). Likewise, the cultural theorist Stuart Hall (1996), in his seminal essay "Who Needs 'Identity'?", provides a scathing critique of identity scholarship. Tracing a shift in scholarship towards decentralizing identity, he writes that:

> *There has been a veritable discursive explosion in recent years around the concept of 'identity', at the same moment as it has been subjected to a searching critique… The deconstruction has been conducted within a variety of disciplinary areas, all of them, in one way or another critical to the notion of an integral, originally and unified identity. The critique of the self-sustaining subject at the centre of post-Cartesian western metaphysics has been comprehensively advanced in philosophy. The*

> *question of subjectivity and its unconscious processes of formation has been developed with the discourse of a psychoanalytical influenced feminism and cultural criticism. The endlessly performative self has been advanced in celebratory variants of postmodernism... What, then, is the need for a further debate about 'identity'? Who needs it?*

Hall proposes "identification" as an alternative as:

> *it accepts that identities are never unified and, in late modern times, increasingly fragmented and fractured; never singular but multiply constructed across different, often intersecting and antagonistic, discourses, practices and positions. They are subject to a radical historicization, and are constantly in the process of change and transformation.*

In line with Foucault's views on authorship and subjectivity (Foucault, 1984), Hall uses identification to refer to "points of temporary attachment to the subject positions which discursive practices construct for us" (S Hall, 1996, p. 19). Others have sought to distance themselves from "identity" even further in attempt to avoid a term they feel is too fixed and stable.

Kennedy (2006) is one of a few Internet scholars who have responded to Hall's critique. While advocating Hall's position, and arguing that we need better conceptual tools, she ultimately concedes that it "is important is to take these conceptual steps without losing sight of identity as embodied experience, of the real struggles of real people whose identities are fiercely contested or defended – in other

words, without losing sight of identity-as-practice. This is the real challenge for Internet identity research" (p. 873).

Kennedy's "challenge" may address the issues from a social perspective, but in doing so it reinforces our focus towards the multiplicities of identity and identity practices from an even more embodied, phenomenological, and social perspective. Overwhelmingly, the social literature in digital identity focuses on specific topics – identity play, authenticity, anonymity, etc. The literature largely addresses how individuals navigate the features of specific systems and platforms as they construct a "digital identity" and the unintended consequences when the technology does not perform and information does not flow in the ways anticipated.

I do not find Kennedy's approach incompatible with Hall's. While Kennedy is speaking to the phenomenological sense of identity, Hall's approach is well suited to understanding the technical acts of identification I describe in the following section. In line with the call for more conceptual tools, I argue that digital identity scholarship needs to better account for the technical and infrastructural aspects of digital identity lest we fail to consider the ways in which identity-as-practice involves and is practiced by technical actors for whom identity is operationalized in policy and code and thus remains deeply essentialized. An important next step is articulating the connections between what Hall calls "points of temporary attachment" and the subjective sense of identity described by Kennedy. When considering identity, subjectivity, and presence, Markham (2005) asserts that "The common phrase 'I

think, therefore I am' is woefully inadequate in cyberspace. Even 'I speak, therefore I am' is not enough. In cyberspace, the more appropriate phrase is 'I am perceived, therefore I am.'" (p. 795). I agree. However, a decade later it is critical to acknowledge that digital identities are perceived by both social and technical actors and the importance in accounting for each.

2.1.2 TECHNICAL APPROACHES TO DIGITAL IDENTITY

Technical approaches to digital identity, rather than focusing on identity invention, play, and discovery, produce designs and architecture for identification within computational systems (*e.g.*, login systems). Digital identity architecture is focused on the design of digital identities, and the issuing and validation of claims across computational eco-systems. In order to make humans and human activity amenable to computation, designers create a partial "representational schema" consisting of "a small vocabulary of discrete elements" (P. E. Agre, 1997). Digital identities are one such element.

In the definitive "Laws of Identity", Kim Cameron argues that a digital identity is "a set of claims made by one digital subject about itself or another digital subject" (2005). In technical parlance, a digital subject is defined as "a person or thing represented… in the digital realm." Cameron's definition merits some unpacking. Technical approaches to digital identity emerge out of authentication and security. As such, an easy entre, as well as most pertinent to this project, is the user account. User accounts include a variety of attributes, from personal data that might be associated with the account. In Cameron's definition, these attributes are "claims."

When someone on a corporate network attempts to access payroll information, for example, the network verifies that that the user is authorized to access this secure information. If the person were, for example, part of human resources, their digital identity should indicate as much. The department would be presented as a "claim," which in turn could be verified by the network's security settings in the process of granting or denying access to the payroll data. The technical systems used by identity architects are certainly capable of representing and enforcing concepts from social identity, and often do. Membership in Human Resources, after all, is a form of group identity.

Currently, discussions about technical approaches to digital identity exist largely in the context of industry working groups who are focused on implementing "digital identity architecture" as policy and code. There are a number of policy and technical working groups[4], conferences[5], and standards[6] focused on the topic, but the majority of digital identity design and management work is assumed by technical professionals at various points during the development, implementation, and maintenance of a technical service or product. Software developers, for example, play a design role when considering the kinds of user information their applications might require. Network administrators are also frequently involved with digital identity

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[4] See the Future of Identity in the Information Society (FIDIS), as well as the Identity Gang and their website *Identity Commons*.

[5] Internet Identity Workshop and Digital Identity World are two of the larger conferences.

[6] Security Assertion Markup Language (SAML), OpenID, OAuth, and Extensible Resource Identifier (XRI) are a few.

management, but their work is usually limited to the management of user accounts and network access.

While digital identity architecture is used for identifying any number of entities, I focus on the role and implications of the "user entity" as a representation of an individual within computational systems. Closely tied to the user account, the construct of the user entity first emerged as a way of providing security for systems and networks by controlling access to these systems.

The user entity has become integral to the ways in which the designers of many systems configure their representational schemas. The user entity captures those who act, those who "use." The user entity provides the system with a way of understanding who is using the system, but also holds the data by which the system represents those actors and makes them computable. It is the fundamental building block by which programmers and their systems identify those who use their services, and as such is often the first entity to be incorporated into the representational schema when designing a new system. However, its primacy means that it is often overlooked both in the design process and as an object of research and inquiry.

Computational representations are always partial (P. E. Agre, 1997), raising questions about what kinds of user entities exist, what social and technological functions user entities serve, what breakdowns occur between representations and practice, and, finally, what social complications arise because of these mismatches between practice and representation. This is especially true for social media systems

whose very design is predicated on presenting these representations back to individuals, groups, and the algorithmic platform. More than two decades of research has considered issues around online identity, who we are when we are online, and how individuals make choices about the ways they present themselves on these platforms. What have not been adequately addressed are the sociotechnical relationships between human and computational actors that result in online identities that are constructed by and serve both technical and social ends. Concretely, it is worth considering how it is possible for a "discrete element" (P. E. Agre, 1997) of a computational system to stand-in for a human whose very existence seems to exceed this necessarily partial representation.

2.1.3 BRIDGING SOCIAL AND TECHNICAL APPROACHES TO DIGITAL IDENTITY

In line with the call to think the "technical and the social together" (Leonardi & Barley, 2008; Orlikowski, 2007), I turn to infrastructure studies (Bowker et al., 2010) and scholarship on delegation (Latour, 1992; Ribes et al., 2013) to bridge social and technical approaches to digital identity.

In taking an infrastructural perspective, I am claiming that digital identities get work done. Like other forms of infrastructure, identity architecture performs functional work at scale (*e.g.*, identification and authentication of users), and often invisibly. Digital identities are based on standards and classification systems, and become visible upon break down (in this case, when they fail to account for an individual's death). Star and Ruhleder (1996) argue that infrastructure is fundamentally

relational, stating that "an infrastructure occurs when the tension between local and global is resolved. That is, an infrastructure occurs when local practices are afforded by a larger-scale technology which can then be used in a natural, ready-to-hand fashion" (p. 114).

The forms of identity and practices of identification on social network sites are a perfect example. All Facebook profiles across the globe have a first and last name, despite the variety of local naming practices around the world. As a result, searching for friends and colleagues by name amidst over a billion profiles becomes possible. In this regard, social network sites are the latest addition to a historical collection of identity infrastructures (*c.f.,* Poster, 2006; Scott, 1999).

Additionally, I am heavily influenced by *delegation*, a concept initially introduced by Latour (1992) and recently furthered by Ribes *et al.* (2013). At its core, delegation acknowledges the interchangeability of human and technical work. Latour's speed bump (and sleeping police officer) is perhaps the most well known example of delegation. If the objective is to slow traffic, a police officer might be exchanged for a speed bump. Likewise, if the objective is to share personal details with others, cocktail-party introductions might be replaced with a profile on a social network site.

In the context of distributed organizations, Ribes et al. define *delegation* as "the in-principle interchangeability between 'technical' and 'social' means for the accomplishment of organizational ends" (2013, p. 4). Using Latour's argument that we could better understand the durability of "the social" through material objects

and resources by considering delegation from social to material actors (Latour, 1992), Ribes *et al.* argue that technologies function as "props or assists to the sociality of distributed groups, supporting or restoring (rather than replacing) the essentially social ties binding individual and groups within formal and informal organizational structures" (2013, p. 4).

While Ribes and his colleagues are speaking to organizational studies, their description of technology aptly describes social network site profiles. Delegation prompts us to examine human-nonhuman interaction, and encourages us to account for the technical and infrastructural environment that shapes social practice. Where I depart from existing research is in my focus on social media rather than organizational settings and ends.

social network sites as a setting raise questions about the objective of digital identity in that space. What is the objective of a digital identity? Returning to boyd's definition (2008a), a profile is a self-reflexive construction. I argue that the objective or end delegated to the profile is a "presentation" or a performance of the self. It is this self-presentation that is delegated to the profile and the social network site's digital identity architecture more broadly.

Digital identities are collaborative productions in which social actors delegate their social performances to technical actors to affect a self-presentation. Through the lens of delegation, we can examine how the delegation between human and non-human actors reconfigures the organization of social activities, transforms how people

socialize, redistributes the responsibilities around self-presentation and expression, and shifts the visibility around how these self-presentations are produced.

With a focus on identity, this project directly contributes to literature on delegation by extending it beyond organizational and work contexts. Rather than just delegating work to achieve the desired effect (speed bumps slow people down), in social media "subjectivity" itself has been delegated to non-human actors that make up the platform who perform our profiles, status updates, and forms of self-presentation on our behalf. This project contributes to infrastructure studies by demonstrating for sociotechnical identities an invisible information infrastructure. They are infrastructure that is often hiding in plain sight, hiding as the self-presenting edifice. Digital identities, particularly in the context of social media, have been designed to appear as the person they represent. It can be easy to forget that a person is not their digital identity given the myriad social and technical ways in which we have designed and permitted digital identities to effectively stand in place of actual people (Poster, 2006).

2.2 DIGITAL DEATH

In this section, I turn my attention to the existing scholarship that directly relates to my empirical data on death and social networking sites. I start by considering how death is approached in an American context, clinical approaches to grief and bereavement, and then survey literature about the role post-mortem identities in mourning and memorializing practices, as well as how theories around identity

authorship and intersubjectivity might inform post-mortem interactions around digital identities that are authored in social environments online. I conclude this chapter by surveying existing work on death and bereavement within the field of human-computer interaction, followed by the available literature about death and grief on social media.

2.2.1 THE AMERICAN WAY OF DEATH

Cultural beliefs are deeply embedded within human experiences of grief and practices around death. Kastenbaum and Aisenberg (1972), for example, envision each society's approach to death as a death system, a "sociophysical network by which we mediate and express our relationship to mortality" (p. 310). While the participants and data in this project pull from diverse backgrounds, the perspectives represented are predominantly American. As such, the focus here is predominantly on death in a Western context.

Technology and the institutionalization of death has played a profound role in the changing experience of death in America, particularly over the last century. Contemporary Western approaches to death are often considered a significant departure from previous eras. For example, Philippe Ariès (1975), a cultural historian, charted a shift in Western attitudes regarding death during the 20th century, outlining three central characteristics: the medicalization of death, a denial of mourning, and the invention of new funerary practices within the United States. Ariès asserted that as a result of the larger role of medicine and hospitals in end-of-life

care, as well as the emergence of professional funerary services, contemporary America had become a "death denying" culture.

Roots of the so-called "denial of death" thesis can be traced to the mid-1950s and the British anthropologist, Geoffrey Gorer. In an influential article entitled "The Pornography of Death," Gorer responded to hospital-based deaths in which family, and even clinicians, were often not present, concluding that Western culture increasingly viewed death as "obscene" (Gorer, 1955). Making a comparison with Victorian attitudes towards sexuality, he claimed that the 20th century had witnessed "an unremarked shift in prudery; whereas copulation has become more and more mentionable, particularly in the Anglo-Saxon societies, death has becomes more and more 'unmentionable' *as a natural process*" (p. 193, emphasis in the original). The influence of Freudian psychoanalysis is evident in Gorer's thesis as he argues that we must "readmit grief and mourning" to prevent potentially dangerous expressions of violence in literature and other media.

While Gorer's thesis (later affirmed by Ariès's work) was accepted by researchers of death and dying for some time, this was not without criticism. For example, Simpson wrote that "Death is a very badly kept secret; such an unmentionable topic that there are over 650 books now in print asserting that we are ignoring the subject" (1979, as quoted in Walter, 1994).[7] Today, the "denial of death" thesis has largely been discredited by the academic community in favor of more nuanced accounts, however

[7] Simpson would later update his count to 2,350 (Simpson, 1987).

the thesis (and many of Simpson's books) speak to the sensitivity and anxiety with which we continue to culturally approach topics of death and morality.

Walter (1994, 1996b) outlines an alternative framework including three different types of death: traditional, modern, and postmodern. Walter proposed these types as non-exclusive "ideals" — that is, while they can loosely be applied in a historical trajectory, our experiences may pull from each.[8] They serve to highlight the various intersections of individuals, institutions, and norms that surround and compose our experience of death.

Walter's traditional ideal is characterized by the role of religion, community, and ritual. It originates from a pre-modern era in which death was common, often experienced in the context of the larger community, and during which religion played a key role in providing belief structures to handle uncertainty surrounding death. With the rise of science and secularism, Walter argued that the authority of religion over the soul was displaced by medicine's authority over the body. In the modern ideal (in which Walter places the work of Gorer and Ariès) death has been "tamed" (Ariès, 1975). The timing and circumstances of death are more certain, and the objective is to postpone death as long as possible. While the medicalization of

[8] Walter, for example, asserts that practices in the United Kingdom are generally more aligned with the traditional idea, while the American experience is more heavily aligned with the modern and postmodern ideals.

death in the modern ideal effectively prolonged life, Walter notes that individuals are more than illnesses and causes of death. Thus, in the postmodern9 ideal the authority of medicine gives way to the authority of the individual. Individuals increasingly survive and/or live for extended periods of time with life-threatening illnesses (*e.g.*, cancer, AIDS).

The postmodern ideal is particularly useful to the study of death on social network sites as it accounts for the rise of individualism and its impact on cultural norms around public and private behavior. Postmodernity asserts the expertise of the individual over agents of the church and the clinic allowing the reflexive self (Giddens, 1991) at least the promise of deciding when and how he dies. The death that was once experienced in public within a community but with little forewarning (traditional) is later confined to the private spaces such as the home and the hospital (modern). But where the modern experience (a la Berger & Luckmann, 1966) is one in which private and public lives exist in relative isolation, postmodernism "conflates the public and the private: the private feelings of the dying and bereaved become the concern…" (Walter, 1994, p. 41) and are expressed publicly as an expression of individualism. In the postmodern ideal, then, the bereaved are left to ask questions of how best to meet the wishes of the deceased (as opposed to the previous demands of the church, community, clinic, and family). Likewise the bereaved's individual

[9] In some texts, Walter refers to this ideal as neo-modern rather than postmodern. Similar to Giddens (1991), Walter was concerned about the implications of the using a term overloaded with continental philosophy (e.g., the work of Lyotard and Derrida). See Walter, 1994 for a detailed discussion of his concerns regarding the use of this term.

expressions of grief are privileged, with individuals constructing and expressing their own relationship to the deceased.

It is important to emphasize that Walter's ideals are not mutually exclusive. Individuals draw from each, often simultaneously. Indeed, this may be a source of internal and interpersonal conflict as the bereaved weigh competing cultural expectations. The design of social network sites, while creating new social spaces, still emphasizes the individual; with few exceptions, each profile and all actions on the site are attributable to a single individual.

2.2.2 CLINICAL APPROACHES TO GRIEF AND BEREAVEMENT

Clinical disciplines, such as psychology and social work, have a particular interest in addressing the needs of the bereaved. As a result, research in these fields have strived to conceptualize grief and develop theories that might aid clinicians working with the bereaved. Two dominant theories, stage theory (Kübler-Ross, 1969) and continued bonds (Klass, Silverman, & Nickman, 1996) provide contrasting perspectives about the psychological processes surrounding death. Kübler-Ross's staged model for "grief work" is perhaps best known, and includes five stages: denial, anger, bargaining, depression, and acceptance (Kübler-Ross & Kessler, 2005; Kübler-Ross, 1969). Although Kübler-Ross acknowledged that her five stages are not prescriptive, this model can be seen as a loose pathway through an emotional process of coming to terms with and accepting death.

Survivors, however, may maintain prolonged attachments to the deceased (J. H. Harvey, Carlson, Huff, & Green, 2001; Lofland, 1982). In contrast with a staged approach in which the bereaved are expected to eventually "let go" ("acceptance" in Kübler-Ross's model), "continuing bonds" (Klass et al., 1996) describe how individuals establish an inner representation of the deceased in order to maintain a link to or even develop a new relationship post-mortem. The nature of the bond is dynamic and ongoing, and impacted by the survivor's belief system. On social network sites, we can see the influence of belief systems in the ways users incorporate ideas of the afterlife in their use of post-mortem profiles and the comment content they choose to create.

In search of a more clearly defined and operationalizable model of grief work, Stroebe and Schut (1999, 2010) proposed the "Dual Process Model" (DPM) with three central aims: loss-oriented coping, restoration-oriented coping, and oscillation. DPM has been well received for balancing the need to process grief to prevent serious emotional problems while acknowledging and accounting for the continuing bonds an individual has with the deceased. The aim of oscillation, in particular, recognizes that survivors need to engage selectively with their loss, as well as employ restorative behavior that allows them to move past their grief.

In both continuing bonds and the DPM, grief is never finished. Rather the experience of grief changes over time. As Klass *et al.* (1996) candidly write:

> *We cannot ignore a central fact about death: it is forever… The bond may shift so that it is not as central to the lives of the bereaved. The bond can take on a new form with time. But the connection is still there… (p. 351)*

The psychological approaches presented here have permeated much of the discourse around Western death, particularly in American society. While in clinical settings the bereaved may be afforded the ability to grieve in their own way and at their own pace, they may face expectations in their day-to-day lives that the bereaved work through their grief. Literature suggests that while the "denial of death" thesis may hold little validity, the sequestration of death may extend to a denial of grief.

The varied types of bonds survivors might have with the deceased, and the subsequent grief and memorialization practices, create new challenges in a technological space that a) situate various grieving needs, expectations, and practices in a singular space, b) functionally treats all "friends" equally, and c) whose design is biased towards a model of continuing bonds (social network site relationships do not decay or terminate unless an explicit action is taken by a user) but simultaneously does not account for the how such a bond with the deceased might shift.

2.2.3 POST-MORTEM IDENTITIES

Following a death, both questions and assertions arise about who the deceased was in life. Wakes, candle light vigils, and other memory sharing practices have long been ways in which post-mortem identities continue to be crafted and preserved. Likewise,

obituaries are one common example of how survivors formalize a life story for the dead. These written summaries serve to validate and memorialize the deceased relative to current social ideals and expectations (Hume, 2000).

Some have argued that establishing of a narrative and identity for the deceased is an important part of the grieving process (J. H. Harvey et al., 2001). Unruh (1983), for example, examined the kinds of activities that encourage attachment with the deceased, outlining four "identity preservation strategies" that enable survivors to maintain their attachment. These include reinterpreting mundane thoughts, memories or objects; idealizing the deceased by redefining negative qualities; continuing pre-death bonding activities such as annual vacations, theatre tickets, and so on; and sanctifying meaningful symbols, commonly including grave sites, but also objects or spaces (*e.g.*, a child's bedroom or an electronic artifact) that may signify the identity of the deceased. This consideration of the continued attachment to the deceased is helpful in analyzing the kinds of engagement observed on both MySpace and Facebook.

In addition to individual activities, the ability for survivors to share "accounts" of traumatic loss can be instrumental to the healing process (M. R. Harvey, 1996). Specific to death, Harvey *et al.* (2001) demonstrate how the role of narrative, or "storying", around the identity of the deceased and the survivor's experience of their loss enables survivors to find new meanings in the experiences, as well as hope and generativity. Individuals, however, have varying perspectives on the past, raising

questions about the impact of grief expressed in a public and at least semi-permanent space.

In some cases, multiple and conflicting narratives of the deceased exist. For example, Martin (2010) explains how the narrative that the mother of a gang-related murder victim constructs for her son is quite different than the narrative adopted by the police or newscasters. While arriving at a singular identity for the deceased is not possible, survivors must negotiate the challenges presented by alternative narratives. Martin explains that this identity work provides "a vehicle for reconstructing, rehabilitating, and maintaining a postmortem identity in collective memory" and thus "mitigates disenfranchised grief" (p. 37).

Social network sites may amplify these challenges. Survivors from separate social spaces have traditionally developed these narratives in relative isolation, or during specified periods of time or events (Brandes, 1997, 1998; Lamm, 2000). Social network site profiles, however, often cut across different social contexts, increasing the probability and frequency of these conflicts. In this way, social network sites prompt new questions about ownership of the identity and the technological ability to negotiate different identities for the deceased in one shared space.

2.2.4 POST-MORTEM DIGITAL IDENTITIES AND THEIR USERS

The approach taken to identity in the literature covered thus far is largely from the perspective of the social identities that survivors maintain of the deceased. The identity work in which survivors engage serves to foster and reinforce a

representation or narrative of the deceased. This contrasts quite markedly with the ways in which identity is discussed in relationship to social network sites (both in academic literature and in popular culture). These discussions often reference a user's "self-presentation" and the data available on these systems that may be considered as representative of the individual.

In this dissertation, I adopt a middle ground that acknowledges digital identity as both the act of self-presentation and the digital entity. I approach social network site profiles as authored identities that are persisted in a socio-technical environment. Foucault considered the ways in which authorship creates the possibility of immortality as an author's work is taken up and used by others. For Foucault, this treatment is inevitable as authors "objects of appropriation" (1980, p. 309). Likewise, Derrida (1994) spoke to the impossibility of ever moving beyond an author's work. He argued that even if we move beyond an author's corpus, his influence will continue, "haunting" the works that have replaced him. However, on social network sites, these authored identities are not inert. Individuals are not crafting stable representations. Individuals are authoring algorithmic profiles into socio-technical platforms that create and animate ever-evolving representations. Drawing on Latour's "technology is society made durable" thesis (Latour, 1991; Strum & Latour, 1987), digital identity can be understood as social performances delegated into a technical system such that the system can re-present them on one's behalf.

Social network sites dramatically highlight issues that result from this delegated performance, as well as the social connections social network sites maintain. One key social performance that has been delegated is presence, and a subsequent availablity to be co-constructed with others. In other words, digital identities move beyond identification to include new modes of interaction and, in most cases, a willingness to be engaged. However, this willingness may not hold post-mortem when the deceased is no longer able to negotiate these interactions. As such, deceased users are "extreme characters" that perform an inversion on both our expectations of social media platforms and practices, and design assumptions around the mortal status of users – simply, that they are alive.

Post-mortem profiles reveal the intersubjectivity of users (dead and alive) within these spaces. Building on early work in phenomenology (Husserl, 1999; Shutz, 1967) and symbolic interactionism (Mead, 1934; 1982), intersubjectivity places an emphasis on shared cognition and addresses "the myth of the isolated mind" (Stolorow, 2002). Intersubjectivity is particularly useful when considering the collaborative nature of identity; namely, that identity develops as it is performed for others (Mead, 1934; McAdams, 1996; Pasupathi, 2001). Upon the user's death, it becomes clear that profiles and identities in social network sites are not constructed in isolation. Identities are situated in networks of "friends" who, through their association and/or active contribution to a user's profile, collaboratively construct these digital identities (boyd & Heer, 2006; Cover, 2012; Stokes, 2011). This is a seemingly obvious point; after all, users join social networks with the explicit purpose

of connecting with other users. However, acknowledging the collaborative authorship of these digital identities is often overlooked when discussing issues such as data ownership, security, and privacy within social network site research.

2.2.5 DEATH AND HUMAN COMPUTER INTERACTION

This analysis of death and social network sites is informed by two inter-related research spaces within HCI: personal archives and life span-oriented design. Several researchers of personal archives have turned their attention to issues of temporality, sentiment, and personal legacies to consider the endurability of technology and digital artifacts. In some of the earliest work on death in HCI, Kaye *et al.* (2006) explored personal practices around management and archiving of digital and material information. Of particular relevance here are the ways in which individuals organize and present content to highlight aspects of their personality and life's work — their "legacy", in Kaye *et al.*'s terms.

Responding to a consumer culture in which technology often anticipates its own obsolescence, Kirk and Banks (2008) investigated and developed prototypes for what they called "technological heirlooms." They specifically noted three areas for future research: online memorials, the bequeathal of digital content, and the impact of temporality on digital content — each of which are directly relevant to the work I present here.

The research on technological heirlooms is complimented by work engaging the home as an archive for sentimental objects. Based on in-depth fieldwork with 11

families, Kirk and Sellen (2010) highlighted the complexity of sentimental objects by accounting for many of the different types of reminiscence and motivations individuals hold. “Through these archived objects, which often form an integral part of the very fabric of our homes,” they explain, “we can celebrate our identities and achievements, show and honor our connections with significant others, connect with our past, help us construct an idea of the family, fulfill a sense of duty, and even forget the past” (p. 34). Findings such as these highlight the potential value of social network site profiles to both represent the legacy of the deceased, as well as enable broader types of connections between survivors.

In addition to personal archives, HCI researchers have also started to engage with death as a novel space for understanding how people relate to and appropriate technology. Much of this work finds inspiration in Bell’s seminal piece on technospirituality that details the inclusion of technologies into traditional patterns of engagement between the living and the dead (Bell, 2006). Examples range from the creation of online “shrines” for deceased friends and family, to the incorporation of digital technologies into traditional funerary practices (Bell, 2006). A number of labels have been proposed for this new area (“thanatosentivity”, Massimi & Charise, 2009; the “end of life” phase in a “lifespan-oriented approach” to HCI, Massimi et al., 2011), however, both the terms and approaches remain varied. The following work can be understood as an initial foray into what Odom (2010) called an “inevitable” issue “who’s time has come.”

HCI has also seen a number of design-research studies such as van den Hoven et al.'s (2008) projects aimed at enabling individuals to share moments of commemoration via physical objects during the grieving process, and Foong and Kera's (2008) analysis of digital memorials that support reflection, concretize existing cultural practices, and allow survivors to re-imagine the presence of the deceased.

Drawing from the humanities, Massimi and Charise (2009) detailed a number of practical and ethical concerns when researching death while arguing that mortality, death, and dying are important, but often overlooked during technology design. Borrowing from Freud's death drive, they propose "thanatosensitivity" as a lens through which to approach design related to death, dying, and mortality. Using this approach, Massimi and Baecker (2010) later enumerated specific technology-related challenges that survivors experience when making decisions about the technological belongings of the deceased. They outline several opportunities for design relevant here, namely, designing for the inheritance of digital data, reconciling the individual represented by these data and the survivor's understanding of the deceased, and the use of these data to remember the deceased post-mortem.

Massimi et al. (2011) later introduce what they refered to as a "lifespan-oriented approach" to HCI research, charting out early contributions to an "end of life" phase that attempt to account for needs to the dying, dead, and bereaved. Based on fieldwork with bereaved parents in grief-support groups, Massimi and Baecker (2011) argue that the problem-solving orientation inherent to the technology and

design perspective must give way to a more sensitive orientation towards the bereaved. In Odom et al.'s study of bereavement, they outlined two related concerns for technology-focused researchers: the moral endurance of archives and the need for richer forms of contextualization (Odom et al., 2010). Both of these themes are salient for the consideration of social network sites as users must negotiate systems whose designs are not attuned to issues of mortality. Rather, post-death, profiles are repurposed into ad-hoc memorials, an issue I will engage throughout my dissertation.

2.2.6 DEATH AND SOCIAL MEDIA

Using the Internet to memorialize the dead is not a new practice. "Cybermemorials" (also called web memorials) and "virtual cemeteries" have received attention in the literature on death and dying over the last fifteen years. Roberts and Vidal (2000) note that as early as 1996, four large memorial websites existed, and examined both static content (memorials that resemble an obituary) and dynamic content ("guestbooks" that allow visitors to add content to the site). Roberts (2004) found that the majority of memorials are written in third person about the deceased, ostensibly addressing other visitors. Entries posted to guestbooks, meanwhile, are often written by the memorial author and commonly address the deceased. Today, as newspaper obituary services have both become nationalized and moved online, most have also incorporated commenting functionality allowing the practices observed on cybermemorials to spread to official obituaries (Hoecker, 2011).

Some academics have also compared online memorial spaces to physical memorials (Dobler, 2010; Grider, 2007; Hoecker, n.d.). Important here is Hoecker's

distinction between dedicated objects – memorials that are intentionally produced – and emergent objects that, while not originally created as memorials, gain meaning over time (Hoecker, unpublished). While one might argue that social network site profiles qualify as an emergent memorial, this status questions at what point an object might qualify as a memorial, and how this status is conveyed. Dobler (2009; 2010) turned to the literature on roadside memorials to inform his analysis of MySpace profiles. Approaching the topic from a Folk Studies perspective, he focused on the memorializing function of authoring comments, explaining that commenting "brings many of the folk religious aspects of the creation and maintenance of roadside memorials into the digital age." (p. 34).

Beyond memorialization, I have reports of engaging with topics around death in social media in my own data as far back as 2004 on LiveJournal, and death receives a brief mention in early work on Friendster (boyd & Heer, 2006). However, a combination of the popularization of social network sites and the growing adoption of older individuals has increased the prevalence of death on these sites, and subsequently people's exposure and awareness of the topic. While using social media spaces to memorialize the dead is not new, the scale has certainly shifted, provoking new questions on the topic.

Social network sites have been defined as "as web-based services that allow individuals to (1) construct a public or semi-public profile within a bounded system, (2) articulate a list of other users with whom they share a connection, and (3) view

and traverse their list of connections and those made by others within the system" (boyd & Ellison, 2008). And while the nature and nomenclature of these connections may vary from site to site, these three features have created the conditions for profiles to remain enmeshed in established networks after they die.

Social network sites, likewise, established broadly public sites for the dissemination and flow of personal data. boyd refers to these as "networked publics", created through the persistence, replicability, scalability, and searchability of personal data (boyd, 2010). One of the more researched aspects of these networked publics is the experience of "context collapse", in which individuals from disparate aspects of one's social life much share a single media space, effectively collapsed into the overly simplified category of "friend" (Marwick & boyd, 2011; Vitak, Lampe, Ellison, & Gray, 2012). The existing research has considered how individual negotiate the "multiple audience problem" (Leary, 1995) on social network sites. However, a user's death raises questions around the implicit moderation that sites like Facebook expect their users will perform, as well as survivors willingness to publicly engage in what is often considered private expressions.

On this front, Miller's landmark study of Facebook is provocative (Miller, 2011, 2012). As a broad and persistent semi-synchronous communication platform, "Facebook", he claims, "acts to replace the immediate consumption of conversation" (Miller, 2012, p. 158). Communication practices that foundationally have no expectations of an immediate response may make Facebook and ideal platform for

continued interaction with a friend, even after their death. Meanwhile, social networks "seem to generate their own compulsion to visibility. Just as people don't feel they are actually on holiday unless they see photographs of themselves enjoying that holiday, so today some people don't seem to feel they have had an experience of an event unless they have broadcast it through Facebook or Twitter." (*ibid.*) Such a perspective asks questions about the new conditions under which we are increasingly experiencing death and loss, and the means by which we seek to authentically materialize our grief.

2.2.6.1 Grieving in Networked Publics

While death and social media is a new and quickly evolving area of inquiry, some existing work documents a variety of ways in which individuals engage with social media around issues of death, mourning, and bereavement. The majority of research has focused on practices on social network sites where survivors engage in what was once private communication in now broadly public social media spaces (B. Carroll & Landry, 2010). The continued presence of a user's account following his or her death allows survivors to interact with the dead, and the deceased's profile has provided a place for survivors – and far greater numbers of them -- to express their remorse.

Several researchers have examined grief-related communication on social network sites. On Facebook, Getty *et al.* (2011) conducted a quantitative linguistic analysis to demonstrate that bereaved users posted content consistent with "front-stage grieving," measured higher on ratings of sorrow, collective orientation (more frequently referring to others), and utilized more semantically positive words.

Meanwhile, DeGroot (2008) analyzed Facebook groups specifically established by friends or loved ones to memorialize the dead. These groups exist separately from the deceased's profile and resemble cybermemorials. Indeed, DeGroot noted that like traditional cybermemorials, many of the messages on these pages are directed towards the deceased, an issue I address in Chapters 4 and 5.

Finally, some research has considered the possible benefits of using social network sites during the grieving process. In a study of MySpace and bereavement, Graves surveyed users who had recently experienced the death of a friend in order to determine if interacting with the deceased's profile helped adjust to bereavement (2009). Users reported that the site was useful, but Graves found no measurable impact on their levels of grief. Meanwhile, in a study of younger Internet users, Carroll and Landry (2010) suggested that the use of social network sites to mourn may empower individuals marginalized by traditional forms of memorialization.

Despite the generally positive tone of comments (B. Carroll & Landry, 2010; Marwick & Ellison, 2012), the overall impact of these memorial spaces for survivors remains unclear -- particularly as both the social media platforms and individual practices continue to evolve. However, researchers generally agree that these mediated spaces, and the types of social connections that they serve, enable new types of participation. Carroll and Landry (*ibid.*), for example, argue that online social networks empower those marginalized by traditional memorialization. The availability of social media to engage in memorializing behaviors may empower

survivors who are not included in traditional forms of memorialization – those that literature in death studies refers to as "disenfranchised grievers" (Doka, 1989; Skylar & Hartley, 1990). However, it is not clear that positive experiences are universal, an issue I address in Chapter 6. Others have questioned whether online services, generally motivated to encourage user engagement, might extend mourning indefinitely (Mitchell, Stephenson, Cadell, & Macdonald, 2012).

Public expressions of grief on Facebook come with risks. A number of researchers have written about the risks that strangers pose as a result of the unwanted public visibility of memorial spaces on Facebook have (DeGroot, 2014; Marwick & Ellison, 2012; W. Phillips, 2011). Focusing on Facebook Groups created with the expressed purpose of memorializing a deceased individual, this research specifically studied the communication of distant connections or strangers – sometimes called "grief tourists" (Marwick & Ellison, 2012) or "emotional rubberneckers" (DeGroot, 2014) – and the challenge of uninvited guests and participation. In the most extreme example, but regrettably not unheard of, Philips (2011) demonstrates the risks of public profiles and spaces by documenting cases in which anonymous users intentionally posted offensive content into public memorial Facebook groups as a means of "trolling the dead."

While still an emerging body of research, one of the most important limitations of the exiting literature is a dependence on content analyses.[10] As such, the findings

[10] See B. Carroll & Landry, 2010 for an exception.

present in the literature only represent those who visibly participate in post-mortem social networking practices. However, the evidence we have suggests that most individuals are either not engaging post-mortem profiles, or is doing so in invisible ways. Based on a survey administered to 100 college-aged MySpace users, Carroll and Landry (2010) found that while 60% had visited the profile of someone who had died, only 10% of participants had posted a message. Recent work in Internet Studies has critiqued research that fails to consider "listening" as a valid form of participation (Crawford, 2009). As such, the use of methods that are not limited to those who visibly engage with these profiles is important in developing a robust understanding of the various types of connections social network site users have with the deceased.

Given the rate at which social network sites and user practices change, and online platforms come and go, death-related use of social network sites deserves ongoing examination. Specifically, the popularity of sites such as MySpace and Facebook and the presence of post-mortem practices in otherwise living networks make an investigation of these spaces important.

The deceased profiles and experiences analyzed in the work I present here differ from cybermemorials and memorial groups in two important ways. First, social network site profiles are created by the deceased instead of by a third-party. This raises questions about management of the account and symbolic ownership of the space. Second, profiles retain their place in users' friends lists and online social networks

even after they die, raising questions about the ways in which users continue to engage with their deceased loved ones via these profiles. While survivors may find social network site profiles useful, death prompts questions about the role of profiles that represent the deceased and the various uses of social network site profiles by those other than their owners. As a result of the ongoing engagement of survivors, in this dissertation I interrogate post-mortem profiles as new spaces of social and cultural production.

[3]
METHODS

The research conducted for this dissertation spans a period just short of six years during which I have engaged in a range of methods to investigate this space. My orientation to the project has been predominantly inductive and exploratory. However, my project is punctuated with focused investigations when, during the course of my research, opportunities for specific and deductive investigations presented themselves. describing how I focused this project within two broad areas: death and social network sites. This is followed by an overview of the studies, foci, and methods used throughout this project.

3.1 FOCUS & SCOPE

Given that research around death and social media is fairly nascent and lacks clear imperatives for research, I adopted an exploratory approach for much of my project. However, given the broad number of issues that sit at the intersection of death and

technology, I did create a number of boundaries for my project. The importance of this scope became even more evident as my project progressed, and I witnessed the speed at which the technological spaces and practices I was studying changed.

3.1.1 SOCIAL NETWORK SITES

While this project has already encountered information about a vast set of technologies, the main focus of this dissertation was on social network sites – MySpace and Facebook, in particular. Because of the growing number of services and ever-blurring definitions, returning to boyd and Ellison's (2008) standard definition is helpful:

> *We define social network sites as web-based services that allow individuals to (1) construct a public or semi-public profile within a bounded system, (2) articulate a list of other users with whom they share a connection, and (3) view and traverse their list of connections and those made by others within the system. The nature and nomenclature of these connections may vary from site to site.*

Using this definition as a starting point, I further focused the types of social network sites I engaged in three ways – those with robust profiles, symmetrical relationships between members, and that aggregate and promote content algorithmically:

Profiles: Given the focus on memorializing practices and digital identities, I limited my focus to systems that include a robust profile that enables other individuals to add content (*e.g.*, Facebook's Wall). As a counter-example, Twitter allows other users to

send public content to a user, but profiles only have five attributes. As such, Twitter was not included in the primary investigation.

Symmetrical Relationships: boyd and Ellison's definition talks about users who "share a connection" – a symmetrical relationship (sometimes called a "friend model"), such as those seen on Facebook. Recent years have seen the addition of asymmetrical relationships (sometimes called a "subscription model"), most notably on Twitter and Google+. The design of these systems present some interesting questions for how individuals might encounter death-related content, but for the present work I limited my focus to sites that operate on a symmetrical relationship model.

Algorithmic Content Aggregation and Promotion: While not part of boyd and Ellison's definition, I highlight the importance of including content aggregation features in my analysis (such as Facebook's Newsfeed). As I note (particularly in Chapters 4 and 6), algorithmic content is important in understanding the shifting space in which individuals encounter death-related content.

3.1.2 GEO-CULTURAL FOCUS

Because practices around death and mourning vary widely based on the culture in which they occur, I limited my data collection to American experiences of death to ensure a deep and focused engagement with American practices and culture. The profiles I collected were all from the United States, and while some of my interview participants were citizens of other countries, they were living in the United States when I interviewed them, and their experiences and perspectives can uniformly be

considered American. Productively engaging with diverse geo-cultural practices merits separate inquiry, and to some extent has been examined elsewhere (Castro & Gonzalez, 2012). International and cross-cultural experiences around death on social network sites are important areas for future research, but beyond the scope of the current project.

3.1.3 TYPE OF DECEASED INDIVIDUAL

My focus in this study was on deaths of typical people and related experiences. Specifically, I have avoided analysis of celebrity deaths. Reactions to celebrity deaths on social media have been commented on extensively in news media, and a number of notable deaths occurred during the course of my research. While some have argued that social media provide all users with a form of "micro-celebrity" (Marwick, 2010), notable differences between celebrity and non-celebrity deaths have been documented (*e.g.*, Walter, 2011). As such, I felt it important to focus my study and exclude celebrity deaths from my analysis.

3.2 DATA COLLECTION & ANALYSIS

My dissertation is composed of a number of smaller studies within a broad long-term engagement with death and social network sites (see Table 3-1). The choice to engage in a series of specific studies was intentional as it allowed me to rigorously engage with certain topical areas while also responding to previous findings in a relatively new topical space.

ENGAGEMENT	PRIMARY SITE OF INQUIRY	TOPIC OF FOCUS	METHODS	DATE
Exploratory Study of Post-mortem Profiles	MySpace and Facebook	Post-mortem Profiles	Content Analysis, System Analysis, Informal Interviews	2009
Post-mortem Comments	MySpace	Practices of survivors on post-mortem profiles during the 3 years following death	Descriptive Statistics, Thematic Content Analysis	2010
Experiences of Survivors	Social Network Sites (but focused on Facebook)	Encounters with death on social media, and prospective post-mortem preferences of survivors	Semi-structured Interviews	2010-2011
Post-mortem Identity Management	Facebook	Stewardship and management of post-mortem profiles	Semi-structured Interviews, Projective Design Study	2013-2014
Infrastructure and Policy Analysis	Digital Identity Architecture, Facebook	History of digital identity architecture, Facebook functionality and policy	Archival Research, System Analysis, Software Archaeology	Throughout

Table 3-1. An overview of the studies, listed chronologically.

The research performed focused on: empirically charting out the domain space from social and technical perspectives; documenting the existence of post-mortem profiles and accounts; describing how the data associated with these accounts increase as survivors of the deceased contribute content; identifying key themes in the content and practices of these commenting survivors; the broader survivor experience; and design investigations into post-mortem identity management.

The data reported in this dissertation are of four types: interviews, online content, system and infrastructural analyses, and archival content. While "mixed methods" are typically used to describe projects that blend qualitative and quantitative methods, as well as inductive and deductive forms of analysis, the use of multiple methods in this project is the result of the different types of analyses made possible by the data and necessary to present a sociotechnical account of death on social network sites.

A sociotechnical orientation required that I study post-mortem profiles, the practices in which friends engage on these profiles, and the infrastructural, technical, and policy history that give rise to these technical and social phenomena. Rather than approach this project with a specific methodological focus and letting the methods outline the types of questions to be asked, I approached each phase of the project with an exploratory and problem-focused orientation, making choices about data collection and analysis based on the specific questions best suited for each phase. Understandably, my choice of methods is a byproduct of my training in the social sciences, human-computer interaction, and software engineering, as well as the new opportunities for investigation made possible by large datasets from sociotechnical systems where communication is mediated and activity is logged.

The combination of methods I use allowed me to produce a robust account of the empirical space. Quantitative approaches allowed me to conduct analyses at a large scale, identifying patterns and practices only visible across the population. Qualitative interviews, meanwhile, allowed me to contextualize these patterns and practices, and provide deep accounts of the experiences behind these practices. Finally, system and infrastructural analyses as well as analysis of archival records informed my understanding of the social network sites and allowed me to situate both quantitative and qualitative data within the appropriate technological contexts. The ability to think from the system's perspective became important when unpacking the unexpected encounters and perplexing functionality participants shared during interviews. Likewise, understanding the technical mechanics became important when

comparing participant's expectations for post-mortem data management with the current and potential designs of the system.

In the remainder of this chapter, I provide a historical account of my research efforts, broken into five phases. The majority of my chapters make use of distinct methods and analyses, specific to the topic and claims of that chapter. As such, I provide a brief overview of the studies here and present additional details on the methods and analysis within each chapter. Meanwhile, insights from the data I collected during interviews throughout this project inform my findings. I include data from these interviews across the chapters in an elaborative fashion, with the exception of Chapter 6 in which I contextualize post-mortem profiles and memorializing practices in the lived experiences of people's daily social network site use. Given the pertinence of interview data to the entire project, I end this chapter by detailing my methods and analysis of these data.

3.2.1 EXPLORATORY STUDY OF POST-MORTEM PROFILES

My data collection began with an exploratory study conducted with Janet Vertesi in the fall of 2009 (Brubaker & Vertesi, 2010). This study served as an entry point into this space, and allowed us to explore what profiles look like after people have died.

To understand the role and potential of social networks after the death of a user, we collected a dataset comprised of profile pages of now deceased users (including the visible comments or wall posts), preliminary interviews, and public content related to this topic found on Facebook, Twitter, and various newspapers and blogs. We were

able to identify deceased profiles by soliciting our personal networks, as well as through MyDeathSpace.com, a website dedicated to connecting obituaries and/or news of deaths to existing MySpace profiles. Started in 2006, the MDS directory now contains more than 20,000 user-submitted entries, as well as comments on individual entries, including additional research and/or links to other online content (*e.g.*, newspaper articles). Interviews were solicited from friends and colleagues with first hand experience with this phenomenon and have been used to understand the complexity of potential interactions.

Two key issues were highlighted during this study: the endurance of these profiles and associated practices, and the collaborative nature of profile content. Both pointed to the need to study those who continued to engage with these profiles: the survivors.

3.2.2 POST-MORTEM COMMENTS ON MYSPACE

The most prominent impact on post-mortem profiles are seen in the comments and Wall Posts that survivors post on the profiles of deceased individuals. To examine the messages authored by survivors, I conducted a mixed-methods empirical study with Gillian Hayes of the MySpace comments posted to profiles of dead MySpace users during the three years following their deaths. Profiles and the comments posted by friends were collected using a custom piece of software, after which the comments were analyzed using a mix of descriptive statistics and thematic analyses. The details of this analysis are reported in Chapter 5.

The ways post-mortem comments adhere to existing practices in social network sites demonstrates the importance of technology in both shaping post-mortem practices, and in turn, our experience of death. The primary contribution of this portion of my research lies in our deeper understanding of the use of social network sites post-mortem and the ways in which people negotiate ownership, symbolic and otherwise, of online spaces. Furthermore, this study opened up new spaces of inquiry important to the CSCW community, including a better understanding of the motivation and experiences of commenters and readers of post-mortem profiles.

3.2.3 EXPERIENCES OF SURVIVORS

The studies to this point established a solid empirical understanding of the changing nature of profiles on MySpace post-mortem, and the visible practices of their comment authors. However, any number of factors may motivate the behavior I observed, and questions remained about the experiences behind authored messages, as well as the experiences of survivors who did not author content. For example, some newly published work at the time indicated that college-aged survivors appreciated visiting MySpace profiles of deceased friends, and photos in particular, even if they did not post any content (B. Carroll & Landry, 2010; Graves, 2009). A further understanding of the practices I had observed, as well as more holistic account of individuals' experiences necessitated an interview study.

I conducted semi-structured interviews during 2010-11 with individuals who reported having experienced death on a social networking site. I recruited 16 participants (8 women, ages 24-57) for this research with varying experiences related

to death on social network sites. Given the sensitivity of the subject matter, I restricted recruitment to personal networks and snowball sampling.

The interviews were semi-structured in nature, allowing participants to guide the discussion to those topics that most interested them. My general focus in these interviews was on feelings about and approaches to death in general, experiences with social media and other collaborative technologies in general, and interactions and experiences with death on social network sites in particular. I also asked participants to reflect on their own preferences for handling their accounts post-mortem. In contrast to my earlier studies of MySpace, discussions during interviews were predominantly focused on Facebook. This reflects both a shift from MySpace to Facebook from 2006 to today, as well as the growth of Facebook's total user base. Participants also talked about a variety of other social network sites and communication technologies (*e.g.*, email, instant messenger). All participants described encounters with at least one dead individual, with most commenting on their experiences with two or three.

Interviews lasted between 1 and 2 hours, and were conducted in person (N=8), via video chat (with screen sharing functionality; N=4), and over the phone (N=4). A laptop with screen-recording software was made available during in-person interviews so that participants could share the deceased profile with the interviewer. Participants were informed at the beginning of the interview that they should use the laptop when and how they deemed appropriate. Likewise, screen sharing was used during

video chat interviews, and relevant on-screen interactions were recorded. Additionally, regardless of interview mode, participants shared related artifacts, including emails, obituaries, news articles, public Facebook groups, and blogs.

In collaboration with Gillian Hayes and Paul Dourish, I adopted an inductive orientation during the analysis of the interviews and related data. In each pass, we analyzed the same text through an evolving and synthesizing lens. A shared perspective emerged as we engaged in discussions about the data and held an iterative "conversation" between the data and previous findings. We initially performed a thematic analysis on the interviews, identifying emergent labels and grouping them into themes such as "sharing memories." We then produced a set of memos that pinpointed demonstrative comments and detailed these themes. Utilizing these memos, we conducted a series of discussions to evaluate our themes, resulting in further clarification and higher-order categories such as "unexpected encounters." These themes were then used to code the data.

The findings from this study documented various ways in which individuals understand post-mortem social networking practices, expectations around the ownership and management of social network site profiles and accounts post-mortem, and participants unexpected encounters with death during conventional Facebook use. Based on these results, in Chapter 6, I present a set of social, spatial, and temporal expansions enabled by Facebook that impact the circulation of death-related information and bring death into everyday social media use.

3.2.4 POST-MORTEM IDENTITY MANAGEMENT

Motivated by the pragmatic questions surrounding post-mortem identity management, starting in 2013, I began some research efforts focused on understanding the needs and potential uses of post-mortem identities by those entrusted with the responsibility to care for Facebook accounts. Based on a gap I saw in the literature and in the emerging tools, I worked with a number of colleagues and research assistants to specifically focus on those who might receive Facebook accounts.

The details of this study, including the methods and analysis, are reported on in Chapter 7. Briefly, based on semi-structured interviews and participant responses to design sketches, we found that the common frame of "inheritance" failed to reflect the responsibilities recipients described when talking about the management of post-mortem identities. As such, I argue that stewardship is better aligned with the expectations of recipients and highlights an important role that, while currently overlooked in social network sites, should be considered.

3.2.5 INFRASTRUCTURE AND POLICY

Throughout these efforts, I was also collecting and analyzing data on the underlying infrastructure of social network sites and the shifting policies adopted by MySpace and Facebook. Three smaller efforts contribute to this analysis.

First, I collected data from archival and secondary sources on the history of user accounts and digital identity infrastructure to better understand the types of account

management expectations that social network sites have inherited based on the adoption of conventional online account architecture. Second, I was able to connect my archival research to a software archeology (de Souza, Froehlich, & Dourish, 2005) that I performed on the Facebook codebase while on-site at Facebook headquarters in Menlo Park, CA during the summer of 2014. Central to this analysis was tracing how Facebook had (and had not) operationalized death in their platform across time. The software archeology also allowed me to explore the cause of various technical idiosyncrasies reported by my participants. Lastly, through archival research and interviews with Facebook staff, I was able to assemble a timeline of Facebook's policy regarding death and memorialization.

Together, these investigations help to provide a technical and infrastructural context for the social practices I was observing and report on throughout the dissertation. Findings about the history of digital identity infrastructure and Facebook's evolving policy are provided in Chapter 4 to explain why post-mortem profile remain on social network sites and to provide a context for the subsequent chapters.

3.2.6 CUMMULATIVE INTERVIEW ANALYSIS

Finally, I performed a cumulative analysis focusing on interviews conducted from 2010-2014 with individuals who have had a variety of experiences and encounters with death and mourning on Facebook. The interviews analyzed here are drawn from several data collection efforts, including a broad exploratory study of encounters with death and grief on social media (3.2.1), a study of post-mortem data-management (3.2.4), and longer term engagements with the social networks who have lost a loved

one. All interviews shared an in-depth and open-ended portion in which participants detailed their relationship with the deceased, their experiences surrounding his or her death (both online and off), and role that the broader social network played on Facebook.

Collectively, my interview data consists of 67 people (32 men, 35 women), aged 20-59, from across the United States, totaling over 110 hours of interview data. In addition to interview data, my analysis was supported by social network site content and artifacts (*e.g.*, profiles, messages, photos, etc.) collected both via our participants and throughout the course of this project.

I adopted an inductive orientation to data analysis using grounded methods (Charmaz, 2006; Glaser & Strauss, 1967) and iterated through cycles of coding, memoing, and discussions with collaborators and colleagues. I began with an empirical analysis asking, "What is a profile?" to identify the roles social network site profiles (pre and post-mortem) play in the expectations of my participants. This question served to detail participants' expectations, and in what circumstances, as well as the contradictions in their accounts. The findings here informed the work presented throughout the dissertation, as well as providing an analytical foundation for the properties of delegated identities I enumerate in my concluding chapter.

[4]
THE POST-MORTEM PROFILE

In late October 2009, Facebook released a new product feature named *Reconnect*. Reconnect had been designed to both reconnect friends and reengage inactive account holders in a social way (Schroeder, 2009). Reconnect prompted users to write to or post on the walls of friends with whom they have had little recent interaction. Facebook could then send emails to these inactive users prompting them to return to the site, where content was waiting that would hopefully encourage continued engagement with their social network and the platform.

Figure 4-1. Screenshot of Facebook Reconnect. As part of the "Suggestions" section of Facebook's Newsfeed, Reconnect encouraged people to post messages on the walls of their inactive friends.

The algorithm powering the feature, however, did not account for nuanced types of "friends" and was probably too inclusive in its recommendations. Quickly after its release, the Internet lit up with content from people angry over suggestions to reconnect with ex-lovers, spouses seen daily offline, and perhaps most startling, friends who are no longer alive.

"*facebook just literally told me to 'reconnect ' with a dead person,*" tweeted @kittypowerz. @sulphate tweeted her dismay when "*facebook... told me to reconnect with justin,"* adding, *"i would if he hadn't died seven months ago.*" Capturing the sentiment of many, @ebertchicago tweeted: *"...It's freaking me out."*

Reactions to Reconnect's recommendations spilled into blog posts (Hoffman, 2009; Popkin, 2009; Reed, 2009; M. Taylor, 2009), newspaper articles (Moore, 2009; Odd News, 2009; SkyNews, 2009; L. C. Taylor, 2009), and even NPR's Morning Edition (Montagne, 2009). However, amidst the complaints of Facebook's seeming "insensitivity" to the mortal status of friends, Reconnect also inspired a cascade of comments that appeared more mournful than angry. *"Facebook tells me that I need to reconnect with you,"* wrote one woman on the Facebook wall of a friend who died of cancer earlier that year. *"I wish it was as easy as picking up a phone or typing these few words. I do miss you and think about you often!"*

While the dead on social network sites may often go unnoticed, Facebook Reconnect brought national attention to the social implications of persisting the profiles of the

dead after they have passed away and the technical complexity of designing for death. As a Twitter post from @doodleworld read, "*at least they... aren't deleting the dead.*"

From the perspective of Facebook engineers, a key problem at the time was the limited ways they had to detect if your friend is dead. While friends can leave comments that reflect a recent passing, the memoriam are situated in social protocol that the Facebook system does not understand. In an email to the Wall Street Journal, Facebook's director of communications Brandee Barker simply explained that *"the [Reconnect] technology is not able to detect the human nature of those relationships"* (L. C. Taylor, 2009). While technically true, Facebook is often in the position of acting as if it is human. As people delegate performances into social network sites, enabling these platforms to stand in as them, sites like Facebook act on their behalf. Facebook, however, is not human, creating potential problems when it simulates human behavior and tries to represent nuanced human relationships.

The Facebook Reconnect scenario is just one example of the myriad ways that technical architectures and application designs do not well account for extreme users (Djajadiningrat, Gaver, & Fres, 2000; Ljungblad & Holmquist, 2007), such as those who are no longer alive. Mismatches between data "lifetimes" and human "lifetimes" create problems wherever digital identities are used to represent human users. Whether we are considering corporate email "owned" by a user who has left the company or social network site profiles for users who are no longer alive, there are

fundamental issues surrounding the ways in which we construct and persist digital identities in databases, networked systems, and applications.

In this chapter, I introduce the post-mortem profile to ground this dissertation project and to prompt questions around death on social network sites, and digital identity more generally. This chapter serves to provide a rich description of post-mortem accounts and profiles and to situate them in a historical and technical context. This initial work prompts questions and exposes tensions that I engage throughout the broader dissertation project.

I start by detailing the post-mortem profile as a sociotechnical object and provide initial findings based on a content and system-analysis. Reconnect occurred near the beginning of my doctoral studies, and shortly after I had started an initial exploratory investigation of death on social network sites. In collaboration with Janet Vertesi, I had already started analyzing post-mortem profiles in an attempt to gain some initial insight into and understanding of the role and potential of social networks after the death of a user. During Fall 2009, I collected a dataset comprised of profile pages of now deceased users (including the visible profile comments), preliminary interviews, and public comments related to this topic found on Facebook, Twitter, and various newspapers and blogs. Profiles and associated comments were collected from MySpace and Facebook by soliciting our networks of friends, as well as through a

random sampling of MyDeathSpace.com.[11] Interviews were solicited from friends and colleagues with first hand experience with this phenomena and have been used to understand the complexity of potential interactions.

I provide a detailed account of the post-mortem profile presented in the style of a reflexive media reading. Following the account holder's death, one might expect the profile becomes inactive, or even be removed from the social network site. Neither is the case in most scenarios. Instead, post-mortem profiles are persisted as part of the network, and remain an active space based on the activity of surviving friends.

Following my description of the post-mortem profile, I engage the profile as a technical object shaped by the infrastructure on which it emerges. I situate these profiles in a historical context by providing an account of digital identity and account management. Drawing on archival research on software engineering practices that I conducted throughout this dissertation project, and informed by my own professional experience in engineering and identity architecture, I demonstrate how digital identity infrastructure has historically served to provide computational proxies for human users, but that shifting architectural conditions as this infrastructure was extended to the Internet and consumer services challenge some of the basic assumptions of the infrastructure, laying the foundation for the emergence of post-mortem profiles.

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[11] MyDeathSpace.com is an "archival site of obituaries of MySpace members" that links MySpace profiles with obituaries or news reports of the individual's death.

Finally, I provide a detailed history of how death has been addressed at Facebook from technical and policy perspectives. Many of the changes have occurred during the course of this research project. However, I have corroborated and fleshed out details of the history through traditional archival methods, conversations and interviews with Facebook employees directly connected to these issues, and finally, through a software archeology I performed on Facebook's codebase while onsite at Facebook in 2014.

Throughout this chapter I argue that post-mortem profiles are the interconnected construction of shifting infrastructure, policy, and social behavior. The "identity" of the post-mortem profile changes over time as it is continuously resituated in an evolving network of peers and a shifting platform.

4.1 ENGAGING THE PROFILE

When looking across post-mortem profiles, the static profile content that feels out of date blends with dynamic content generated by both friends and the social network site platform. This makes post-mortem profiles hard to situate. Had I not known that the profiles I was looking at belonged to deceased people, I am not certain if a casual glance at the profile would have indicated otherwise. In fact, when first analyzing these profiles, what I was most struck by was their deceptive normalness. While the core of the post-mortem profile remains stuck in a certain place and time, surrounding features continue to evolve giving a sleep-like life to the profile that simultaneously accentuates the dissonance between the dynamic and static pieces.

On derek's MySpace profile (see Figure 4-2), a picture of an attractive man dressed in recently fashionable clothing is surrounded by his username, a short piece of text MySpace called the "headline", and basic demographic information. He lives in Washington D.C., is 33 years old, and last logged into MySpace during July of 2009. Compared to more contemporary social network site profiles, the MySpace profile is dominated by open-ended text describing derek's interests (from books, to music, to

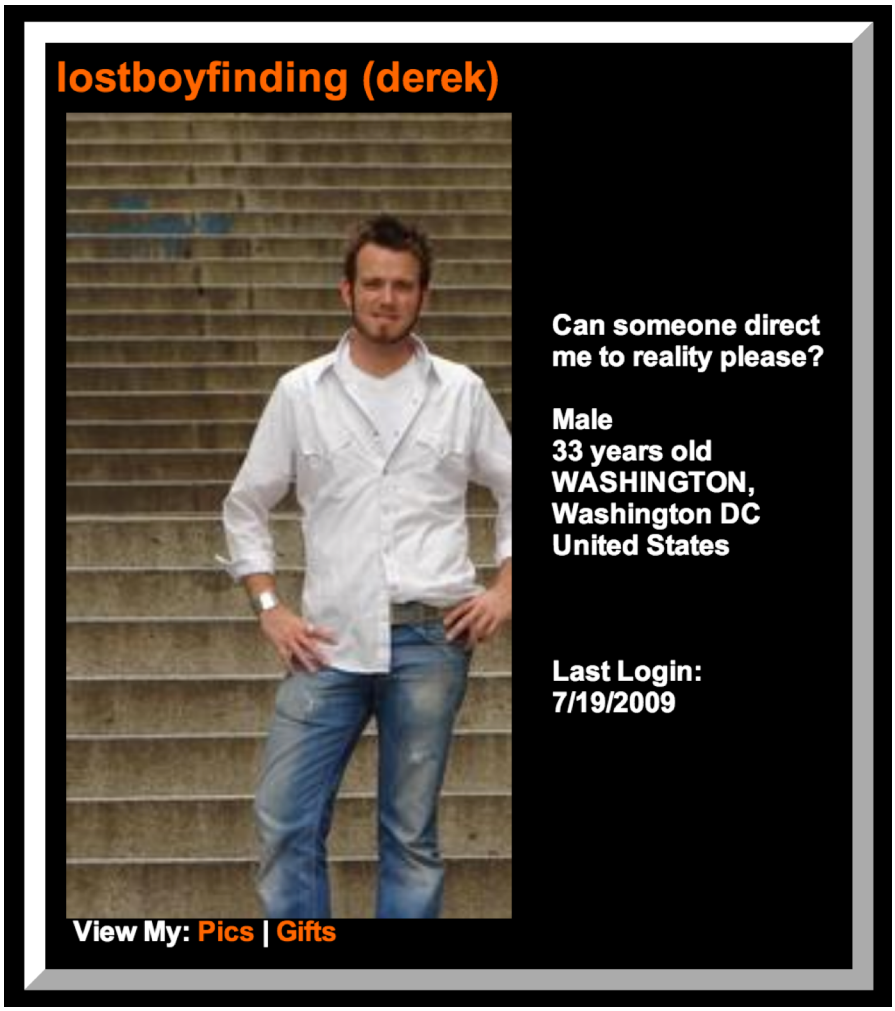

Figure 4-2. Screenshot of the profile picture and basic information on a post-mortem MySpace profile.

Figure 4-3. An example of a post-mortem Facebook profile. Facebook profiles prioritize messages posted by friends, placing the Wall in the center of the profile.

his personal hero – "my dad"), and longer "blurbs" including "About me" and "Who I'd like to meet." Lower on the page, an extensive set of biographic details (from hometown to zodiac sign) are included in the "Details" section, as is a photo grid of derek's MySpace friends and a list of comments his friends have posted.

On Facebook, the profile page has increasingly prioritized the Wall posts over the past five years (see Figure 4-3). However, Amber's face still shines brightly next to profile attributes that share her occupation as a middle school teacher, her

educational background, and her birthday. The stream of posts from friends is bordered, on one side, by a list of Facebook "friends" whose own profile pictures capture funny moments, recent adventures, and their own friends. The other side of the posts, meanwhile, features current content recommendations and advertising.

On closer inspection, however, peculiarities on both the MySpace and Facebook profiles become more apparent – small issues that can be hard to articulate individually. Although Derek's profile lists him as 33, the "About me" section Derek has written betrays the inactivity on this profile by lamenting a recent 31st birthday ("I have convinced myself that 31 is the new 27…"). And while most of Derek's comments are short and ambiguous ("just a few days. Love you"), some include broken images, links, and seem like they might be SPAM. Similarly, repetitive messages on Amber's Facebook Wall state that yet another friend "misses you!" These messages, however, sit strangely against a notification that Amber was just tagged in a photo by her friend. My feelings while looking at these post-mortem profiles would later be echoed by numerous interview participants who, when speaking of their own initial encounters with these profiles, described a growing sense that something was "off."

As with every form of media, constantly evolving norms for "profile-ness" guide our expectations and interpretations as viewers – a genre framework in media studies (Chandler, 1997), schema in psychology (Anderson, 1977; Piaget, 1926), or frame in

sociology (Goffman, 1974). These conventional expectations of a profile emerge over time based on our experiences with the media form.

Likewise, deviations from the form are also noticeable. Post-mortem profiles deviate from living profiles but are perhaps not significantly different to constitute a new "media form." The result is a media form that contrasts with established understandings of how the form should operate, understandings developed in the context of living users.

While not an exhaustive list, in this section I enumerate three ways that post-mortem profiles deviate from their pre-mortem counterparts that I documented during this initial investigation: profile attributes, contributions via comments (MySpace) or to the Wall (Facebook), and explicit and implicit evidence of post-mortem management of the deceased's account.

4.1.1 PROFILE ATTRIBUTES

Even with no one to edit the profile, some attributes continue to change. Attributes like the individual's age — dynamically calculated based on the deceased's date of birth — are particularly striking. Take Ashley: Her 23 years is discordant with high school photos, and the text in the "About me" section where this young woman excitably, but nervously introduces herself to the world.

Likewise, for some time MySpace profiles included a "Last Login" date, which was automatically updated (see Figure 4-2 above). During my initial investigation, the date shown on profiles was either in the distant past or eerily recent. Both presented

ambiguities: A distant login makes it unclear whether the person has indeed died, or simply stopped logging into the social network (its own kind of death). A more recent login date, especially in the cases where it appears that many years had passed since the individual's death, violates an entirely different set of norms around the profile: Clearly the deceased is not logging in, so whose information is being shown here? Why are they logging in? What are they doing? And should their actions be part of the profile? I further engage the role of others managing post-mortem digital identities in Chapter 7.

4.1.2 COMMENTS AND WALL POSTS

The fixed nature of the profile is juxtaposed by the stream of comments or wall posts from friends. Comments and wall posts, in most cases, were what ultimately provided the evidence that separated post-mortem profiles from inactive profiles. More than their presence, however, posts made post-mortem have a noticeable difference of tone. The messages are thoughtful and laced with regret. Many of the comments are long, resembling something closer to short letters than brief status updates. The language is also abstract and vague. The sense of distance is clear — "I wish you were here", "I miss you", etc. — but the reasons for that distance is typically ambiguous.

The account holder's absence is not always abstract. Amidst the generic messages about "missing" the account holder, some messages relayed details of specific events at which the account holder had been absent, but at which they clearly would have been welcome.

last weekend was addisons bday party! she looked so pretty with her green dress on. i finally got to meet ur nephew, lucas! omg hes handsome. ur mom n sister were glad i came...but im sure they wouldve rather had u there. addy had a barbie cake-it was the coolest thing! u wouldve loooved it! sorry i havent visited in a while...still miss u, angel! summer is around the corner… (Comment ID: 75122)

Likewise, I was confused by comments that mention visiting the account holder who I thought was deceased:

*i'm leaving another comment, your probably so excited that your myspace is getting so many views lol. lori went to go visit you today - i told her to tell you i said hi. i hope she remembered. i'll be coming out to see you this weekend * i promise... (Comment ID: 152297)*

i went and visited you last weeekend,but ya know it hit me just then, that lifes hell's without you. (Comment ID: 25529)

Based on the age of the friends and the deceased, the inclusion of other people, and how a message like the one above situates the recipient in a location (visiting "you", rather than a gravestone), I initially interpreted these messages as those akin to high school friends separated by distance, perhaps due to college.

Comments and Wall Posts are both presented in the form of a stream, prioritizing the latest posts. So even when posts explicitly confirming the death existed, such as

an obituary or funeral details, they were buried and obscured by other messages. Profile pages do not include the date of death like the date of birth. Instead the comments provide a growing number of hints via messages communicating a general sense of remorse, shock, and longing. Religious references were more or less common, depending on the specific profile, but were typically short non-specific messages calling the deceased an "angel", or buried within larger messages and not immediately noticeable.

> *I haven't been to see you in a while.. I can't find myself going out there.. Too many memories come to my mind.. Soo much sadness feels my every moment while I'm out there.. It's not fair.. I shouldn't have to talk to my best friend and hear no answer.. Each day is supposed to get easier, but I'm finding each day harder.. Not only because I miss you, but because I know I'll never find another friend like you.. I drive by where it happened every day, but I can't get the nerve to stop.. I know I should, so I can feel some comfort, because that is the place you were last yourself.. I vaguely remember what you looked like on visitation day.. I know you didn't look like my Nikki, so I've put that memory far in the back of my head.. Weekends pass and I keep waiting for you and Nick to pull up.. It just never happens.. When Nick pulls up, he only stays a short period of time.. He needs you still, he needs to feel comfort and safety.. I need to come to peace with God through all of this, but I just don't understand.. There was a reason, and I know the second it happened you were in*

Heaven and greated by thousands of angels, but why.. It's still so hard to believe.. It's hard for me to look at your prom pictures because I should have got to see you, but I planned a trip so I didn't have to attend a wedding.. If I would have only known.. I miss you Nikki.. I'm SO ready to see you again.. (Comment: 140586)

Buried in the stream was typically some confirmation of the death, and when looking closely at comments it became easy to locate the approximate date of death, and sometimes even the hour. The excitable and casual status updates are replaced by messages of shock intermingled with (and eventually fading to) more reflective, sometimes ominous, messages.

On Karl's MySpace page (Profile #8501), for example, a spattering of posts about life's events ("hey babe i was surprised to see you today!!!"), giving compliments ("Karl!! I freaking love you!!"), and friends reaching out ("u have my #!!!!") was eclipsed by a rush of messages such as "Kyle, ur the best and i'll NEVER forget u" and "you and your family are in my thoughts and prayers."

In some cases, a hospitalization also punctures the stream of comments. Such was the case on Charlie's MySpace page (P6671), where the visible messages indicate that Charlie and his friends used MySpace comments as a hybrid email/instant-messaging platform. Many of the posts were short ("srsly?", "LOL…", "you tt [talk to] ur mom yet?", etc.). In the days prior to his death, posts include social plans ("wel idno wut our plans are yet so its wutever jus hit me up, mk?"), one side of conversation about

video games ("i mean i hadnt played in 3 months.. r u on right now?"), and a jacket he had complimented buying from a friend for some time ("so ur gon buy that jacket for $45[?] its a lil faded though."). However, the communication style clearly shifts when messages start mentioning visits to the hospital and words of encouragement (*e.g.*, "keep fightin charlie, were all prayin for you man"). Later they shift again and are comprised of ambiguous messages such as ("its crazy how unfair life is…") and ("wow! i never in my whole life thought somethin like this could ever happen."). The shift from words of encouragement to regret is the closest indication we have of Charlie's death, but even here comments to "keep fighting" are intermingle with messages that have more reflexive finality to them. One can only imagine the overlap reflects some invisible communication practices as more and more parts of Charlie's network learned of his death.

Reading these messages is confusing. Absent context, I often felt like I was reading captions without the photos they describe. Ostensibly, comments serve as additions to the profile content, but post-mortem they also provide a note of dissonance against an otherwise largely unchanged demographic and biographic content.

While the death is often obscured, there is one increasingly common scenario in which the death is made clear: when friends post "RIP." However, even when RIP messages are present, visitors (myself included) are still left confused. Without any details about how the individual died, the information can be disorienting.

4.1.3 MAINTAINING THE PROFILE

Accounts can take on new life when a third-party takes control of the account. Based on our initial data, this was typically a family member or spouse. On MySpace, when the profile had been changed in visible ways, it was often to add details about the death or funeral arrangements to the "About Me" section (see Figure 4-4). The prominence of the About Me section made it an ideal place to post such information, and in my experience effectively removed ambiguities around the death. However, the profile design on Facebook has increasingly hidden away free-form text attributes in favor of the Wall and pre-defined profile attributes like relationship status and birthday, but not (of course) date of death.

At times, someone used the deceased's account to post to the profile's comments section or Wall. In one Facebook-based scenario, a father of young woman logged in to her account and posted logistical information about upcoming memorial services to her wall. His post initiated a handful of conversations with members of this woman's social network directed to her father, albeit via the daughter's account, where condolences were offered and memories were shared. It is clear from the wall posts that the father had not anticipated these interactions and, in his own words, getting a *"little view of a portion of [my daughter's] life and the many wonderful friends she has."*

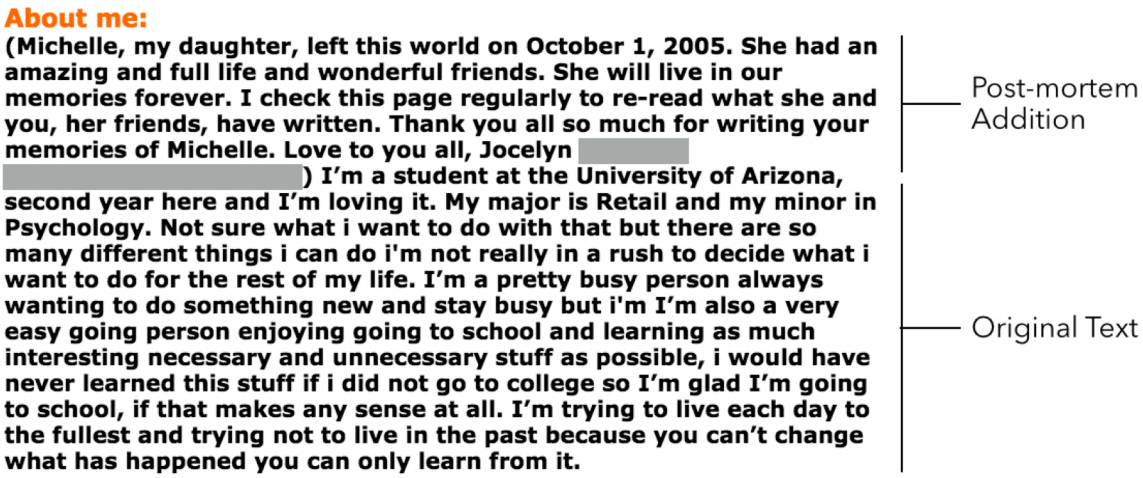

Figure 4-4. Example of an About me section of the MySpace profile, edited post-mortem to include details about the account holder's death.

Additions to the profile are usually added soon after the account holder has died; however, there was occasional evidence that someone continued to use the account even years later. Beyond visible indicators, such as the "last login" mentioned above, the biggest implicit indicator of management was the absence of SPAM and other objectionable content from the profile's comments or wall. After death, profiles are particularly vulnerable to SPAM and other undesired content. We typically saw this on older MySpace profiles we collected where, amidst messages from friends, we found bright, often image-based comments from spammers advertising the latest in prescription drugs and sexual encounters, as well as comments from nightclubs and venues advertising concerts and happy hour specials, presumably because the deceased connected with them while alive. Although it is difficult to see why modifications are made, the visible grooming of the profiles reveals a type of identity-

maintenance, in which third parties continue in the persistence of particular identities for the dead, extending to the management of the user's network of friends.

Management and maintenance of these social-technical profiles also happens for technical reasons. The impact of a shifting infrastructure and evolution of the social network site platform was visible on unmanaged profiles where broken images, links, and unpopulated profile content caused the digital identity to decay over time. On Facebook, despite the numerous policy changes that I detail in the next section, the most noticeable difference to the visual look of the profile coincided with the introduction of a cover photo with the release of the "Timeline" profile interface in 2011 (Parr, 2011). The release of Timeline also introduced the "cover photo," a large rectangular photo that appears about a person's profile picture and creates a visual masthead for the profile (Facebook, 2015). However, the cover photo remains a dark navy on profiles a cover photo has yet to be selected, inevitably including those who cannot select a cover photo because they died prior to its release (see Figure 4-5).

The navy box does more than leave the profile looking incomplete. It also reminds us that as new functionality are introduced to these platforms, engineers often design systems with the expectation that individuals will migrate their online presence into these features, and by extension, that they can. The dead, of course, cannot. When designing backwards compatibility with legacy products, then, death presents a challenge of thinking through how to migrate those who, by definition, cannot make choices about their accounts into new account configurations.

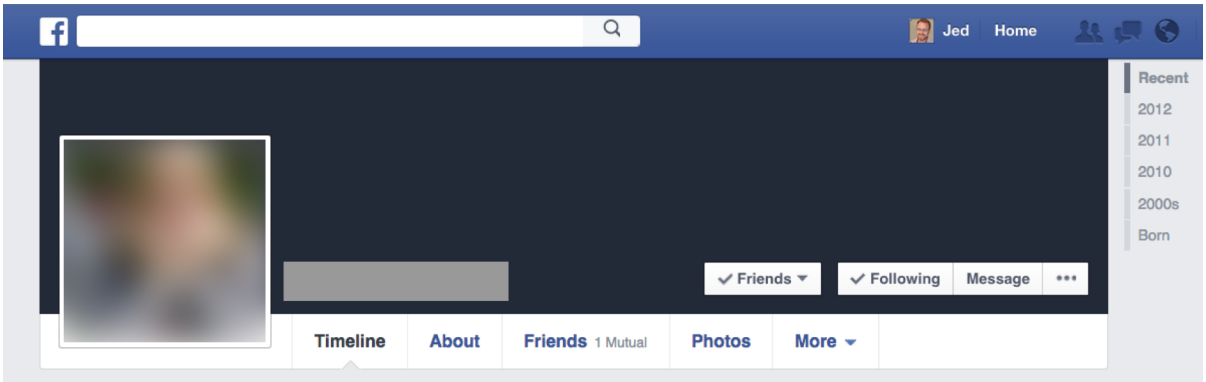

Figure 4-5. A blank cover photo. Profiles that have not set a cover photo display a blank navy box where the cover photo would have appeared.

The evolution of profiles and functionality on social network sites also prompts larger questions about the long-term persistence of the platforms themselves. Facebook, which only recently marked its 10th anniversary, may be a strange site for the creation of an enduring memorial. It is hard to set reasonable expectations for the long-term endurance of post-mortem profiles. However, the history of MySpace may provide some clue, or at least a cautionary tale.

In fall of 2010, MySpace implemented the first of several redesigns aimed at refocusing their platform towards musicians and fans. The changes were minor at the time, but the look and feel of the profile did change substantially. MySpace users were encouraged to login, migrate their profile, and update their preferences to take advantage of the new features. Until this migration was completed, so-called "legacy" profiles still were visible, rendered mostly unchanged via an iFrame embedded in the new profile template.

Later, in 2013, MySpace released another major redesign of their platform, this time radically restructuring the profile, removing features, and more importantly content. This was all done with little or no warning. Following the collapse of MySpace as a social network site (boyd, 2014), these changes did not receive broad attention. However, loyal users of the service were outraged (Boris, 2013). Forum messages shared passionate complaints about the "years of poems and personal notes, photos of friends who passed away, private messages between loved ones and money and time invested in games that are gone." TechCrunch, in an article about the removal of blogs from MySpace, weakly suggested that users might be able to recover their data via Google's caches (Lomas, 2013).

The shifting of platforms is a reminder that even as we engage with social network sites and develop social media practices (post-mortem and not) with an expectation of data-persistence and continuity of features, platforms can always change – and will. As one blogger summarized about the MySpace redesign:

> *Lesson to be learned: we don't own our space in social media, we're only renting. Make sure you have backups of everything important even if it means taking screengrabs. This is Facebook ten years from now. (Boris, 2013)*

Still, imagine for a moment that MySpace had been given people notice about the upcoming changes. Even if people were provided time to backup, transfer, or otherwise care for their content, in the case of post-mortem profiles, who would

perform these acts? Who would MySpace even notify? These are questions I address in Chapter 7.

In this section, I have documented the liminal position of and ambiguities that surround post-mortem profiles, both as social and technological objects. I have reflexively drawn on my own experiences and early analyses to describe the ambiguities surrounding post-mortem profiles. Post-mortem profiles are still profiles, but serve as a memorial space where friends continue to interact with the deceased. The data presented thus far raises a number of questions around the ways that individuals interact with these memorial spaces, their various motivations, and how their actions change the post-mortem profile over time. Profiles that were designed by engineers and adopted by users under a presumed set of circumstances (namely, ongoing use) find these presumptions challenged by an individual's death. Accordingly, it is worth considering the technical and infrastructural context that provides the conditions under which post-mortem profiles emerge.

4.2 DIGITAL IDENTITY LIFECYCLES & CHANGING INFRASTRUCTURE

Thus far I have described post-mortem profiles from a human perspective. However, post-mortem profiles are built on a technological infrastructure that raises its own questions about the design of social media systems and related policy. As such, in this section I place post-mortem profiles in a technical context by providing the infrastructural history.

I start by describing how death can be understood in computational terms. I focus on the "digital identity lifecycle", a conceptual framework used by system administrators to describe the various stages and responsibilities associated with the management of user accounts – from creation (or "provisioning") to disposal (or "deprovisioning"). In technical terms, "digital identity" is the successor to the "user account" and is used to discuss a variety of technologies and techniques by which an entity (in this case, a user and associated data, such as a profile) is made available to a digital system.

Next, I situate the digital identity lifecycle and the infrastructure that supports it in a shifting infrastructural history. User accounts and the identity lifecycle can be traced back to pre-Internet corporate networks and mainframes. However, with the introduction of web-based services, we have witnessed both a proliferation of user accounts and a broad shift of responsibility around the maintenance of these accounts from system administrators to end-users. Specifically, while system administrators have historically been tasked with provisioning and deprovisioning user accounts, that responsibility now frequently falls to users.

Of course, the user who provisions his own account cannot deprovision this account after his death. Facebook has attempted to design systems and policies that address this contradiction. The history of how Facebook has accounted for death and post-mortem profiles is deeply entwined with the emergence of memorializing practices on their platform. From a computational and infrastructural perspective, the solution to death on social network sites might be to complete the digital identity lifecycle

and deprovision the deceased user's account. However, as a result of a series of decisions spanning over seven years, Facebook does not deprovision these accounts. Instead, the platform deactivates the ability to login into a deceased user's account while preserving the digital identity as part of the broader social network. I end this chapter by arguing that while Facebook's decisions have enabled post-mortem social networking practices, the enduring presence of user data presents challenges to how we might think about the ownership, management, and responsibilities associated with this data, particularly in the absence of the account holder.

4.2.1 COMPUTATIONAL LIFE AND DEATH

In most scenarios, social network sites such as MySpace and Facebook do not know the difference between a profile and a post-mortem profile. From a software engineering perspective, the computational representation of death is a central problem to the design of memorial systems, as well as the algorithmic mistakes such as in the case of Reconnect.

A simple explanation might hold that human mortality has not been adequately accounted for within our computational systems. This may be true, but the explanation obscures a more conceptual question: What is death within computational systems?

Death-related language is commonplace in computing. Threads are "killed", scripts might end with a "die" command, and processes are frequently "terminated." Code,

accounts, and software are routinely retired, deprecated, and designated as "legacy" before they are decommissioned, deprovisioned, or deleted.

Likewise, systems and features are given "life" through hardware provisioning and engineering practices often described as part of a "lifecycle." The same holds true for user accounts. In the world of digital identity and account management, accounts are described in terms of a lifecycle, beginning with the provisioning of an account, and ending with deprovisioning (see Figure 4-6).

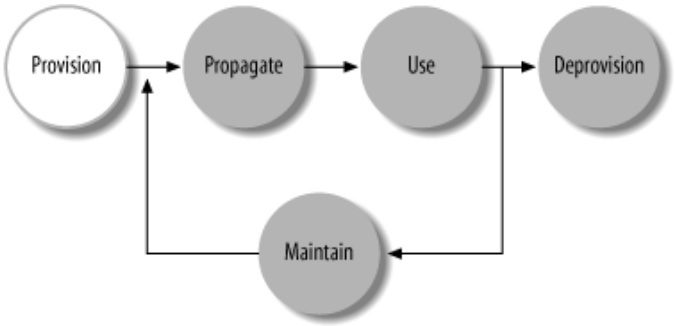

Figure 4-6. A depiction of the digital identity lifecycle. Source: Windley, 2005.

Life and death for a computer are typically framed in terms of the availability of an entity (such as a server or a user account) within a computational ecosystem. By extension, user account lifecycles are framed in terms of an individual's availability to or need of that ecosystem. Historically, the ecosystem that has directly impacted the design of digital identity architecture and practices is the corporate mainframe. As such, the account lifecycles most closely map onto an employment lifecycle.

Information workers are routinely provided an account when starting a job at a new company. An account serves as the foundation for access to corporate IT resources,

and via this account, employees are granted access to a set of resources from email, to file servers, and internal systems. With the provisioning of an account, employees are "brought to life" within the computational space of the corporate network. Likewise, that account is retired, or deprovisioned, when an employee leaves a company.

Deprovisioning accounts is a critical step in the lifecycle that protects the computational system or network as a whole. The two most common motivations for deprovisioning accounts are to manage limited resources efficiently and to preserve security by preventing unintended or unauthorized access to the system (Windley, 2005). However, in both cases, the overriding goal is to protect and care for the health of the system and the remaining users. In this way, deprovisioning is closely aligned to the "disposal" function in Kastenbaum's cultural death systems (Kastenbaum & Aisenberg, 1972). While specifically addressing physical bodies, Kastenbaum notes that every culture has some function of "disposal" following death that serves, at a minimum, to remove the health risk that decomposing bodies present to the remaining community.

This description of account lifecycles, while intentionally over-simplistic, has a swarm of different actors. Many of the decisions around what accounts exist and what access is given are outside the purview of the system itself. Corporate policies decide what kind of access is needed, and a human (typically a system administrator) is charged with provisioning and maintaining the account. The role of the system administrator here is crucial. System administrators have the authority and

responsibility to manage the "population" in a computational system. In the context of a constellation of corporate policies they provision, maintain, and deprovisioning the digital identities in organizational networks.

4.2.2 THE SHIFT TO SELF-PROVISIONED ACCOUNTS

As networks, services, and their authentication systems extended beyond corporate networks and into consumer facing products, a new model emerged for the provisioning of accounts. User and system accounts were initially created by a system administer who actively managed the accounts. However, on these new systems — initially bulletin board services (BBSs), and service providers like Prodigy, CompuServe, and America Online, and now on most contemporary consumer sites and services — individuals now create their own accounts. This is a powerful shift that allows the number of accounts, users, and the overall services to scale. Most social media platforms are now fundamentally designed around the concept of self-provisioning.

If users of MySpace "type themselves into being" (Sundén, 2003), the technological prerequisite is that these people become users by signing themselves up into existence. However, this model also alters the relationship between the user, system administrator, and system. The responsibility of maintaining accounts has been shifted to the user. It is here that we find our paradox: If the end-user now provisions their own accounts, how are these accounts deprovisioned when users die?

There is not a uniform answer to this question, although three are worth considering. The first is an engineering solution to self-administered accounts: automatic deprovisioning. Windley (2005) claimed that developing techniques for automatic deprovisioning is key to the scaling of cloud architectures. Accordingly, it used to be that accounts on services, MySpace and Facebook included, were routinely deleted once they were no longer "used." The most common measure of use was "inactivity," defined, in turn, by the absence of logins. Hotmail, one of the earliest free online services that allowed self-provisioned accounts, historically deactivated accounts after a period of 90 days. The exact period of time has varied over the years, accounts were considered inactive after no one had logged into the account for between 30-270 days. However, while Windley might have been correct in 2005, his concerns may no longer hold. In the subsequent decade, engineering efforts to support the scaling of systems to billions of users have also minimized the performance impact of accounts that are not properly deprovisioned.

Second, if engineering and system concerns no longer motivate deprovisioning, social and financial concerns may. When accounts are considered of value – particularly fiscal value, as in the case of an online bank account – or are part of a paid membership – such as AmericaOnline or, more recently, Netflix — heirs and executors often close these accounts as part of managing the fiscal affairs of the deceased, or the accounts are suspended and then closed when payment lapses. Family members do request that social media accounts be closed, but this is only recently becoming more common.

Finally, the implicit and most common answer: social network site accounts are not deprovisioned. In this case, despite the shift to user-based management of digital identities, infrastructure and policy have not adequately taken into account scenarios where the user cannot manage their digital identity, or perhaps even more common, robust management of digital identities are not a priority. The latter option is not surprising, particularly in the case of volatile startups. Why bother carefully managing digital identities if there is no guarantee that the very platform on which those identities operate will even exist in a couple months or years? I have heard this question posed frequently during conversations about social network sites and deceased account holders. And while it is true that the lack of a robust digital identity policy contributed to the very conditions that have resulted in post-mortem profiles, the truth in the case of Facebook involves a history of shifting policies and technical solutions that, while built on an infrastructural history of digital identity, instead are in response to the very human needs of the people who use the service.

4.3 FACEBOOK'S HISTORY WITH DEATH

Contemporary practices around death on social network sites are made possible by the technical architecture and policies that govern accounts. However, these practices are just as much a byproduct of the policies companies adopt (or fail to adopt) regarding how to handle death outside the system. There are no uniform conventions around when and how accounts are deprovisioned, and various social network sites have developed their own policies. Social network sites have had to develop their own

policies around deprovisioning of accounts and user's death. Concerns around inactive user accounts for outweigh discussions of actual physical death. However, because inactive users are computationally identical to deceased users, their stories are connected.

During my archival research, when death was discussed in popular press and blog posts, it was largely noted as an anomaly – something that was stumbled upon, and dealt with in a one-off way. I encountered a few accounts of people asking about their dead MySpace friends, and post-mortem profiles that are now "frozen" is mentioned as an aside in an early piece on the structure of social networks on Friendster (boyd & Heer, 2006). Concerns around suicide were more prominent in early accounts of social media. The performative aspects around death on social media were common enough that on LiveJournal a user community was created to expose "fake" deaths on the site ("Don't cry for me, Livejournal," n.d.).

Knowing who is actually dead on a site like Facebook is challenging. Facebook does, however, have a long history of evolving policy related to death. In this section I detail this history. I draw on publicly available news media, interviews with Facebook employees, and my own software archeology of Facebook's code repository. While my dissertation focuses on MySpace and Facebook, in this section I focus on Facebook alone. MySpace's policy regarding death was largely hands-off, and to the best of my knowledge, little policy was developed prior to the social network site's

demise. Facebook, on the other hand, has become the central social network site, and with its growth has had to address the issue directly.

Until 2014, Facebook's changes to policy about death can largely be described as reactive. Their policy has been shaped by a series of highly visible events. In most cases, policy and code changes can be described as humanizing the undesirable side effects or outcomes of general account management policy that is reminiscent of traditional digital identity lifecycles.

4.3.1 VIRGINIA TECH AND PUBLIC MEMORIALS (2007)

Prior to 2007, Facebook deprovisioned the accounts of the users they learned had passed away. Accounts were deactivated and retained for a 30-day period (in case a mistake had been made), after which they were deleted as a way of respecting the privacy rights of those who have died (Hortobagyi, 2007). These management practices were suspended in 2007 when, in the wake of the Virginia Tech mass shooting, friends and family of the deceased implored Facebook imploring to not delete these accounts. The profiles had become central gathering places to share information, express shock, mourn the deceased, and support survivors. *"Until the Virginia Tech tragedy, we had a very simplistic policy in place,"* explained Brandee Barker, a member of Facebook's Communication department, when describing their old policy (Hortobagyi, 2007). *"Now when we are notified by a family member or confirmed friend of the victim, we will put the page in a memorialized state indefinitely."* Memorialized accounts were still "deactivated," restricting logins, but these accounts

were no longer deleted automatically after 30 days (C. Price, personal communication, 2014).

An unintended consequence of this shift in policy, however, was an increasing number of post-mortem accounts and profiles that remained part of the social network site, which in turn created the conditions for unexpected encounters (as was the case at the beginning of this chapter, with Reconnect). Without an effective way to automatically capture "mortality" as a profile or identity attribute, the "deceased" status remained an underutilized administrative back-end setting of which few were aware.

4.3.2 FACEBOOK RECONNECT, AND THE IMPORTANCE OF MEMORIALIZATION (2009)

The potential problem of post-mortem accounts was seen in the fall of 2009 when Facebook released the Reconnect feature that prompted people to reconnect with their inactive Facebook friends, many of whom were dead. The fallout from Facebook Reconnect quickly brought popular awareness to the presence of the dead on social network sites. Within days of the Reconnect launch, and perhaps in response to the litany of negative tweets, Max Kelly, Facebook's Chief Security Officer at the time, published a post to the Facebook blog highlighting a previously obscure form entitled "Deceased":

> *We understand how difficult it can be for people to be reminded of those who are no longer with them, which is why it's important when someone passes away that their friends or family contact Facebook to request that a*

profile be memorialized. For instance, just last week, we introduced new types of Suggestions [i.e., Reconnect] that appear on the right-hand side of the home page and remind people to take actions with friends who need help on Facebook. By memorializing the account of someone who has passed away, people will no longer see that person appear in their Suggestions. (Kelly, 2009)

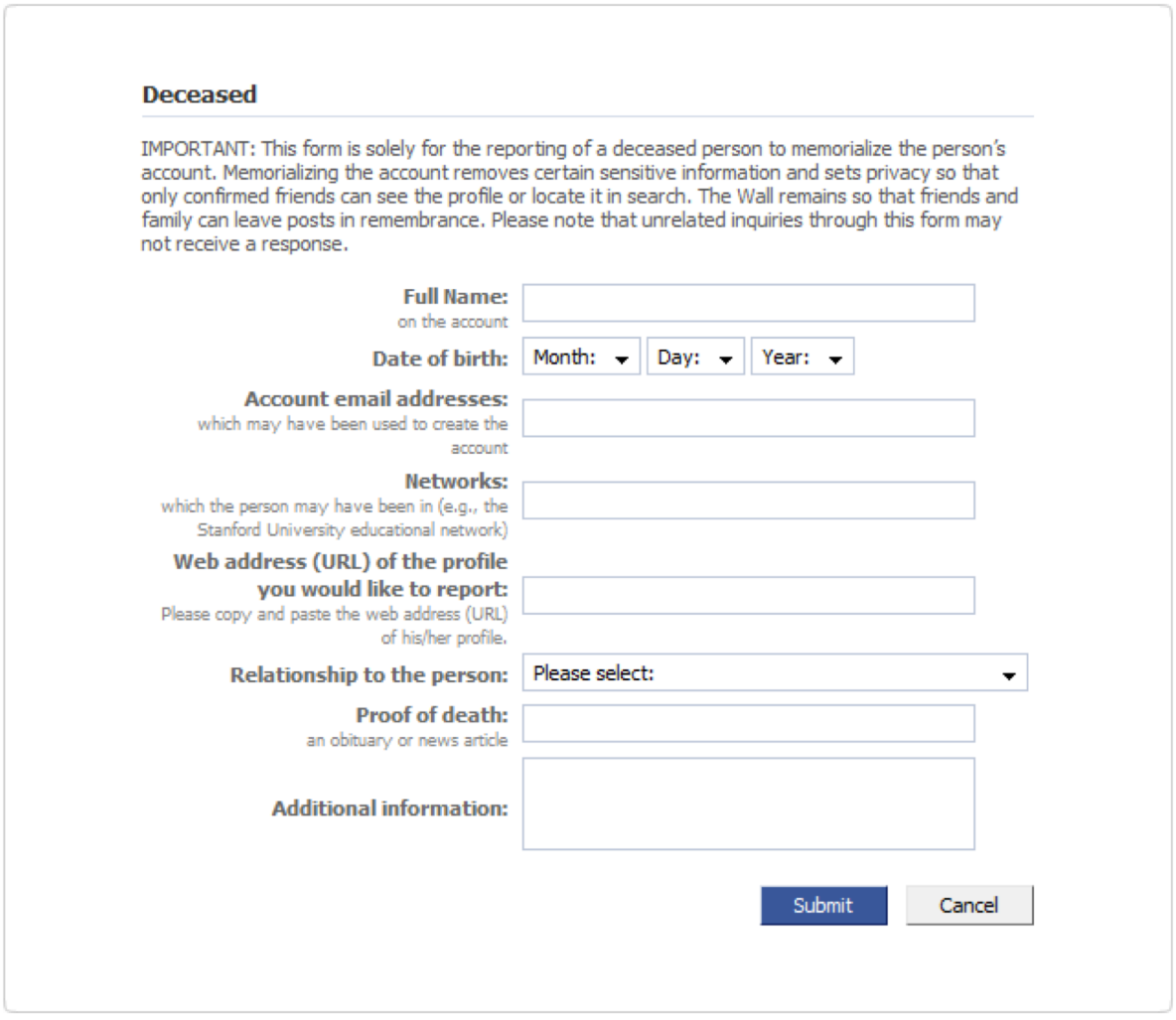

Figure 4-7. Facebook's "Deceased" form, circa 2009. The deceased form allows people to notify Facebook about the death of an account holder.

Briefly, to complete it, one must input personal details, one's relationship to the user, and most notably, "proof of death" (see Figure 4-7). Memorializing an account increases the privacy of a profile such that *"only confirmed friends can see the profile or locate it in search… Memorializing an account also prevents anyone from logging into it in the future, while still enabling friends and family to leave posts on the profile Wall in remembrance"* (Kelly, 2009).

Technically, memorialization was accomplished by modifying Facebook's deprovisioning process. The account was disabled, ensuring that no one can log into the deceased's account. However, unlike an inactive account, for which all content is made invisible on and then later deleted from the platform, the privacy of content on a "memorialized" profile is changed such that friends of the deceased can still see it.

Memorialization effectively severs the user account and data, deprovisioning the account while maintaining the data. As one Facebook employee explained to me, memorialization marks the beginning of "a shift towards preservation" (C. Price, personal communication, 2014).

4.3.3 A LOOK BACK, AND THE PLEAS OF JOHN BERLIN (2014)

Prior to February 2014, even though accounts were no longer deleted, memorialized profiles were invisible to anyone who was not a friend of the deceased. The visibility of memorialized profiles changed in February 2014 in conjunction with improvements to "A Look Back" and what some have suggested is a shift in Facebook's tone with issues around death (Davies, 2014).

To celebrate its 10-year anniversary, Facebook introduced a video feature called "A Look Back" that allowed users to generate a video based on their popular Facebook content and share it with their network (Bandaru, 2014; Facebook, 2014a). However, amidst the generally positive reception, John Berlin, a desperate father who had recently lost his son, posted a YouTube video directly appealing to Mark Zuckerberg for help (Berlin, 2014). Admitting that the video was a last ditch effort, Berlin explained that without his son's password, there was no way for him to log into his son's account and generate the video:

> *You ever do something crazy because you just don't know what to do anymore? Well that's what I'm doing right now. I'm calling out to Mark Zuckerberg and Facebook. You've been putting out these new movies. You know, these one-minute movies that everyone's been sharing. And I think they're great. Well, my son passed away January 28th… 2012… and we can't access his Facebook account. I've tried emailing and different things, but it ain't working. All we want to do is see his movie. That's it. I don't even need to get on his account. If you guys could… If you guys could just do it yourself, I don't care. But regardless, everyone does these videos and things and they go viral…. Maybe somebody will see it that counts. I know it's a shot in the dark, but I don't care. I want to see my son's video. His name's Jesse Berlin…*

Berlin's YouTube video went viral, and received broad media attention (Metro News, 2014), ultimately resulting in Facebook creating a video for Berlin based on his son's publicly available data (Dave, 2014; V. Callison-Burch, personal communication, 2014). *"With the number of people using our service, it's often very difficult to act on behalf of one,"* a Facebook spokesperson explained in an email to USA Today. *"But John's story and emotion moved us to take action -- so we did. This experience reinforced to us that there's more Facebook can do to help people celebrate and commemorate the lives of people they have lost. We'll have more to share in the coming weeks and months"* (Lee, 2014). Changes did not take long. Within the month, Facebook started to accept requests to generate Look Back videos of deceased friends (Facebook, 2014b).[12]

Meanwhile, a less visible but ultimately more significant change to memorialized accounts was made. The memorialization process was modified so that newly memorialized accounts maintain the privacy settings present at the point of memorialization. In effect, memorialized profiles would no longer be defaulted to invisible (Blair, 2014). As members of Facebook's community operations team wrote in a statement announcing the new policy:

> *Changes like this are part of a larger, ongoing effort to help people when they face difficult challenges like bereavement on Facebook. We will have*

[12] A Look Back generated for deceased account holders are limited to data the deceased shared publicly.

> *more to share in the coming months as we continue to think through how best to help people decide how they want to be remembered and what they want to leave behind for loved ones. (Price & DiSclafani, 2014).*

Even though much of the history of death at Facebook has been shaped by an infrastructural history, Facebook has attempted to account for death both in terms of policy and code. When employees write about how they "*continue to think through how best to help people decide how they want to be remembered and what they want to leave behind for loved ones*" (ibid.), they are talking about designing for death and bereavement, and accordingly, accounting for death both in terms of their technology and the social experiences surrounding death on their platform.

4.4 CONCLUSION

In this chapter I have detailed the persistence of digital identities on social network sites post-mortem. Post-mortem profiles and accounts are built on top of digital identity infrastructure that has been deployed with the expectation that end users-self administer accounts. As the dead are unable to administer their own accounts, post-mortem profiles remain as part of social network sites.

The post-mortem profile exposes the configuration and implicit design expectations that surround digital identity on most social media platforms. Death causes an infrastructural inversion on digital identity, exposing how "identity" was operationalized as a computational proxy for a single identifiable individual. This individual was presumed to actively make use and maintain this proxy by, in the case

of social network sites, logging in and maintaining their data. While literature on online identity often frames social network site profiles as a form of mediated self-presentation, death provides a case where that presentation continues to stand in as the deceased long after the self has died.

The post-mortem profile is the outcome of shifting infrastructure, social practices, and policy. In the design of their digital identity systems, social network sites leverage user accounts as a foundational infrastructure on which to build profiles, friend lists, and the myriad communication and media features that now proliferate these sites. Digital identity, however, emerges out of traditional computational and network environments where user accounts and access are managed by network administrators. As digital identity was extended into consumer-facing products on the Internet, systems like social network sites were designed to let people provision and manage their own accounts. The shift towards self-administered accounts reduced the involvement of system administrators leaving the role of account management to the end-user. As a result, deprovisioning accounts after individual's death paradoxically the responsibility of the deceased.

The consequence of these infrastructural shifts and policy changes has been the increasing number of deceased people with accounts on social network sites that continue to stand in as a representation of the deceased. However, without the system understanding their death, the profile can result in uncanny experiences like those I described at the beginning of this chapter. I specifically address how

experiences with and how individuals assess their encounters with death and grief in Chapters 5 and 6. From an infrastructural perspective, unexpected encounters cause problems for designers who are trying to make careful choices about the types of interactions they are creating in their systems. Designers either need to account for the deceased as a type of user in their designs or they run the risk of such encounters.

Still part of the platform, post-mortem profiles can serve as archives and memorials. Post-mortem issues were largely overlooked during the early days of social network sites, however, Facebook has made policy changes throughout its history in an attempt to meet the needs of friends and family who still turn to these profiles after the account holder's death.

Facebook suspended their policy of deleting post-mortem profiles at the request of their customers. In effect, Facebook accommodated those who requested that the deceased's profile continue to stand in. While Facebook accounts are self-administered, the responsibility of marking an account holder as deceased has shifted to Facebook staff and the deceased's friends (albeit with arguable success). The choice to no longer delete user accounts and data reflects the acknowledgement of a noteworthy shift in Facebook's digital identity: from digital identities as means of identifying a person attempting to gain access the system and its content to digital identities as content, independent of account access.

The configuration of digital identities on social network sites are consequential post mortem in two ways: First, post-mortem digital identities persist. As a result, it

remains accessible both to the deceased's social network, and to technological actors who absent any indicator the the deceased's death presume they are still alive. The continued presence of post-mortem profiles raises empirical questions about how individuals engage with these spaces and the impact these spaces have on experiences of grief, mourning, and death. These experiences, in turn, raise practical and ethical questions about the extent to which social network sites are obligated to support interactions with post-mortem profiles. Facebook's policy changes over the last eight years reflect a commitment to preserve digital identities as part of their platform, but in so doing they move further away from the infrastructural foundation on which accounts and traditional digital identity are built.

From the perspective of computation and social network sites, post-mortem profiles raise questions about what kind of "user," "identity," "person," and "data" post-mortem profiles are. These profiles highlight the challenges in treating these as equivalents. These challenges are made more pressing by policy changes that ensure the preservation of the profiles and data.

If post-mortem digital identities remain part of the platform, we need to account for the ways that post-mortem digital identity are different than pre-mortem identities. This may require that social network sites explicitly consider the dead when designing and maintaining features to account for the social ramification of their designs when the socio-technical identities represent individuals who are no longer alive.

Second, management of post-mortem profiles and data is ambiguous. Post-mortem, the single person authorized to login, manage, and maintain a social media digital identity is no longer able to do so. As a result, expectations around the management of the digital identity becomes vague. Who will have access to the digital identity content? Who is allowed to see the profile, view pictures, or post content? Who will maintain these digital identities (if anyone), and what responsibilities and forms of control will they have?

The answers to questions around the management of the digital identity directly influence what the digital identity is, and subsequently what it stands in as. However, at present, these questions remain unanswered, leaving post-mortem profiles problematically in limbo. As a result, post-mortem profiles continue to exist, but they are not supported differently than any other profile. Profiles become sites of community remorse, which is also unsupported. These digital identities also become archives which, without guarantees of preservation are, again, unsupported.

If post-mortem profiles are going to continue as part of social network sites, their long-term management should be informed by the needs of the deceased and the community to which they are connected. Digital identities, when parsed, read, or presented by the system, may continue to stand in as if the person never died. However, for friends and family, post-mortem digital identities appear to stand in as something else. The attention friends pay to these post-mortem profiles evidences subtle interactions around the visibility of these profiles and a person's death. There

is a clear tension between the desire to engage the dead online, and the potential unease when a technological system like Reconnect presents unexpected ghosts. I address both of these issues in depth in Chapter 5 and 6 However, the data I have presented questions conventional digital identity management practices by demonstrating the value of digital identities to a network, even when the accounts to which these identities are connected are no longer used. These data caution against simply removing post-mortem digital identities and demonstrate the importance of thoughtfully considering the ways we allow mortal status to influence the interactions within the system. The potential harm of removing an account (and the associated digital identity) from an existing network reinforces how the continued presence of the dead may require special design sensitivities for the living, as well as the importance of understanding the role of post-mortem digital identities over time and in the lives of those who remain. As a friend concluded, scribing a farewell on one MySpace profile, "Who ever is running Tony's profile now…plz NEVER delete it."

[5]
SPEAKING WITH THE DEAD

Several years ago, Brandon, a middle aged man living in Iowa, lost his girlfriend suddenly in an accident. While most aspects of his life changed radically following her death, Facebook has become an important means of connecting with her:

> *"Facebook has kind of been a strange way to just keep talking to her… It's a strange situation when you so want… to still be in contact with your loved one. And you know it's irrational… to be posting such personal information… on something that's so public, but at times it feels like the closest connection to her that I have. It's bizarre, but it has helped. Late at night when your mind drifts, and your heart drifts to that*

person, it's very comforting to be able to go look at her face again and be able to reconnect."

If social network site are designed to capture and share our lives, these functions are not diminished after our deaths. The digital identities that are collaboratively constructed while we are alive persist, standing in on our behalf. Social network site profiles are powerful sites of connection and interaction with the deceased, and the digital identities continue to evolve as individuals interact with these profiles. In the previous chapter I introduced the post-mortem profile, demonstrating how profiles provide a visible focal point for the digital identities that stand in for their owners. Digital identities stand in as their owners within the structure and logic of a computational system. However, the ways people interact with the profiles of their friends show how digital identities stand in within the context of interpersonal relationships as well. The practices of survivors on post-mortem profiles are the focus of this chapter.

Profiles are intersubjectively constructed, even in the absence of the account holder. Because post-mortem profiles continue to grow as a result of content added by survivors, investigating this content became a central effort in my research. Building on the findings presented in the previous chapter, in this chapter I present findings from three studies about the types of "post-mortem social networking" practices in which survivors engage.

In this chapter I present data on the evolving post-mortem profile to demonstrate how . I focus on communication and memorialization practices that demonstrate how the profile continues to stand in for the deceased in the interpersonal relationships. Studying the content survivors add, I start by describing modes of address and the implied audience of these messages. Next, drawing from a blend of content and interview data, I discuss how participants interpreted these messages, the impact of the community of other grievers, and temporal patterns seen in post-mortem comments. Finally, I detail three post-mortem social networking practices of survivors – *posting updates, sharing memories,* and *maintaining connections* – identified in a large-scale content analysis of the comments posted to post-mortem profiles.

Collectively, these analyses detail the visible memorializing practices in which people engage. As a site of user-generated content, they also detail the features of post-mortem profiles and what it is that visitors are engaging with. Post-mortem profiles continue to evolve as a result of the co-construction of friends who continue to interact and add content to these profiles.

5.1 METHODS

The findings presented in this chapter are informed by the overall data collection and analysis, but heavily rely on two analysis efforts that specifically focus on the content posted to post-mortem profiles. The primary findings in this chapter are based on an analysis of a large dataset of comments collected from post-mortem MySpace

profiles. These findings are supplemented by interview data from participants reflecting on their own experience and/or authorship of post-mortem comments.

The most prominent impact on post-mortem profiles are seen in the comments and Wall Posts that survivors post on the profiles of deceased individuals. Central to this chapter are the "comments" section of a MySpace user's profile and the Facebook Wall. These sections allow friends to leave publicly visible notes on another user's profile. Both platforms allow profile owners to moderate messages posted to their profile. Moderation, however, presumes the individual is alive and able to take such action. In the absence of any moderation, the network of friends effectively continues to author the deceased's identity through negotiation or ad-hoc consensus.

In order to examine the messages authored by survivors, in 2010 I conducted a mixed-methods empirical study of MySpace comments posted to the profiles of dead MySpace users during the 3 years following their deaths. I collected all comments, pre- and post-mortem (N=205,068), from 1,369 profiles of deceased users obtained using MyDeathSpace.com (MDS).

I wanted to focus on multi-year patterns in this analysis, so I limited the sample to users who had been dead for at least three years. The three-year criterion also excluded Facebook from this analysis, as the platform had only been available to the public for 2 years as of 2010. I limited the to sample to profiles indicated the deceased had lived in the United States and whose profile pages and comments are publicly visible. Additionally, two types of profiles were omitted from my sample:

those belonging to celebrities (*e.g.*, Elvis) and profiles that had been repurposed into "issue-profiles" (*e.g.*, those focused on issues such as substance abuse or war rather than on a specific individual who had died from causes related to those issues). Although these profiles are interesting, they are significantly different from the rest of my sample as to merit separate study.

On average, profiles had 149 post-mortem comments, although this number varied substantially (SD=222.26). Profiles predominantly belonged to young users (M=21.3 at time of death; SD=6.01), and of the profiles that included gender information (N=1340), 29.8% of the deceased were female and 60.2% were male. At the time of analysis, profiles had an average of 105.9 friends (SD=129), however, this number may not be representative of the number of friends at the point of death as friends' accounts may have been deactivated since and third parties (*e.g.*, a parent or spouse of the dead user) may have added or removed friends from the deceased's account post-mortem.

Next, I visualized the aggregate commenting frequency across the sampled profiles. Specifically, I examined temporal patterns relative to two dates hypothesized to be important *a priori*: the day the deceased died and the deceased's birthday. Additionally, I examined commenting trends during the calendar year in order to detect seasonal changes and/or specific dates that receive a large number of comments. These results indicated trends such as holiday and birthday commenting that merited further in-depth qualitative analysis.

The qualitative analysis was conducted in tandem with my advisor, Gillian Hayes, and consisted of an iterative examination of comment content using inductive methods to detect common themes and patterns. During our first pass at the data, we performed a thematic analysis on a subset of the comments, identifying emergent concepts and grouping them into themes and assigning labels such as "memorable dates" and "maintaining connections." I then produced a set of memos that pinpointed demonstrative comments and detailed these themes. Utilizing these memos, we conducted a series of discussions in which we returned to the larger dataset in order to evaluate our themes, further clarifying our groupings and labels based on the additional data. Themes were then organized into higher-order categories such as "post-mortem social networking." In this study, I also focused on the analysis of the frequency and content of comments left post-mortem.

The findings from the content analysis are presented here in tandem with interview data collected throughout this project. Interview data is presented in an elaborative fashion and serves to explain, situate, and reflect on the content and practices I observed during the content analysis.

5.2 AUTHORS AND THEIR AUDIENCES

Given the public nature of these messages and the inability of the dead to respond, in this section I report on the audience of address seen in the comments from MySpace, and various ways in which interview participants described interpreting such messages.

Social network sites like MySpace and Facebook provide a semi-public forum through which people can address a community of individuals—the other "friends" of the individual on whose profile they are commenting. In practice, comments are rarely addressed to a community, but are instead addressed to the profile owner. One might imagine that this practice would change post-mortem, with profiles morphing into forums through which commenters communicate with each other and mourn their loss. My data, however, demonstrate that comments continue to almost exclusively address the now-deceased profile owner as opposed to addressing other commenters and profile visitors. Engaging in personal or private communication in a public setting is commonly seen on social network sites, but in the case of post-mortem profiles, this communication constitutes a form of public grief rarely available otherwise.

Shortly after the death of his friend, for example, one commenter wrote: *"Man what I would give right now to tell you I love you and say goodbye…"* (Profile #965; P965). Another comment acknowledges the presence of other commenters and a larger reading audience, but still addresses the deceased friend:

> *Ashley...you can see already how much you've meant to everyone....there are so many people who cared about u....look at all these comments.... (P763).*

Participants, like Kevin, shared experiences and profiles that confirm this pattern on Facebook: *"I just remember a lot of people saying 'I'll miss you forever. I can't believe you're gone'… like speaking to somebody versus about somebody."*

When discussing post-mortem Wall posts with interview participants, many used familiar funerary and death related similes – particularly with graveyards and tombstones – to describe their experiences and concerns:

> *…[T]here was part of me that thought it was a little odd, but I thought no different than putting flowers on a grave. They now have a place that they can write her, or write things about her or post pictures, and that's kind of what they're doing. (Debbie)*

There may be a number of reasons why individuals choose to address the deceased, but in doing so, authors implicitly and explicitly situate relationships between themselves, the deceased, and the broader social network site community.

5.2.1 SITUATING THE DECEASED

Although comments are directed toward the deceased, whether authors expect the deceased will receive their messages via an social network site platform remains unclear. For example, one user wrote about the posts left since the deceased's death: "*I bet they have myspace in heaven so you can see all of this awesome stuff*" (P1001).

Some users suggest that comments can be read in heaven, even though the deceased can no longer login to MySpace:

> *Even though I don't think you will be using your myspace anymore... I just thought I would leave you a comment (P1496).*

In contrast, other comments acknowledge a perceived futility in attempting to communicate with the dead via MySpace. *"I know you'll never read this, but I'll miss you man,"* wrote one (P1218). And:

> *Betsy, my love, my twin, my sister...I know you're never gonna see this, but you were and always will be the best sister ever. I love you so much and miss you more than words can say. (P1455)*

Whether or not the deceased will see the messages left on his or her profile, the content authored by many commenters indicates a belief that the deceased is aware of the author's activities and is metaphorically "looking down from heaven." For example, one friend noted:

> *I know you are in a good place watchn down on me and keepin all your close friends and family safe. (P1497)*

Other comments make requests of the deceased, some of which suggest a heavenly omnipotence:

> *watch over me and try to keep me out of trouble ok?? (P597)*

> *I really miss you. Help keep Katie's dad healthy. I know you are helping everyone in every way you can. (P481)*

What is pertinent in the context of social network sites is that bereaved individuals author messages to a deceased individual who is "not here." Sometimes they reflexively acknowledge that the deceased will never receive the messages, while at other times they speak of the deceased's continuing presence. Regardless of where the author situates the deceased, it is clear from these comments that the deceased continues to have a presence on the social network site, where the profile and its comments become a place where survivors can continue their bonds (Klass et al., 1996) with the deceased.

5.2.2 ADDRESSING THE COMMUNITY

Comments addressing the community are rare, but do exist. They typically appear very early after the death and often ask for logistical details about events including funerals, viewings, wakes, and vigils. Some comments ask for readers to write the author directly, as was the case for one woman who asked readers to send photos via email for a digital album she was compiling on a different website. Friends also use MySpace to share death related information (*e.g.*, an official obituary, remarks from a funeral, etc.), albeit rarely.

Outside of these logistical and funerary related comments, community-addressed comments are extremely rare (less than 0.1%). My content analysis of MySpace comments suggested that users may feel it is inappropriate to address the community directly, and in some cases produced evidence of survivors reprimanding others who deviated from this norm. For example, in one exchange, a user addressed the community to share a life event that caused her to think about the deceased (P434):

> *For those of you that didn't know. I am having a baby. The crazy thing is my due date is Jan 18th. It is one day after Brett's birthday. It just happens to be a boy and in pictures of my ultrasound he is laughing. Crazy huh. He will be a Brett #2. Obviously can never replace #1. Brett really wants to come back huh?*

Following which, another friend, Maura, posted:

> *Yo Brett… When did this turn into Carrie's myspace page?*

This response elicited an additional comment from Carrie, apologizing for her message. In Maura's comment we see how users communicate with each other through the deceased while also reinforcing the deceased's continued symbolic ownership of the profile.

Likewise, interview participants spoke of their desire to use the profile as a public space to communicate with other grievers, but were uncertain of the appropriateness of doing as much in light of the predominance of messages addressing the deceased:

> *I don't really have anything to say to Mike, Mike's dead, but I kind of want to be like "Mike, I hope your family is doing okay." (Kevin)*

As seen in the quote above, even when Kevin does not have anything to say to the deceased, even in the context of an interview, his concern for the deceased's family is expressed through the norm of speaking to Mike.

Common practices and behaviors of social network site users may override any other kind of pressure that an individual might feel to change his or her comments to talk *about* a person rather than *to* them. In other funerary settings, friends commonly talk about the deceased with each other, but reserve comments directed towards the deceased for more intimate moments (Walter, 1999), such as at the side of the casket, or when alone. The strong norms identified here suggest that spaces other than the social network site profile might be more readily appropriable for communication between survivors.

5.3 TEMPORAL PATTERNS

Given the endurance of personal profiles and accounts, during the MySpace study I was broadly interested in understanding the temporal patterns in comments posted to post-mortem profiles. In particular, spikes were observed in the number of comments relative to the death of an individual, anniversaries of that death, birthdays, and popular holidays. Additionally, the content of the comments on those dates reflected relevant themes (*e.g.*, "Happy Birthday" or "I can't believe it has been a year since your death"). In this section, I describe trends in comment frequency, variety of individuals leaving comments, and content of the comments relative to these trends.

5.3.1 IMMEDIATELY AFTER DEATH

The frequency of profile comments increases substantially following the death of a profile owner. Posts remain high, but the frequency quickly slopes down over the 10

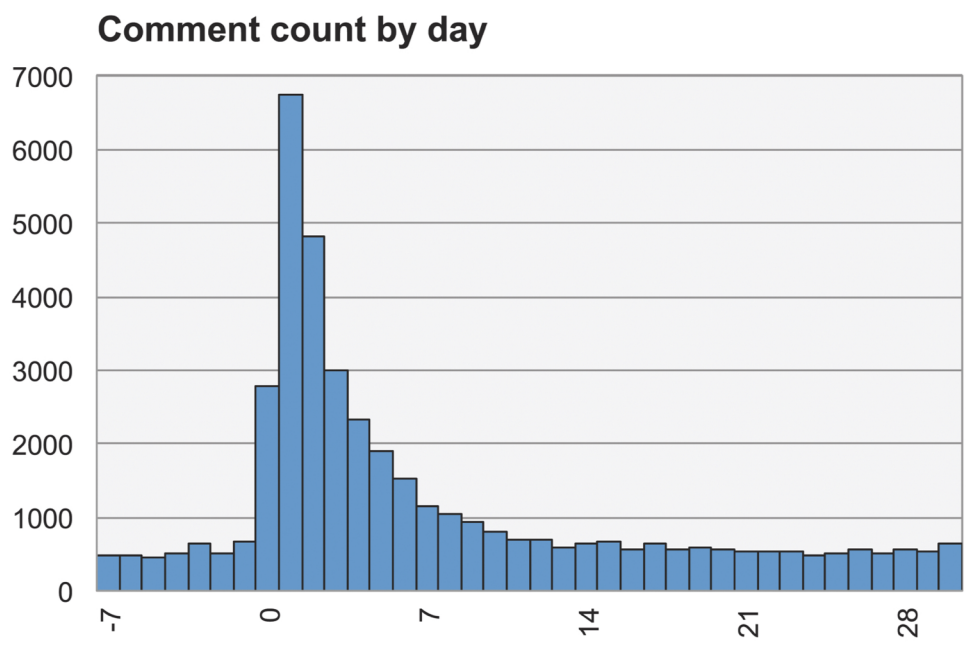

Figure 5-1. Aggregated count of comments by day across the sample between 7 days prior to and 30 days following death. The frequency of comments spikes following the death of a user and then quickly declines.

days following the death, at which point comment frequency slowly declines (see Figure 5-1).

When examining a post-mortem profile, it is striking that the content of comments changes to memorialize the deceased while the profile structure and content (at least initially) remains the same. The MySpace interface continues to perform the deceased's identity, inviting visitors to send messages, view pictures, and read comments from other friends. Comments responding to the owner's death, meanwhile, are immediately preceded by more casual messages that reference lived interactions and events.

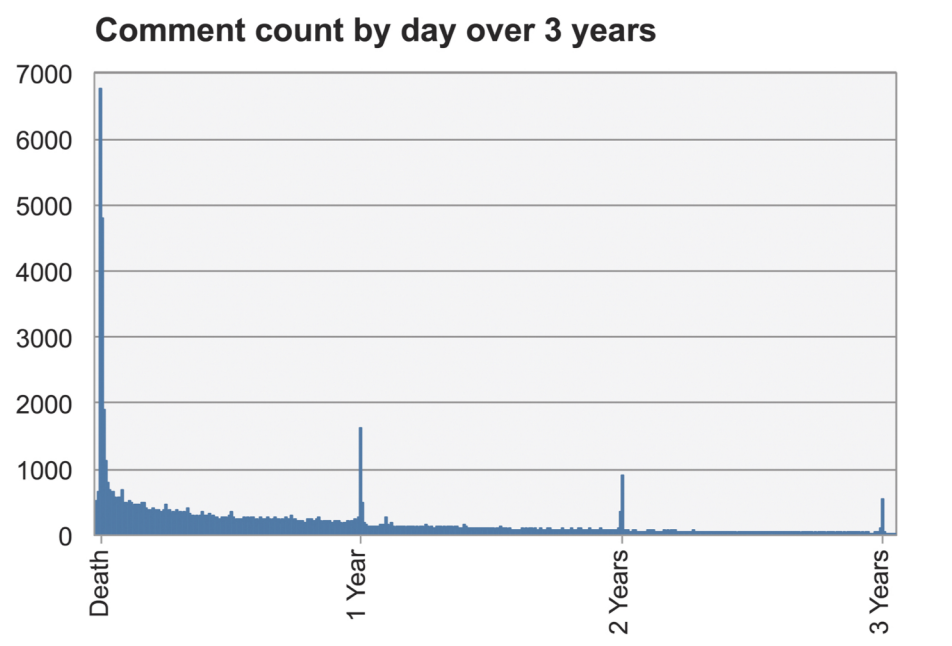

Figure 5-2. Aggregate count of comments by day over 3 years. Following the death of a user, the volume of posts continues to spike on yearly intervals as users memorialize the anniversaries of their dead friends.

Thematically, most comments during the first 10 days are marked with expressions of shock and disbelief. "*i don't even know what to say ryan.. i can't believe you're gone,*" writes one commenter (P411). Many of these comments are short: *"I got the message this morning, and lost it."* (P481) or, *"i can't beleive this. this is crazy"* (P597). Other comments acknowledge the death, often with a simple "RIP," but otherwise provide no insight into the emotional state of the commenter.

Most commenters only post one comment during this initial period. Comments are posted by a wide range of relationships, including close friends, classmates, family members (some of whom have never used MySpace), and casual MySpace "friends." In my qualitative analysis, I found comments from some surprising authors. In

particular, classmates and teammates with non-existent or antagonistic relationships with the deceased posted comments that publicly acknowledged interpersonal tension or expressed remorse at not knowing the deceased better.

5.3.2 FUNERAL AND BEYOND

Following the initial period of shock, comments begin to include details from the survivors' lives. One common theme was that of the deceased not being present in their daily lives: *"so today was pretty awful, im not gunna lie. it was really hard at school"* (P1496). And: *"it's going be so hard to sit in classes next to your empty desk and know that you should be there, hating school with the rest of us"* (P509).

Unsurprisingly, memorial services and related events are frequently the subject of comments:

> *DAKOTA LET ME TELL YOU SOMETHiNG i SEEN YOU TODAY AT YOUR ViSiTATiON AND YOU LOOKED BEAUTiFULL <3 iT WAS REALLY HARD FOR ME THO JUST SEEiNG YOU LAY THERE BECUZ iM SO USED TO YOU ALL HAPPY AND JUMPiNG AROUND. AND ii GAVE YOU A GOODNiGHT KiSS BE4 ii HAD LEFT <3 (P1022)*

Some comments express thoughts and feelings not demonstrated publicly *("I know you never saw me cry at your funeral, but it was there, deep inside";* P1497), while others have a sense of finality:

They put you in the ground today, with your mom. I know you were already with her though, but it was hard seeing you go. I realized today that this was all real. Everything is going to be hard without you. (P1497)

Comments such as these reflect norms associated with death and bereavement. Namely, that expressions of grief are often expected to be private and that the bereaved are to eventually accept their loss. However, while many individuals use MySpace to say their last goodbyes, others utilize the site to maintain relationships with the deceased, particularly on memorable dates.

5.3.3 MEMORABLE DATES

Generally, the frequency of comments falls over time (see Figure 5-2). However, the quantity of comments and unique posters both spike dramatically on the anniversaries of a user's death, the deceased's birthday, and on notable holidays during the calendar year. Comment content during these spikes often addresses the passage of time, particularly on anniversaries. For example, on a first year anniversary, one author commented on the passage of a year and her memory of her friend's death:

we miss you alot. its still so hard to believe. one year ago today i was sitting in casey['s] car at buger king. your mom called me. wow it feels like so much longer then a year zach it really does. i hope your okay up there. (P7)

On a second anniversary, one author reflected on the continued presence of the deceased in his life:

> *well it's been 2 years since you died bud, and i still think about you all the time. love and miss you bud and i can't wait to see you again. (P509)*

Each subsequent anniversary tends to be marked with fewer comments. There are two likely explanations for this trend. First, as people progress through the grieving process, they may dedicate less and less time to grieving, memorializing, and other activities that would result in their interacting with the deceased's profile. Second, my data is comprised of profiles of users who have died in the last three to four years. During this time, use of MySpace has declined, indicating the importance of an ongoing engagement with post-mortem practices across multiple social network site spaces.

Comment frequency increases at specific periods during the calendar year. This is particularly evident around Christmas, and to a lesser extent on Valentine's Day, U.S. Independence Day (4th of July), and New Year's Day (See Figure 5-3). Frequency also increases on Thanksgiving, although this is a floating holiday, thus comments appear more distributed. Comparing these frequencies to pre-mortem rates, we see the continuation of posting on Valentines and Thanksgiving, a greater proportion of comments on Christmas and New Year's Day, and the emergence of a new posting pattern on U.S. Independence Day.

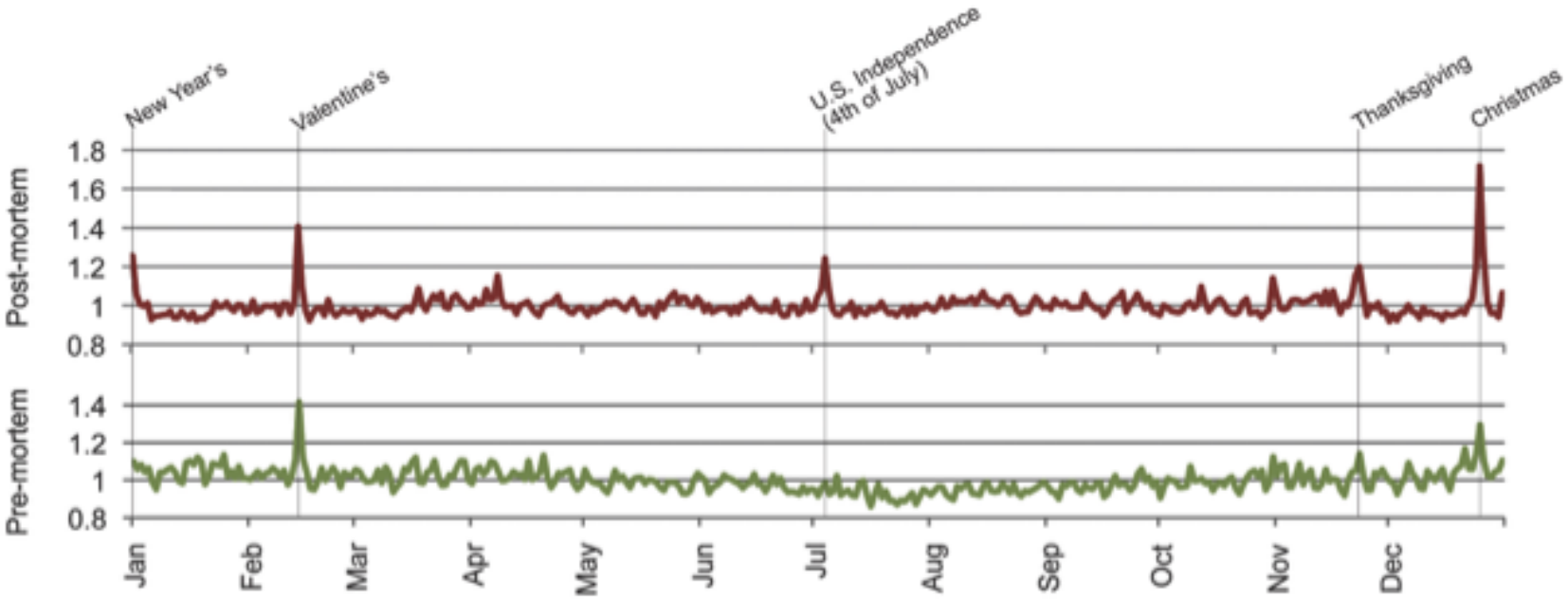

Figure 5-3. Pre-mortem and post-mortem comments by day of year, displayed as a relative proportion of total comments where each day is scaled to 1. Post-mortem profiles continue to be involved in commenting practices surrounding Valentine's Day and Thanksgiving, receive a greater proportion of comments on Christmas and New Year's Day, and evidence new posting patterns on U.S. Independence Day.

Holidays may be times at which people are reflecting on the loss of loved ones. In my content analysis I observed a mix of non-date specific content, and those that reference the holiday specifically:

> *MERRY CHRISTMAS MATTY!!! <3 We all love and wish you were here this Christmas. We love you Matt! (P511)*

> *Happy 4th! You will have a great view of the fireworks! (P1301)*

A wide variety of people leave comments on Valentine's Day, with messages often including references to love (*e.g., "love ya!"*; P387). Longer comments on Valentine's Day often were left by former romantic partners:

> *hey baby, I love you happy valentines day. I miss you so so bad, i know you were with me last weekend i saw you in our pictures?! You would love the snow we are getting tonight! if you were here you and I would be out on the 4 wheeler like we were last year with your swimming goggles on! lol. I love you so much hunnie and god do i ever miss you... (P847)*

Comments such as these are particularly demonstrative of the kind of enduring connections that survivors sometimes maintain with the deceased.

Automated MySpace features can also influence ongoing relationships with the deceased, as is the case with birthday-related comments (see Figure 5-4). Because MySpace profiles display the ages of users, but not a full date of birth, birthdays were coded for a subset of the total population (N=100) by examining comments

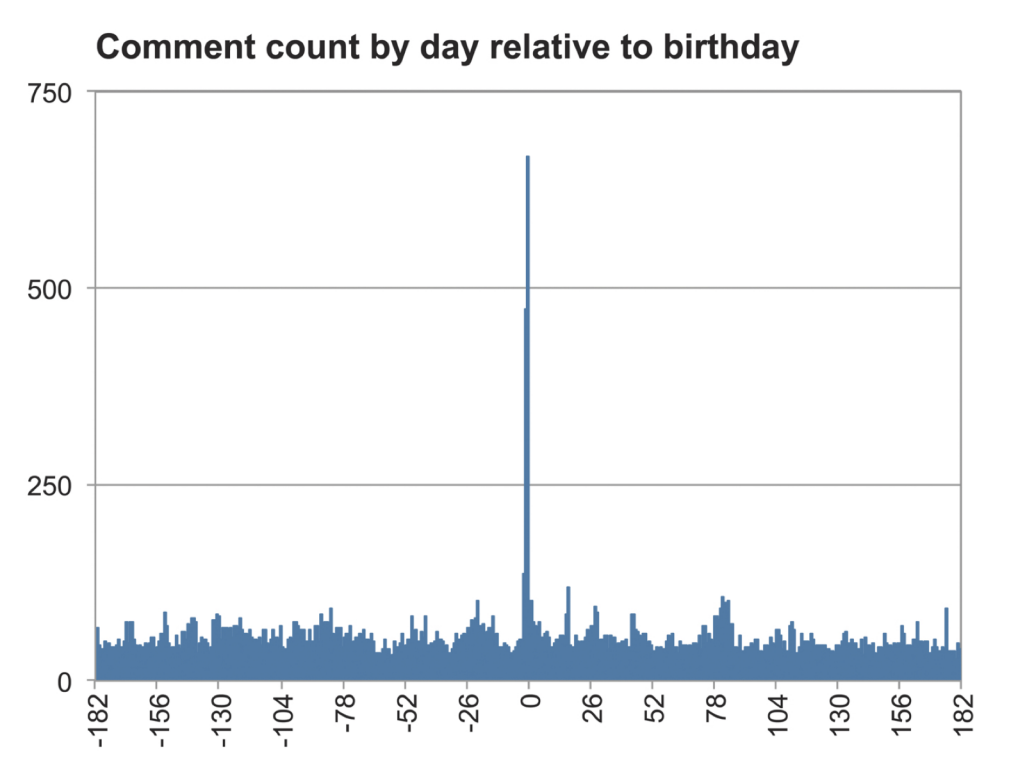

Figure 5-4. Aggregate count of posts by day relative to the deceased's birthday (Profile N=100). The rate of birthday comments is likely influenced by the birthday notifications that MySpace continues to send the deceased's friends post-mortem.

mentioning the profile owner's birthday pre-mortem. Posting birthday wishes on friends' profiles is a well-established practice on MySpace that continues post-mortem. This is assisted, however, by automated birthday reminders that MySpace provides to friends. Unaware of a user's death, MySpace continues to inform friends of the deceased's birthday. While I saw no evidence of users distressed by these notifications, the response to Facebook Reconnect (see Chapter 4) suggests that those who are distressed may choose to express as much elsewhere. I more closely explore issues around automated notifications in the next chapter.

When considered together, the temporal trends observed here indicate some of the patterns of a Western notion of progressing through grief may impact the use of MySpace. However, they also demonstrate how the temporal expansion afforded by MySpace may enable prolonged connections to the deceased, particularly in relation to life events that might prompt a survivor to reconnect (*e.g.*, anniversaries) and circumstances in which automated system features continue to connect survivors to the deceased (*e.g.*, birthday notifications).

5.4 POST-MORTEM SOCIAL NETWORKING PRACTICES

A content analysis of comments reveals hybrid practices that blend existing social network site-based communication patterns with new memorializing practices. The way in which post-mortem comments adhere to existing practices in social network sites demonstrates the importance of technology in both shaping post-mortem practices, and in turn, our experience of death.

In my data, I identified three categories of behavior that endured over the three years I analyzed: commenters use MySpace for *sharing memories* of the deceased, *posting updates* from their own lives, and leaving comments that evidence a desire for *maintaining connections* with the deceased. In contrast with the decline in comment frequency I demonstrated in the pervious section, post-mortem social networking behaviors evidence ways in which social network sites provide a platform through which the deceased continue to play a role in the practices of the living. Sharing

memories elaborate the deceased's identity, providing information about the deceased's life that would otherwise be unavailable. Personal updates, meanwhile, share information with the deceased (and the reading audience) from the ongoing lives of the living. Finally, many comments speak to an ongoing presence of the deceased in the authors' lives as well as attempts to maintain connections post-mortem. In this section, I elaborate on each of these themes in turn.

5.4.1 SHARING MEMORIES

Although the total number of comments posted to profiles decreases over the three years following the owner's death, users continued to post memories of specific events from the past and their memories of the deceased. For example, one former classmate writes:

> *I remember in 8th grade, with Mrs. DeWerff's science class. We had to do measurements on a bicycle tire, and we couldn't figure it out for our own good. Haha. We measured it 3 different ways and just added them all up. Needless to say- we were wrong. Haha. (P481)*

Post-mortem, the messages shared blend social media and memorial communication styles, allowing casual messages to memorialize a loved one. Comments often focus on qualities of the individual in addition to specific events: "*you were always making me laugh and were always teasing, doing something to make me smile!*" (P779). Likewise, memories often include an evaluation of the commenter's relationship with the deceased: "*you know you were like my little brother*" (P847). In this way,

comments providing details about a past experience also serve to exemplify the deceased's character.

The posting of memories on social network sites equates to what Harvey *et al.* (2001) call "storying the dead." The crafting and sharing of memories about the deceased is of particular benefit for those grieving the loss of a loved one. The narrative structure of stories inherently includes details about who the deceased was, who they were to the story's narrator, and therefore provide a way for the narrator to concretize and articulate what it is that they have lost.

The messages posted by friends serve to elaborate post-mortem digital identities with information from the deceased's past, but compared to pre-mortem comments, memories shared post-mortem are somewhat reserved. This may be out of respect for the deceased or, as noted earlier, out of deference to the various social groups that may see these comments. Given the profile's role in preserving a narrative of the deceased, the memories shared (and those that are not) raise questions about the ways in which memorializing practices on social network sites are shaped by larger social and cultural norms (Hume, 2000) and to what extent social network sites might influence these norms over time. While memories appeared to adhere to the adage "speak no ill of the dead", the potentially large and diverse audiences for these memories raise questions about whether the sharing of these memories will increasingly account for these larger social networks and broad cultural norms, or, in

contrast, become more individualized and private despite being posted in a semi-public arena.

5.4.2 POSTING UPDATES

Commenters continue to keep the deceased informed about their lives through personal updates even years after death. These comments were common in my dataset, including major life events such as graduations, weddings, and births:

> *i wish you could have met my baby nephew. he's beautiful. i know you wanted to see him, but you can see him now anytime you want from up there! (P481)*

Updates often evoked related memories as well. Take Andrea, for example, who over the four years since one of her friends died often returns to this friend's profile page to post updates on her life. What starts with posts of mourning and loss gives way to updates about a new love, an engagement, and eventually a wedding:

> *I can't help but think back to when we were kids. You're supposed to be one of my bridesmaids. Me, you, jessica, and dana are supposed to sit up all night the night before and talk and giggle. (P99)*

Posting updates to friends' profiles even after they are dead evidences one way in which technological systems structure user behavior and their potential impact on post-mortem relations. Friends continue to post updates to post-mortem profiles, interacting with the deceased in a way that is similar to how they may have shared updates pre-mortem. The stream of updates posted to these profiles serves to extend

the deceased's digital identity, but also provides a site where the living continue to intersubjectively construct and reinforce their own personal narratives and digital identities.

5.4.3 MAINTAINING CONNECTIONS

Many authors post comments that suggest a desire to maintain connections with the deceased. Some resemble the type of comments one might expect from friends who have not talked recently: "*Hope everything is going well up there…*" (P822). Others are short emotionally laden statements that indicate the ongoing presence of the deceased: *"I miss you and see something everyday that makes me think of you and smile*" (P387). These types of MySpace comments highlight the potential of social network sites for developing and maintaining "continuing bonds" with the deceased (Klass et al., 1996).

Many of these comments appeared to negotiate barriers in effectively connecting and communicating with the deceased. Some commenters requested that the deceased say hello to someone else in heaven (often a dead relative, typically of an older generation who might not have a MySpace account). Others, like this comment, indicate requests given to the dying:

> *before my grandma died over the summer, i told her to tell you hey for all of us down here. She better have told you hey (: haha i love you (P857)*

For some, the ability to communicate via the deceased's profile, while knowing they will not receive a response, appears to be a source of pain:

> *I still cry for you all the time. Everyone says it gets better, but it does not. I miss you more and more[…] I wish they had myspace in heaven so you could respond. It would still suck because we couldn't see you, hold you, or hear you[…] But at least we could still have communication with you. (P850)*

Implicit in these comments are attitudes about the continued use of familiar communication systems post-mortem (Odom, Harper, Sellen, Kirk, & Banks, 2010). One commenter expressing her continuing grief over the two years since the death of her boyfriend, explains the importance of MySpace, even while negotiating the very public nature of her comments:

> *I just can't tell you how hard it is to not think of you or something that reminds me of you everyday. I know people read these comments and think I am weird to post stuff like this, but this is the only [way] I feel like I can still connect… (P434)*

Comments such as these contrast with research examining the potential benefits of social network sites during the grieving process (Graves, 2009). For distressed users, social network sites may have a more nuanced role in their ongoing relationships with the deceased. Particularly because bereavement and grief-related practices are culturally based, assessing the impact of new communication technology on norms related to bereavement merits long-term investigation.

5.5 INTERPRETING POST-MORTEM COMMENTS & WALL POSTS

As a researcher, I initially found the modes of address in these comments strange. I was not shocked by death as a topic, but rather the under-marked way in which post-mortem comments comingled with other data. In retrospect, I believe any unease or intrigue with these comments was as the result of a genre-violation (Chandler, 1997), where post-mortem profiles and comments broke with my expectations about the style and structure of a profile. For this reason and others, interviewing others about their experiences provided an important opportunity to understand how they made sense of these post-mortem comments.

Participants varied in how they evaluated this behavior and users' motivations. This range is best demonstrated via two participants: a husband and wife who were each interviewed separately. Catherine characterized post-mortem Wall posts as inauthentic requests for attention:

> *… to be honest, I just don't think death on Facebook is ever appropriate… I feel like all that's doing is attention calling…maybe you want to share that you are in pain and in grief, but you probably just want people to know that you knew somebody who died and it makes you sad… there's a reason people put that crap on their Facebook profile, and I don't think it's for the benefit of the dead person….*

In contrast, her husband Kevin speculated that users post messages because they continue to see the profile as symbolically belonging to the deceased:

> *It probably just seemed natural to them -- that you would post on there and say things to him even though he couldn't get it, because on some level its still his account and his things, so you're still going to him. So it's even more specific than like a letter, 'cuz where's a letter gonna go to? It'll just go to the house and like his parents will read it maybe. But at the same point, this is his account. So I feel like on some level it's going right towards him.*

Catherine and Kevin's contrasting perspectives provide some indication of how profiles are able to stand in for those they represent, and how their ability to stand in shifts after the account holder dies. Where in Kevin's explanation, the profile as a proxy remains quite intact – "you're still going to him" – Catherine's remarks suggest that, for her, the profile's ability to stand in is eclipsed by the grief and what she sees as the attention-seeking actions of the bereaved.

5.6 CONCLUSION

In this chapter, I have described how digital identities stand in as representations of the deceased and how these representations over time as individuals engage with post-mortem profiles. Throughout I have demonstrated usage patterns and content themes in comments posted to MySpace profiles following the death of the profile owner, as well as interview data that elaborates the content analysis of posts through

the experiences and perspectives of participants. I highlighted issues associated with authorship practices and perceived audience. I described temporal patterns in comment frequency, including the emergence of new patterns (*e.g.*, in response to death), and the continuation and amplification of existing patterns (*e.g.*, posting on memorable dates and holidays). Next, I enumerated post-mortem social networking practices including sharing memories, posting updates, and maintaining connections with the deceased. Finally, I turned to interview data to broadly describe the conflicting ways that participants evaluate these commenting practices. Post-mortem comments blend cybermemorial-like practices with communication practices common on social network sites pre-death. The way in which post-mortem comments adhere to existing practices in social network sites demonstrates the importance of technology in both shaping post-mortem practices, and in turn, our experience of death.

Shortly following the death of a user, friends express shock and grief. Survivors continue to write comments for years after the death of their friends, sharing memories, and personal updates, and connecting to the deceased. Postmortem comments demonstrate attempts by users to continue connecting with the dead, at least on some level, and resemble a variety of other communication practices with the deceased, including Ouija boards, letters, and private journals. While comment content changes immediately to reflect the death of the profile owner, practices related to authorship and audience remain. Commenters write to the deceased, often on meaningful dates, and rarely engage other readers directly. Nevertheless, users

may still perceive a benefit from participating in a community of grievers (Graves, 2009; Roberts & Vidal, 2000).

The sensitivity of death may exaggerate previously noted problems associated with unknown audiences (boyd & Heer, 2006; Mori, Gibbs, Arnold, Nansen, & Kohn, 2012). As we saw in Maura's response to Carrie's personal use of the deceased's page, commenters are expected to adhere to the wishes and expectations of others. This may be particularly difficult given that death results in a temporary increase in individual authors and frequency of comments.

Of course, social network sites are not the only communication network involved following the death of a friend. The lack of details about the death and logistical information in postmortem comments suggests the importance of other invisible communication practices. One potential explanation holds that private communication, such as MySpace messages rather than comments, may be considered more appropriate when asking for details about the cause of death or memorial services. Another explanation, that I address in the next chapter, is that survivors are relying on non-social network site forms of communication (*e.g.*, telephones, text messages, and face-to-face) when informing others of the death of their friend. Because social network sites often replicate existing offline social networks (Ellison et al., 2007), post-mortem profiles may serve to augment, rather than replace, communication patterns surrounding the death of a loved one.

Although post-mortem social networking practices are similar in form to pre-mortem interactions, they are new forms of grief and memorialization. Post-mortem profiles are readily available, enabling people to author short text messages to the deceased within the context of their broader social media practices. These messages are used as a way of communicating with the deceased, if only performativity.

It will be important to determine how people use post-mortem profiles overtime so that these spaces, and the practices that occur, can be appropriately supported. The temporal patterns shown in this chapter clearly demonstrate that from the perspective of the bereaved, death is not binary attribute. Day 1 of a loved one's death is far different than thirty days later, let alone a year, two years, or decades. Likewise, the needs and uses of post-mortem profiles change over time as well. In this chapter, I have shown small, but consistent use of profiles three years after death. How do people use these spaces for years four, five, and beyond?

If post-mortem profiles become primary memorial spaces, even for a subset of friends, it is important to think about the long term maintenance of these profile. I return to this theme throughout the rest of this dissertation, but it is worth remembering that as a result of MySpace's redesign, many of the profiles and comments displayed throughout this chapter no longer exist (see Chapter 4). There is an implicit assumption that profiles can serve as both personal archives and sites of interaction, but this expectation may be misplaced. Profiles can stand in, but if there

is an expectation that these profiles stand in over the long term, it is important to account for the kinds of harm that may occur if this expectation is violated.

Post-mortem digital identities continue to stand in as people author messages to the deceased, reflect on the deceased's life, and within the relationships people maintain on through their lists of friends. Many people choose to maintain social network site friendships with dead friends. Profiles of the deceased remain in our social networks, listed amidst friends who are still alive. These digital identities continue to stand in because profiles do more than represent the deceased. They embody the deceased, and as a result the deceased retains a form of symbolic ownership that both invites people to connect with them in these spaces, but also encourages a form of deference seen when people speak to the deceased rather than about them.

"Friends" continue to engage with profiles over time, speaking to and elaborating the identities of the deceased. In contrast with literature that focuses on social network sites as sites of self-presentation (*e.g.*, boyd, 2008; Hogan, 2010; Zhao et al., 2013), post-mortem social networking highlights how profiles and digital identities in social network sites (pre and post-mortem) are not constructed in isolation. Identities are situated in networks of "friends" who, through their association and/or active contribution to a user's profile, collaboratively construct these networked profiles (boyd & Heer, 2006). This is a seemingly obvious point; after all, users join social networks with the explicit purpose of connecting with other users. However, acknowledging the collaborative authorship of these profiles, not to mention the

collaborative authorship of the self, is often overlooked and has broader implications for issues of data ownership, security, and privacy.

The infrastructure privileges the account holder, giving them ownership of the digital identity and control of the profile presented to the world. A person's MySpace profile is colloquially referred to as "My Space," a space where that person can be found online. The attending logic is that any comments or additions made by friends can be removed by the account holder as they manage their profile. However, the dead cannot actively manage their social media accounts, which in turn calls into question the ability for anyone to successfully manage all content and data associated with or linked to their digital identity.

We see a set of new memorializing practices in comments that continue to situate the deceased in the lives of their authors as people drop by their deceased friends' profiles to share the latest news, say how much they were missed at last night's party, and to keep their memories alive. The comments left by friends contribute as much to the individual's identity as the profile attributes that the user chooses and displays. Although this is a continuous process, it becomes particularly apparent after the account holder has died. Friends who continue to post to post-mortem profiles reinforce the deceased user's place in the social network while gradually adding identity content to this persistent space. Moreover, posts across time resituate the profile in an ever-evolving social network.

While parts of the deceased's profile are, in essence, frozen in time, and often at a very young age, commenters age and change over time. As a result, the deceased's identity continues to stand in with a social community. For example, as comments migrate from updates about prom or a party to marriages and the births of children, the deceased is positioned within a social community of adults rather than teens.

There are tensions in the use of these profiles, both in how the deceased will be represented and in maintaining the profile as a representation that stands in for the deceased. Post-mortem profiles are emotionally laden spaces shared by a wide variety of individuals. Prior to social network sites, various social groups from the deceased's life may have grieved in relative isolation. Comments, however, are inherently shared, possibly raising some contention over what kinds of posts are appropriate, and what norms will govern the comment space. This tension is related to the post-mortem identity contests described previously (Martin, 2010).

Unlike obituaries or cybermemorials, postmortem profiles are not created by a loved one in order to honor the dead. They were created by the dead and are appropriated by potentially diverse groups of survivors with disparate needs. After death the comments section of the profile continues to change, and in the absence of profile owners to choose what aspects of their lives they want shared, commenters can share stories of which other survivors or even the deceased themselves might not have approved.

As a result, it is important to acknowledge how the digital identity, even as it continues to stand in, changes over time. Up to this point, I have argued that digital identities are collaboratively produced in tandem with computational systems. Post-mortem social networking practices clearly demonstrate the role of the network of friends in this collaboration as well. The interpersonal practices outlined in this chapter are made possible by the presence of the profile and the functionality it provides. The evolving content on post-mortem profiles and the evolving context in which the digital identity is situated both challenge thinking about the profile or the digital identity as an individual construction – pre or post-mortem. Instead, it is a networked collaboration, produced by a multitude of actors that contribute to the digital identity directly while providing an ever changing context in which the profile evolves.

[6]
EXPANDING THE SITE OF DEATH AND GRIEF

In the previous two chapters I focused on the postmortem profile as an evolving digital identity within the social network site. Content analysis limited my ability to speak to how people interpret post-mortem profiles and how they were incorporated into broader mourning practices. I now turn my attention to where individuals encounter, experience, and interact with post-mortem digital identities. While the previous chapter addressed what post-mortem digital identities stand in as, this chapter is concerned with where they stand in. Drawing on interviews conducted with participants who had varying experiences with death and memorialization on social network sites, I focus on how the continued presence of post-mortem digital identities impacted how individuals interact with death.

In this chapter, I situate the profiles and practices discussed in the previous chapter in the broader context of peoples' experiences and the social network site as a whole. I start by drawing from my interview data to discuss how individuals describe the benefits and challenges with postmortem profiles and social network sites as a gathering place for sharing memories about the deceased. This is followed by an examination of the increasingly algorithmic flows of personal data on social network sites that extend the reach of post-mortem profiles by disseminating death-related content throughout a social network site. I analyze how social network sites as a platform spread data throughout social networks, changing the ways in which individuals encounter, learn about, and experience death.

Finally, I conclude by arguing that social network sites have expanded the site in which people experience and encounter death. Three factors contribute to this expansion: 1) the continued presence of post-mortem profiles, 2) post-mortem social networking practices, and 3) algorithmic diffusion of content across the network. I consider how social network sites are associated with an expansion of death-related experiences – temporally, spatially, and socially — into the stream of everyday communication content and practices. social network sites create a new setting for death and grieving – one that is broadly public with an ongoing integration into daily life.

6.1 ENGAGING DEATH ON SOCIAL NETWORK SITES

The dynamic nature of the profiles results in what one participant described as "interactive digital tombstones." Both in the physical world and online, sharing of memories about the deceased is common. Participants described the benefits of post-mortem profiles, they discussed these profiles as places to learn more about the deceased through the memories shared by others, often at a far distance both geographically and in time:

> *[I]t would help us each know the Mike that the other one knew. Like I know the high school Mike. I would love to know what the college Mike was like and the after college Mike was like. (Laura)*

> *I actually got to know her diving friends… Those are people that I never had a chance to meet... But this one person wrote a really beautiful obituary… And it was really, really beautifully written; sincerely. And it also sort of made me understand sort of how important diving was to my cousin. And then what a great circle of friends she had through diving. (Nina)*

Likewise, participants stressed the importance of pictures of the deceased and the associated comments left by others. For example, photos played an important role in Henry's descriptions of his friend Finn. In one picture where Finn is exposing his buttocks, Henry explained:

> *Well, to know Finn, that seems like the perfect picture to put on up here and he would have loved that… And he was a really fun guy. Perpetual camp counselor, right?*

Confirming Henry's assessment, one of the photo comments read "Classic Finn."

Participants also shared concerns over content they deemed "inappropriate" post-mortem. In these cases, the role of profile shifts from active space to archive as do the values with which individuals evaluate the space. Content added post-mortem presents additional problems given the diversity of social groups who interact with the deceased's profile. Cassie, an atheist, described her unease with some of the religiously themed messages left online surrounding her sister's death:

> *Let's see… there's this: {reading} "You are an angel. I believe in heaven. I know that's where you are"… Um, you know, it's again, it's not like really offensive, it's just more like a little bit awkward.*

Comments like these are incongruous with her own bereavement narrative – one in which she focuses on her sister's life and not her continued existence.

Even the appropriateness of memorial practices on Facebook was mixed. How individuals viewed Facebook in other contexts played a central role in their responses to the use of Facebook to memorialize the dead. For example, when Anna described the death of a college friend several months earlier, she was uncertain about the appropriateness of memorials on Facebook. While she believes that funerals should

be a celebration of the deceased's life, she views Facebook as too casual of a medium for these celebrations:

> *… I guess in some ways somebody could argue that, hey, Facebook is a big party so doesn't that mean that we're doing exactly what you said …[but] it seems like a cheap way of – a cheap way of celebrating someone's life.*

In contrast, Nina described feeling comforted by the messages surrounding the funeral of her cousin, especially by those that were the most casual and, in her mind, *"uplifting."* She spoke at length about about the way one group of friends used her cousin's Facebook wall to post content in real-time as they attended the funeral.

> *So there was a sort of cute picture of the car and a bottle of champagne or wine and a glass or something... It was all these funny things; funny little things that… made readers feel a little at ease about the death.*

The casual nature of the posts was captured succinctly by one post in particular, which read: *"Hey, we basically tailgated at your funeral. Ha, ha, ha…"*

These contrasting perspectives highlight the divergent ways in which social media has come to be interpreted and integrated into daily life. While, on the one hand, Facebook is seen as too casual a medium for a weighty topic such as grief and grieving, it simultaneously provides people with ways to engage with the dead and fellow mourners in ways unlikely in conventional grief practices. Rather than contained to a funeral, memorial ceremony, or life celebration, Facebook's very

"everydayness" enables an expansion of grief into other aspects of life. Such tensions and discomforts over new media are scarcely new. Users of Internet technologies have struggled to find a balance between expanded access to content and the appropriateness of engaging with that content in a particular context. This issue is compounded given that individuals are inevitably connected to users with a wide range of ideologies for Facebook use (Gershon, 2010). Still, looking at Facebook through the lens of death dramatically highlights these tensions and offers designers new challenges in the consideration of social network sites and the applications built on them.

Beyond these tensions, post-mortem profiles add an additional challenge to users attempting to interpret the profiles and integrate them into their experiences. When reading messages posted to a profile, it is often not clear with whom one is communicating. While the content we found typically only addressed the deceased, participants spoke of their desire to use the profile as a public space to communicate with other grievers. Many, however, choose not to in light of the ambiguities around who might read the content and the predominance of messages addressing the deceased.

Interviewees reported numerous strategies for handling the confusion and discomfort present when the profiles of the deceased continue to exist and are used for communication, grieving, and support. One common approach included the creation of a Facebook Group to facilitate communication between survivors.

Facebook Groups are administered by users who are still alive and can display a stated purpose, such as the "description" of a group shared by Henry: *"Lets Remember the vitality and life of Sarah, who touched us all. This is a place to remember her and share information."*

Facebook Groups are commonly created in addition to existing profiles. Facebook Groups allow users to control privacy settings, including making content public, as opposed to post-mortem profiles that might be restricted due to privacy settings established while the account holder was alive or those applied to memorialized profiles generally between 2009 and 2014 (see Chapter 4, Section 3):

> *I think that the group was actually more public than his profile was. I don't think he had opened up his profile to – I mean, he had a group of friends there but I don't think his profile was open publicly. (Marcus)*

Likewise, Groups may be preferable to post-mortem profiles for those who are uncomfortable with mourning and memorializing on Facebook, such as Katrina who expressed concerns about how the sister of her deceased friend routinely made use of the friend's account:

> *I personally prefer the memorial group, because then it's like a designated place for people to go and actively mourn together, I think, instead of like a thing that was his when he was alive and now is somebody else's.*

For these people, Groups allow them to control their exposure to others' grief by managing their connection with a group rather than with the deceased's profile. They are a way of managing the expansion of death into everyday life. However, these strategies are not completely effective, as I explain in the next section.

Established norms around death on Facebook do not yet exist, but some trends appear to be emerging. Facebook has its own language and vernacular, but when it comes to death, participants rely on familiar death-related terms (*e.g.,* tombstones, graveyards) as well as interpretations of standard Facebook behavior to explain the profiles and behaviors observed. The ambiguity users feel when engaging the topic of death on Facebook is evidenced in the various attitudes and practices reported. In the next section, I specifically engage several of the ways in which participants unexpectedly encountered death-related content, as well as the ways in which they attempt to mitigate those experiences.

6.2 NETWORKED & ALGORITHMIC ENCOUNTERS

Facebook expands the ways in which one might happen upon information about the deceased. My analysis highlights three ways in which participants encountered content unexpectedly: learning of the death of a friend during normal Facebook use; exposure to the publicly displayed grief of others; and incidences in which automated parts of the Facebook system presented users with content regarding their dead friends.

Facebook is well known for connecting even the most casual of friends (S. Brown, 2008) and those with whom users might have otherwise lost touch, increasing the frequency with which one will encounter death. Many interviewees reported unexpectedly learning of a friend's death during typical Facebook use. For example, Henry described learning about the death of a friend as a result of another friend's status update:

> *Two Christmases ago, I went on Facebook and found out that a guy that I knew when I worked at a summer camp as a teenager had died, … I saw the posting on a friend's Wall and it was a friend who I would never have associated with this person. They were from two different sides of the world and – but somehow they knew each other. And so, I immediately wrote to that friend and was like, 'What's going…' – 'You know this guy? How do you know this person? Wait. And I didn't know that this person died.'…*

Likewise, Laura described learning about the death of a high school friend when acting on a Facebook birthday notification:

> *Maybe about a year and a half ago, he contacted me on Facebook and he wanted to know what I was up to. And we had a long conversation on instant messenger… that's the last time I was in contact with him. … I went on his Facebook to wish him a happy birthday and saw that he had died. ... It had been nine months or so ago he was in a car accident.*

These accounts illustrate how the connections with casual acquaintances or friends on Facebook enable users to participate in death and other major life events even at a distance, though sometimes what participants felt was an unsettling amount of time later. However, as is the case in both of these examples, the nature of these networks can result in discovering a friend's death some time after the fact.

In addition to the shock of discovering the death of a friend, participants described their discomfort in seeing the grief of others. Individuals grieve in different ways and at different times, however, the public nature of the profile Wall can be seen as intrusive for those who prefer more private forms of mourning.

> *I think it's more that things made me a little uncomfortable... the idea that I'm seeing their personal grief. There were very personal communications from her to her sister and I felt just like I shouldn't be privy to those… (Katrina)*

The desire to grieve privately also raises issues when discussing the death of a loved one on a platform designed to broadcast the thoughts and feelings of its users. Following the death of his father, Henry described having to closely moderate his own Wall for sympathetic comments:

> *When my father passed away, I didn't want people to know… I had just moved to a new city and I was already having a tough time with other things in life and I just didn't … I wanted my loved ones and really close friends to know that this had happened, but I didn't feel like I needed to*

> *write an email or post it on Facebook… especially on Facebook, … if somebody had made a comment about it, if somebody had found out like a relative and posted something on [my] Wall, [I] quickly deleted it… I don't want somebody asking me about if I miss my dad on Facebook… I use it as a very casual tool; it's not personal…*

Further complicating the situation, many social network site behaviors are interrelated with automated Facebook features, resulting in novel ways to discover the death of a friend. By far the most common channel in my data was the Facebook Newsfeed, through which participants would find notifications about posts to the deceased's Wall or grief-related status updates posted by their friends. Participants described the jarring experience of finding death-related notifications amidst more casual content in the Newsfeed, using terms such as "weird," "odd," and "gross." Henry described these automated notifications as impersonal:

> *The only thing that existed was this kind of notification via the Internet, which I think is – it becomes very cold and it, perhaps, makes some people… {long pause}… and when it happened to me, it made me deal with the death differently than I would have if it was something firsthand…*

Even after the initial discovery, features like the Newsfeed often continue to inject death into otherwise typical Facebook use. Content posted to the deceased's profile can appear in the Newsfeed, but participants also talked about status updates made

by the bereaved that linked to the deceased's profile. Catherine explained repeatedly seeing status updates from one of her business contacts:

> *…she was going through this [grieving process] and I understand why she wanted to share on Facebook and … I don't think she was harping on it to get attention.... I'm sure this was a horrible time for her…*

Given the nature of their relationship, Catherine felt that it was inappropriate to address the issue directly, but eventually removed this "friend" to stop the notifications. *"I felt like they were confrontational,"* she explained.

Unexpected encounters occur as a result of various social network site channels ranging from comments in Newsfeeds, to birthday reminders, to more explicit communication attempts. Molly described encounters resulting from a Facebook Group for a foundation created by the parents of one of her high school classmates following his death from cancer. She is not friends with the deceased and is not part of the Facebook Group, however, she is friends with other classmates who are connected to and support the group. Through these connections, Molly often receives invitations to the group's activities:

> *…they'll blast stuff out about the foundation and that is the only contact I will have with these people. Like you know, some of these people that I would never have talked to after high school, ever, barely talked to in high school… I will get like please participate in this, please come to this fundraiser, please do this, please do that… And I've even forgotten at this*

> *point what kind of cancer he had. 'Cause I'm a terrible person and maybe that's why I delete all the emails is because like I didn't care about it then and he passed away when I was in college and I don't know.*

It is not surprising that users' social networks share unwanted information, but interviewees described these intrusions differently than the average post from a political group or individual with whom they disagree. Rather than the contempt or derision one might normally express over objectionable content, interviews participants apologized repeatedly for negative comments and expressed concern that I might think less of them for their discomfort.

The underlying technology of Facebook also expands post-mortem interactions beyond traditional temporal and social boundaries. Automated systems such as Facebook's Newsfeed or Reconnect can insensitively present users with objectionable content. However, not all interviewees associated these messages solely with the inner workings of the technological system. In these cases, Facebook becomes a techno-spiritual system (Bell, 2006); a means for mediating communication, even with the deceased. For example, Kevin described Reconnect messages as *"communication beyond the grave"*:

> *…obviously we understand that Facebook's just posting that up there to try and drive traffic and get people to be active on their boards… If like he had gone on vacation for two years and wasn't around computers, it wouldn't be that weird... But the fact that he's dead makes it a little bit*

more interesting I guess… there's things that this person put in motion while they were alive that are still happening… on some level it's still like that person's taking an action…

The role of algorithms has increased over time as interactions, especially on Facebook, increasingly happen outside of the boundaries of the profile interface. Participants commonly described encountering the deceased in birthday notifications, tagged photos, and Facebook's "People You May Know" feature, which recommends individuals who you might want to add as friends.

Inconsistencies with memorialized accounts also appeared across platforms from time to time. Colin, a young man I interviewed in late 2013, described sending private Facebook messages to a friend whose account had been memorialized. Initially I was surprised as it was my understanding that private messages could not be sent to memorialized accounts. In response to my surprise, Colin explained that he could only send these messages on his iPhone. I was later able to confirm that while private messaging had been removed from the desktop and web interfaces, this functionality had not been removed from Facebook's mobile iOS app.

While designers could feasibly take memorialized accounts into consideration, as I worked with participants, reverse-engineering their encounters when possible, it became clear that the deceased were included and excluded from a wide range of features, but in inconsistent and unpredictable ways. My hypothesis is that commonly used functions in both Facebook's intern and external APIs are partially

to blame. In early 2013, when working with Facebook's various developer APIs, I was able to confirm that Facebook's Graph API[13] – used internally and externally – excluded memorialized accounts when returning a list of user's friends. Meanwhile, memorialized profiles were present when making similar requests of older APIs. After noticing the discrepancy, differences across interfaces became easier to understand. For example, memorialized profiles appeared when searching for friends in Facebook's main search interface, but were sometimes missing when attempting to tag the deceased. With multiple APIs providing multiple ways of retrieving something as simple as a list of friends, it is understandable that different parts of the code base, even within the same product, might retrieve friends in different ways, unknowingly including or excluding memorialized accounts.

Participants frequently talked about the confusion they experienced with photos. While often described as part of the profile, photos propagate through Facebook independently of the profile. One mother, talking about the death of her teenage son, expressed her confusion when she described attempting to tag her son in photos taken during a family trip to honor the one-year anniversary of his death. She was able to tag him if the photos were uploaded to his profile, but she was unable to tag him in photos that she uploaded to her own.

Whether the accounts are memorialized or not, some algorithmic mistakes are unavoidable. One participant, Leslie, explained how Facebook kept recommending

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[13] https://developers.facebook.com/docs/graph-api

that she tag a photo of her recently deceased aunt as her mother:

> *My mother's identical twin passed away… which is already hard, but because Facebook does facial recognition it keeps asking me if I want to tag all the commemorative photos of my aunt as my mom because Facebook can't tell the difference. It is an uncomfortable feeling to have a technology suggest you tag your deceased relative as your mother...*

Even when participants understood why the system, specific feature, or even the algorithm (depending on their technical expertise) was making a mistake, they remained initially unnerved. However, Leslie's scenario demonstrates how encountering death within the context of daily practices can be disconcerting. While distinguishing between identical twins is a challenge for facial recognition algorithms (Klare, Paulino, & Jain, 2011; P. J. Phillips et al., 2011), Leslie did not feel like the algorithm was technically malfunctioning.

The alarm Leslie shared when Facebook's recommendation intersected with death evidences the sensitivity that many expect when it comes to the treatment of the dead. However, it is unclear what technical fix would be most appropriate in Leslie's scenario. If Leslie's aunt and mother were not identical twins, Leslie would not have had this experience. However, if designers decided to exclude post-mortem digital identities from the algorithm's suggestions, the problem of Facebook recommending that users tag photos of the deceased as their living friends in would actually be exacerbated.

Finally, many participants reported seeing notifications in their newsfeed that a deceased friend had been tagged in a photo long after the friend's death or the addition of the photo to Facebook. In many cases, the reason for the notification remained a mystery, however, in a number of cases where I was able to examine the notification closely, it appeared that old photos were reappearing in the newsfeed after someone added a new comment. Even when the photo's date was clearly marked, its presence in the newsfeed seemed override any visual timestamp with "now."

Avoiding unexpected encounters requires individuals to take explicit action. Katrina, for example, eventually removed her deceased classmate from her list of friends in order to avoid the ongoing notifications about grievers posting on the deceased's Wall. These decisions are far from straightforward. Sean described his struggle with the intentionality he associated with the action of removing his deceased mother from his instant messenger account explaining that it *"just felt sort of vicious…"* He contrasted this with implicitly removing her from his phone's address book by not copying her number over when he changed phones. As with IM and other Internet communication technology, Facebook users must actively choose to remove the dead from their lists of friends. Unlike lived relationships, they do not decay overtime. The technical simplicity of removing a friend from a list of IM contacts of Facebook friends may overly simplify the meaning behind our interpersonal connections and actually amplify the sense of responsibility individuals feel when they are making the choice to remove even a small connection to the deceased. Although most struggled

with this issue, not all interviewees were equally concerned. As Catherine bluntly noted, *"You know, when my friends die online, I delete them."*

Grief and mourning periods do not reach a distinct ending point (Klass et al., 1996). Traditional, non-digital artifacts, however, may decay over time, such as pages of photographs and diaries yellowing and fading away. Digital content can continue to persist without such decay, thereby expanding the reach of mourning and memorializing. Facebook automatically extends the experiences around death into additional everyday activities over extended periods of time within large social networks.

6.3 EXPANSIONS ON SOCIAL NETWORK SITES

The combination of a user's networked communication and Facebook's automated notifications leads to new types of encounters with death. The often asynchronous nature of Facebook can result in a kind of temporal slippage in which users might reach out to a friend casually on a birthday or in response to a prompt from the system, only to discover that the friend has been dead for weeks, months, or even years. Likewise, death-related communication is not bound to a single space of mourning. Users express grief via status updates, Wall posts, and through comments on photos, each of which has the potential to percolate through the network in different and sometimes unpredictable ways. Finally, in many cases mortal status is not identifiable by the Facebook system resulting in startling encounters between the

living and the dead, as was the case with Reconnect (see Chapter 4) and Birthday notifications (see Chapter 5).

I have framed these issues in terms of a series of expansions resulting from the use of social network sites as a platform for enacting social processes around death. Temporally, we see expansion in this asynchronous medium (particularly around notification of death) and an interweaving of death into everyday social network site experiences (rather than in just funerals and memorials). At the same time, the use of online memorials leads to a spatial expansion in which physical barriers to participation are dissolved. Finally, social expansion results from the broad dissemination of information and grief practices throughout these social network sites and the resulting forms of context collapse in online self-presentation (boyd, 2002; A. Marwick & boyd, 2010). Through all of these, though, social network sites are not necessarily problematic disruptions of social practice, but rather sites of social and cultural production – in this case, the production of grief. In this section, I further elaborate these three expansions as they pertain to the role of death in social network sites to elucidate both their relationship to the experience of death on social network sites, and to social network site activity more broadly.

6.3.1 TEMPORAL EXPANSION

Temporal expansion can be understood as an increase in both breadth and immediacy. This expansion is enabled by the asynchronous nature of social network sites as communication mediums, the frequency with which they are used, and the role of profiles as ad-hoc archives. Temporal expansion results in both the immediacy

of information enabled by daily use of social network sites, and breadth of information available as individuals add content from the past and present, and about the future. Users discover the death of friends and may contribute post-mortem comments, often within hours of an individual's passing. Some users, moreover, continue to engage with post-mortem profiles, sharing memories, updates, and speaking to the dead. As a result, we see the interweaving of death and grieving into the everyday, rather than in the temporally bound settings of traditional funerals and memorials.

My findings also illustrate how the "late" discovery of a friend's death can be particularly upsetting. The discovery of a friend's death is shocking in any medium, but the asynchronous nature of social network sites may exacerbate this experience (B. Carroll & Landry, 2010; DeGroot, 2008). It is important to note, however, that the kinds of temporal slippages participants reported on Facebook go hand-in-hand with the expectations social media platforms have enabled. Particularly on Facebook, the constant stream of near-instant information broadcast across browsers, email, text messages, and mobile applications (to name a few) has enabled the incorporation of social network site use into everyday life. Indeed, half of active Facebook users log into the system daily (Facebook, n.d.). However, this appears in part responsible for the shock participants reported when learning of a friend's death. The exclamations of those learning about an individual's death after the fact highlight the new immediacy to which we increasingly hold social information.

These temporal expansions may have profound impacts on the bereaved. Previous research on cybermemorials has suggested that online spaces can serve as traditional physical memorials (Roberts, 2004), however, the cybermemorials addressed by the existing literature are largely passive in nature — isolated websites with which users can interact when and how they choose. The ways in which social network sites are designed to promote broad social interaction may eliminate the forms of agency over when and how one grieves valued by clinical approaches to grief (Stroebe & Schut, 1999). Broadly, this research indicates that as an active archive — one that both stores content from the past, but also actively presents users with this past content — social network sites create an infrastructure for a new relationship with our social pasts — one in which failed romances, past embarrassments, but also deceased friends are re-situated into our everyday use of social network sites.

6.3.2 SPATIAL EXPANSION

The removal of geographic barriers when using social network sites, enabled by communication that clusters around individual users' social networks, allows users to interact at a distance, resulting in a spatial expansion of the social processes around death and bereavement. This is true of any number of mediums, however, this research demonstrates the variety of ways in which social network sites broaden the opportunities to participate in memorializing practices from a distance.

The social network site profile, in particular, provides a space dedicated to the now-deceased user in which others can participate in the shared production of grief from a multitude of locations. As spaces, post-mortem profiles can proxy funerary events

and allow individuals from diverse locations to memorialize the deceased. Likewise, previous research has argued that social network sites may benefit marginalized grievers (*e.g.*, those outside the family) by providing access to a space for mourning (B. Carroll & Landry, 2010).

This study, however, clearly demonstrates that this inclusion is accompanied by varied opinions and anxieties about how best to behave on social network sites in relationship to the experience of death. The strong opinions shared by participants were grounded in norms about appropriate behavior in funerary and memorialized spaces, as well as social network sites as a space. However, these norms (which can vary wildly on their own) produce multiple and conflicting understandings of appropriate behavior — often based on conflicting and/or layered understandings of social network sites. Users may comfortably adapt norms from funerary spaces to post-mortem profiles. However, those who find public grieving behavior on social network sites inappropriate, appear to handle their discomfort silently or by resorting to technological solutions that alter the nature of this space, such as unfriending the bereaved. The attitudes and behavior reported to us generally privilege individualism in a way consistent with Walter's postmodern ideal (1994, 1996a), suggesting that, in the context of death and bereavement, users may feel it is inappropriate to request that others change their behavior.

Two social network site specific spaces are particularly worth noting in terms of spatial expansion: the user profile and the Newsfeed. The configuration of these two

spaces on Facebook results in a broadening of the space in which content may be displayed. Thus, the individual who authors a semi-private message in the context of an individual's Wall may find other users responding after seeing this message in various newsfeeds. While highly interrelated with social expansion, spatial expansion suggests that even as social network sites continue to provide novel spaces of interaction that remove geographical barriers, this very lack of barriers presents challenges for what norms of communication should apply given the various context in which content will be received.

6.3.3 SOCIAL EXPANSION

Social expansion refers to the dissemination of information across previously separate social groups unified by social network sites. This expansion is enabled by the large number of friends with whom users maintain connections and the limited ways provided by sites like Facebook to separate various facets of a user's life. Thus, this social expansion also serves as a functional collapse of distinctions between social groups and contexts. While social network sites might have originally been conceptualized as spaces allowing users with shared interests or activities to interact, the growing ubiquity of Facebook demonstrates an alternative design — one in which each user is the center of his or her own collaboratively articulated network of digital peers. Through this study of death, we see three notable effects resulting from this social expansion that are demonstrable of social expansion more broadly: the inclusion of casual social relationships, individuals from distinct contexts, and an expansion that now includes the deceased.

Given that social network site users are often friends with individuals with whom they may only have casual relationships, or with friends from the past, social expansion has resulted in ambiguous relationships with the deceased. Individuals, who may have otherwise been unaware of an individual's death without the aid of social network sites, must make decisions about how to participate (or not) within a broadly public setting. Ambiguous connections to former friends can demand uncomfortable consideration of the importance of the deceased in their life, and thus the appropriate way to respond.

Secondly, friends from multiple social contexts — work, home, past, and present — are collapsed together in the context of a social network site profile. I saw concerns about how to be respectful to those who are particularly grief-stricken. Although users may want to respect the wishes of parents and family post-mortem, it is not hard to imagine that some parents may be using a social network site for the first time and only as a result of the death of their child. In a related vein, some content left by parents clearly marked them as outsiders — guests, uncertain how to behave (see Chapter 4). This uncertainty directly contradicts many of the expectations interviewees had about the role of parents and family members as potential inheritors of a social network site account.

Finally, the social space of social network sites has expanded to include the deceased. At a basic level, both social network sites and their users make normative assumptions about the mortal status of friends. Unless explicitly memorialized, post-

mortem profiles are treated as belonging to the living. Perhaps even more telling, if memorialized, Facebook profiles—and the users they represent—are partially frozen, unable to be updated with personal information or the addition of friends. This model prioritizes the needs of a now-dead individual over the grieving community that remains. Like Facebook's take on "friendship," this approach represents a workable but over-simplified view of the issues surrounding death, including planning for and discovery of death, as well as managing the short and long-term ramifications of an individual's passing. Over time, if the designers of social network sites and other technological systems want to account for the shifts in social networks and interpersonal relationships over the long term, they must develop systems that understand and handle death in a more nuanced way. If they do not, however, my findings indicate that users will continue to engage system features creatively and establish ways in which to connect with or ignore the deceased online.

6.4 CONCLUSION

While in previous chapters I have discussed in what post-mortem profiles stand in, in this chapter we see that where digital identities stand in has greatly expanded. As social network sites play an increasingly important role in the social lives of their users, they are finding a growing place inside a broader ecology of practices surrounding death. social network sites provide a new space for the bereaved to engage post-mortem digital identities and expressions of grief that are socially situated in the daily lives of users. While post-mortem profiles and online grieving

might be beneficial for some, the unmarked way in which they are handled by the system presents challenges to others who are not also grieving or are grieving differently. Some find comfort, while others express distress at seeing what they consider private expressions of grief and may even question the authenticity of users' messages given the medium by which they are expressed. One contribution of this analysis lies in a deeper understanding of the use of social network sites in the production of public grief, including the ways in which people negotiate ownership, symbolic and otherwise, of online spaces.

Studying death through the lens of temporal, spatial, and social expansions enabled by social network sites allows us to see this medium's distinctiveness as both an ad hoc archive and asynchronous communication medium. These expansions demonstrate how the social network site platform enables new types of relationships with both people and content across time, geographical spaces, and social contexts. In doing so, they also highlight the social nature of death. Even as social network site profiles reflect the individualism of Walter's postmodern death (1994, 1996a), death and bereavement still remain a social experience negotiated by family, loved-ones, and now a large technologically maintained network of digital peers.

These expansions also speak to how we conceptualized the boundaries of digital identity and where digital identities stand in. Digital identities stand in within the contexts in which they circulate. As a result of social network sites, the social performances delegated to digital identities are present in socially, spatially, and

temporally expansive ways. Digital identities stand in far beyond simple one human-one computer interactions. They stand in in unexpected ways – for example, post-mortem – and in ways that extend far beyond what could have been anticipated, such as when they are repurposed by the latest algorithm. To the extent that digital identities are impacted or even reliant on the context in which they exist, the expansions outlined here greatly extend the potential contexts in which digital identities circulate.

As a result of these expansions, post-mortem profiles have emerged as new social spaces dedicated to an individual even after they have died. Through the temporal persistence that social network site profiles enjoy, they have become unanticipated memorial spaces that can serve as archives of the lives of the deceased and social space for the bereaved. The expansions may be contributing to a redefinition of memorials, or it may be the case that without these expansions, post-mortem profile may never have become the memorials they are today. As Grider (2007) wrote, the Internet may be radically redefining memorials towards "an ongoing process," one "that depends less on the implied eternity of a built physical environment than on the entirely different eternity of circulating information." As a result of social network sites, the expansions argued for here directly impact the circulation of this information allowing post-mortem profiles to stand in while bringing death into the everyday.

[7]
STEWARDING A DIGITAL IDENTITY

The continued presence of digital identities post-mortem prompts questions and concerns surrounding post-mortem account and data management. Article headlines such as "What happens to your digital assets when you die?" (Sweigman, 2013) and "How to Manage Your Digital Afterlife" (Arnold, 2013) frame these issues in individual terms, and stress the importance of including online accounts and data in one's living will and trust. In many cases, these conversations are timely and sensible. People already bequeath photo albums, why not digital photo albums?

Popular press, emerging tools and services, and recent research frequently use the term "digital legacy" when referring to online data and its importance. Caring for one's digital legacy amounts to including overlooked digital assets in a will or living trust so they can be passed on like other forms of property. The term legacy is

compelling – it speaks to the symbolic significance of these data in addition to their value. For example, two headings in a book entitled "Your Digital Afterlife," Carroll and Romano (2010) first argue, "Your content is a reflection of you" followed by "Your content is your legacy." In this swift move, one's data and one's social identity are collapsed into one.

Framing digital legacies in terms of inheritance privileges notions of ownership, however, digital legacies are more than just collections of digital assets. As has been noted elsewhere (Gulotta, Odom, Forlizzi, & Faste, 2013; Odom et al., 2010), the process of bequeathing objects can act as more than a reflection of relationships, it can be constitutive of them. Additionally, inheritance as a model often presumes a defined heir, which, as I will demonstrate, is not necessarily the case with online accounts and data.

In this chapter, I argue for "stewardship" as an alternative to inheritance when designing tools and policy for the management of post-mortem digital identities and our so-called "digital legacies." I start by providing a theoretical background for the concepts of legacy, stewardship, and inheritance. Next, I describe a set of emerging tools and services for post-mortem data management that demonstrate the range of approaches seen today. This is followed by interview data that highlights a paradox within post-mortem data management. Interview participants had varied but strong opinions about what should happen with the post-mortem profiles of their friends

and loved ones. However, when asked about their own accounts and data, they frequently deferred their preferences of surviving friends and family.

Based on this analysis, and the limited consideration that existing digital inheritance solutions had for the needs of recipients, I designed an exploratory study to consider recipients needs. Focusing on Facebook accounts and their data, I discuss the needs of recipients of these accounts as a way of highlighting issues surrounding the stewardship of social network site profiles. Grounded in the experiences of 20 interview participants, who reported at least one death of a friend with a Facebook profile within the last two years, I enumerate the various ways prospective stewards remain accountable to both the deceased and various survivors even in the face of limited knowledge about these people's interests and desires; the challenges that exist when trying to meet these obligations; and the role that future systems could play in the management of post-mortem data.

While social media accounts are frequently included in the list of data that comprises one's digital legacy (*e.g.*, Carroll & Romano, 2010), the personal data associated with these accounts do more than provide an archived memorial. Social media profiles are sites of social interactions that continue on after the account holder has died, most notably through the memorial practices of survivors (Getty et al., 2011; Graves, 2009; Marwick & Ellison, 2012; Mori et al., 2012). Thus, I considered the types of management that may accompany the ongoing use of these spaces.

Stewards act as mediators for the wishes of the deceased and their data, as well as moderators of the actions, needs, and requests of other survivors. As such, stewards are accountable to multiple parties—the deceased, surviving online friends, and friends and family who are not connected to the online social network—who all have varying claims to management of and interaction with the deceased's data and profile post-mortem. Based on their particular needs, I emphasize the importance of designing end-of-life planning tools in ways that incorporate stewards in the planning process, attend to their needs after the account owner's death, and support account owners to understand both the technological and social considerations relevant to digital data that may not be as familiar as traditional assets for inheritance.

7.1 BACKGROUND & CONTEXT

In this section, I present background information on approaches to post-mortem data management that provide a broader context for this study and situating it within existing tools and practices. I start by theoretically engaging with the concepts of legacy and stewardship, defining each, and contrasting stewardship with inheritance. Next, I survey the existing work in human-computer interaction on inheritance and bequeathal. I demonstrate ways that inheritance has framed existing work, and how the presumed relationships between the deceased and the inheritor may be limited in the context of social network sites. Finally, I describe a range of emerging tools focused on allowing users to plan for their own post-mortem data management,

followed by interview data that suggests a paradox in the responsibilities around post-mortem data management that existing tools fail to address.

7.1.1 LEGACY AND STEWARDSHIP

Engaging the connotations of "digital legacy" requires that we consider the use of the term "legacy" more broadly. There are two common understandings of the term: that which is bequeathed to another, and an enduring representation of an individual after their death. Hunter and Rowles (2005) provide a broader typology, noting that one's legacy is composed of a biological legacy, material legacy, and a legacy of values. Pertinent here are material legacies that can include heirlooms, possessions, and symbols.

Much of related human-computer interaction research has focused on material legacies, particularly the bequeathal of heirlooms and possessions (*e.g.*, Graves, 2009; Massimi & Baecker, 2011; Odom et al., 2012, 2010). However, the third category, symbols, has been understudied in HCI to date. Symbolic legacies include "leaving social markers," such as a named building or endowing an academic chair that serve as "public legacies that might result in a form of symbolic immortality" (Hunter & Rowles, 2005). In contrast to heirlooms and possessions that are amenable to ownership, symbolic legacies more commonly necessitate stewardship – someone to manage and maintain the marker on behalf of the deceased. The public nature of social media data and the broad set of stakeholders impacted by these data make analysis of them in symbolic terms appropriate.

Independent of the content of one's legacy, legacy crafting can be seen as a practice in which one engages, typically near the end of life, as in the Stage Theory Model of Adult Cognitive Development (Schaie & Willis, 2000). This understanding of legacy is as a curated self-presentation intended to endure after one's death. Legacy crafting, in effect, is a practice of intentional delegation into symbols that will stand in on behalf of the individual. Whether creating an endowment, foundation, or fostering a final auto-biography, each stands in as a representation of the individual. However, of course, people do not all die in old age or explicitly craft their legacies.

Stewardship involves taking on this responsibility of caring for and crafting a legacy on behalf of another. The etymology of the word steward can be traced back to "guardian," and starting in the late 14th century England and Scotland, was used as a title to refer to "one who manages affairs of an estate" ("Steward," n.d.). Consistent with this definition, stewards do not necessarily own the things for which they are responsible. Instead, stewardship focuses upon carrying out responsibilities entrusted to the steward.

Stewardship has received the most significant treatment in the social sciences, particularly management and organizational science (Menyah, 2013). In particular, Stewardship Theory describes leaders who act in service of a collective, as opposed to in their own best interests (Davis, Schoorman, & Donaldson, 1997). Stewardship as a concept within technology, meanwhile, while not particularly new, is under-theorized. It is seen predominantly in security, data governance, and business

information systems (*e.g.*, English, 1999) when describing a person who takes responsibility for existing data, or possible future data. For example, in large classification systems, it is a suggested practice to have a steward for each data node – someone who can speak on behalf of the data that exist or might exist in this node.

As the size and complexity of our personal data grow, it is not surprising to see similar needs emerge outside the traditional sphere of corporate and academic datasets. However, stewardship of social network site accounts can be distinguished from other types of stewardship given the content stewarded amounts to more than a collection of assets. These data are digital identities, crafted self-presentations made by the deceased, an issue I explicitly address here.

7.1.2 INHERITANCE AND BEREAVEMENT

Among the various strategies people may prefer for the management of their online data post-mortem, Zhang *et al.* found strategies that enable inheritance – passing data on to a designated recipient – were most common (Zhang, Jennett, Malheiros, & Sasse, 2012). However, existing literature has documented substantial design challenges around inheritability, such as adequate planning for digital assets post-mortem or "the will-drafting problem" (Massimi & Baecker, 2010). Meanwhile, Odom *et al.* (2012) note potential tensions with the presence of uncurated social media data in family archives. One potential solution to these challenges could include "deep storage" and decay of digital artifacts (Odom *et al.*, 2010). However, decay is sometimes seen as antithetical to the nature of digital objects, which can always remain in their authentic condition (Gulotta *et al.*, 2013). A desire for data to

remain intact and in its original form may present some challenges when the data involved is part of an evolving representation of the deceased, as is the case with a Facebook profile.

Concerns around inheritance necessarily extend to the needs of the bereaved. In particular, inheriting a physical object can be riddled with ambiguities when the recipient is uncertain of its meaning, importance, or why the recipient was selected to inherit the item (Odom *et al.*, 2010). These ambiguities might be amplified in the case of social network site profiles where some individuals feel that profile ownership is retained by the deceased (see Chapter 5).

In an online support context, meanwhile, Massimi highlights an important distinction between loss and grief when designing technologies to support the bereaved and cautions against approaches that may intermingle the two (Massimi, 2013). Loss includes the shock related to the initial loss, but the experience of grief is often ongoing. This distinction is pertinent when considering the specific practices in which a steward might engage, and their timing. Ideal solutions, however, remain unclear, and existing solutions take myriad approaches to meeting these needs.

7.1.3 EMERGING TOOLS FOR POST-MORTEM DATA MANAGEMENT

A number of third-party tools also exist, most of which focus on sending messages post-mortem to loved ones. IfIDie[14], the most established service on Facebook,

[14] http://ifidie.net

allows an account owner to create a message that will be posted to their profile after they die. Promotional materials suggest this message could include a piece of advice, a deep secret, or a set of final requests. Meanwhile, a newer service named Perpetu[15] allows individuals to automate a set of "final wishes" across a growing number of services. One might add a final post to one's Facebook Wall have photos emailed to a friend, delete Twitter posts, or set one's GitHub repositories to open-source. While these "wishes" are limited by the functionality of each service's API (*e.g.*, deleting Facebook statuses on Facebook is not an option), Perpetu will programmatically perform these wishes when a designated individual informs Perpetu of the user's death.

One major player, Google, has attempted to address issues related to post-mortem data access with their "Inactive Account Manager" (Google, n.d.; Micklitz, Ortlieb, & Staddon, 2013). Instead of sharing data with "trusted contacts" when notified of a user's death, Google will automatically provide access to the data when the account is deemed inactive for longer than the length chosen by the account owner.

The growing set of services allow account owners to prepare for their deaths, however, few of them are designed to facilitate the transfer of total ownership or control to another individual. This omission is undoubtedly impacted by the terms of use for each of these services; however, the importance of managing the deceased's

[15] https://perpetu.co

account – in addition to accessing data – is important enough that legal efforts are underway throughout the United States to grant this right to next of kin (PBS Newshour, 2013). While legal and policy issues around post-mortem data are evolving, the research I present in this chapter reflects the perspective of would-be-inheritors and demonstrates that inheritance may not be the most appropriate model when designing future services or solutions.

7.1.4 A MANAGEMENT PARADOX

While the tools available motivated the central study on which I report in this chapter, I was also motivated by the interview data I collected about post-mortem data management throughout this project that seemed to highlight the limitations of tools that primarily focus on the needs of the to-be-deceased. When speaking with participants about their experiences of death on social network sites, I frequently ended my interviews by asking participants what they wanted to have happen to their friend or loved one's profile moving forward, who they thought owned the profile, and how they would feel if it was deleted. Following their responses, I then asked them these questions again, but this time focusing on their own future death and preferences for their profile.

Interview responses to who owns the account post-mortem varied from *"family members"* (Katrina) to *"a deceased woman"* (Debbie). Catherine spoke about her desire to control the content on her husband's profile:

> *If Kevin was to die, like I said, I would probably go down after a while and shut down his profile… but I wouldn't like change his interests that they all said things like "only my wife because she's the greatest person ever and I love her"… But I think that after I let time go by, I would shut down the Wall, even if people were irritated by it… it's just like after a certain point like death isn't public property anymore. You have to let it just [be] with the family.*

Echoing Catherine's concerns, Sean claimed that *"no one should own the account anymore"*:

> *It should just go into limbo and exist on its own... I sort of feel like they had it the way they wanted to, and for someone else to go on there and manage it or doing some other things would sort of violate how they wanted to keep their identity.*

Although participants stressed the importance of respecting the deceased's wishes, when I asked what they would like to happen with their own accounts post-mortem, they often deferred to the wishes of survivors:

> *I guess my husband or my sister [would take over my account], someone from my family. (Katrina)*

> *I'm sort of indifferent. I guess that would be fine [to keep the account active], I mean, sort of like whatever would be best for my family because, you know, I'm not going to be around. (Cassie)*

Most participants identified family members who they expected would inherit their Facebook accounts, while others, like Molly, seemed unconcerned: "Whoever wants it, I guess."

There are no clear and easy solutions for the management of post-mortem identities. For their part, when Facebook memorializes a profile (see Chapter 4), it effectively achieves what Sean describes above. Memorializing a profile disables the ability to log in to the account, but preserves most features, including the Wall, allowing current friends to share memories but preventing new friends from being added to the deceased's account. Despite the availability of this option, none of my participants reported using a memorialized profile, and indeed, many of them were unaware of Facebook's policies regarding the deceased.

However, what was most striking to me in these data was a management paradox. Participants stressed the importance of caring for their friends and loved ones' post-mortem profiles (although their opinions and strategies varied widely), often declaring the importance of honoring the deceased's wishes. However, when asked about their preferences for their own profiles, their resolve faltered and they typically abdicated decisions to a presumed (although not always specified) heir. The person whose opinion matters most (the account holder), is unable to act after they have

died. And even if they do act while alive, they are unable to anticipate the needs of their loved ones under circumstances they cannot truly anticipate. Likewise, while a survivor may decide to make changes to the profile or manage the space in some way, they are unable to confer with the deceased. It was with this paradox in mind that I designed a study to investigate the potential practices and attitudes of a would-be-inheritor of a post-mortem profile.

7.2 STUDY DESIGN & ANALYSIS

My investigation into post-mortem data management was conducted during the summer of 2013 in collaboration with Gillian Hayes, my advisor, Lynn Dombrowski, a fellow doctoral student, and Marie Gilbert and Nafiri Kusumakaulika, two undergraduate research assistants. In this qualitative study, we examined post-mortem data management on Facebook through both traditional interview questions and the use of design sketches and screenshots for a potential application that could support the transfer of login credentials for a deceased Facebook user's account. We interviewed 20 participants (10 men, 10 women), age 20-50 (M=30.9; SD=10), from across the United States who reported having experienced the death of a Facebook friend within the previous two years. Interviews were conducted by three of the authors and ranged in length from 1-3 hours. Interviews were conducted primarily over video communication (*i.e.*, Skype or Google Hangouts), with the remainder conducted in-person (5) or over the phone (5). The majority of participants in our study described their relationship with the

deceased as "close" or formerly close (as in the case of schoolmates who had grown apart), and while many participants reported experiencing multiple deaths of Facebook friends, the interview focused on the most recent.

The interview included two sections. During the beginning of the interview, we asked participants about their experiences with death and social media broadly, their relationship with the deceased, and about the specifics of their loss. During the second section, we provided participants with a set of sketches related to a fictional social network site application designed to transition data management permissions from the deceased's Facebook account to the participant. A variety of sketches depicting a message or notification to this effect were used to solicit perspectives on how such an exchange could or should be conducted. The interviewing researcher solicited feedback from the participant, sketch by sketch. In the case of remote participants, the sketches were shared via screen sharing or a digital packet sent in advance with instructions to not review the sketches but have them available during the interview. These sketches encouraged participants to "project" themselves into a realistic situation (Webb, 1992), an approach commonly used to discover a participant's perception of the world and how they behave in it (Sampson, 1986). This method proved particularly useful for discussing the sensitive topic of a recent death in a grounded way.

Participants were then provided with depictions of various current Facebook features and functionality (*e.g.,* edit photos) to prompt conversations around perceived norms

of use under these circumstances. Specifics about possible practices and temporality were intentionally ambiguous, resulting in varied contextual narratives from participants. Our approach encouraged participants to think deeply about the use of familiar features under these conditions that they might otherwise consider inconsequential.

We performed an inductive analysis of the interviews. All interviews were transcribed, names were anonymized, and participants were assigned the participant numbers used in this chapter. I engaged in open-coding of the transcripts (Corbin & Strauss, 1985) with two research assistants, focusing on participant practices and their decision making strategies. Individual practices were organized into preliminary categories, such as "preserving data", and contrasting data were noted as a way of identifying tensions across participants. All authors collaboratively refined these categories using the constant comparison method that "combines inductive category coding with a simultaneous comparison of all social incidents observed" (Goetz & LeCompte, 1981). Our final categories are presented as stewardship duties in the findings. Axial coding was then performed to determine how duties were prioritized, and under what circumstances. This analysis highlighted the primacy of interpersonal responsibilities in stewardship duties, and is presented in the second half of the findings in this chapter.

7.3 THE ROLE & RESPONSIBILITIES OF STEWARDSHIP

The role of a steward as seen in our data includes responsibility for both the deceased's account and the needs and interests of those connected to it. An understanding of the stewardship duties participants described emerged from our analysis, and I refer to participants as stewards throughout the findings for the sake of clarity.

Stewardship as defined here may align with concepts of ownership but is a distinctly different model than inheritance in its focus on the authorization to perform management of data, alongside responsibility to the people connected to these data. Authorization refers to a steward's ability to access account functionality and perform particular actions. Management, made possible by the authorization a steward has been granted, involves the ability to make decisions about the account (*e.g.*, the addition or removal of data, friend requests, etc.) regardless of whether these activities are ever performed. Finally, responsibility refers to the obligations a steward has to other people connected to the deceased (online and off). In our study, participants described their sense of responsibility to multiple parties when controlling who has access to the deceased's profile, under what circumstances, as well as managing the influx of new data.

Personhood and interpersonal relationships are key to informing stewardship practices and defining the role of the steward. If management is understood as the practices of stewardship, and authorization as the technical capacity to perform them,

then responsibility speaks to the interpersonal and symbolic relationships the steward has and maintains that motivate and inform his or her practices.

Across the findings, I demonstrate the impact of these three attributes across the four duties. I then describe ways in which conflicting needs might emerge when fulfilling these duties and challenges stewards may experience as they weigh their various responsibilities. I present a hierarchy of responsibilities to describe how stewards prioritize competing needs, and conclude the findings by demonstrating this hierarchy in relationship to an extreme act of stewardship: account deletion.

7.3.1 ASSUMED DUTIES OF A STEWARD

Stewardship of post-mortem accounts involves four primary duties: honoring the last requests of the deceased, providing information surrounding the death, preserving the memory of the deceased, and facilitating memorial practices of survivors. These duties, coupled with strategies for balancing competing social responsibilities, influence how people talked about the decisions they would make regarding the accounts of the deceased.

7.3.1.1 Honoring the Last Requests of the Deceased

When presented with design sketches of a notification indicating that they had been selected to take over a friend's account, participants universally reported an expectation that a set of instructions or last requests would be provided. Anxiety about acting on behalf of someone who has died can lead to a desire that "last wishes" (P05) accompany any notification of stewardship.

I'm hoping it [the notification] is going to be followed by more details. "Please do not accept any more friend requests," "Please do not post as me," "Here's what I am comfortable with being there," "Take care of this," "Delete this"... I don't know. Some sort of instructions... (P04)

Assumptions about when they would receive such a request were split between participants: half suggesting in advance of the owner's death and half at the time of death. However, there was a strong preference for pre-mortem notifications given

	deceased	survivors
needs	honoring last requests	providing information surrounding the death
data	preserving the memory of the deceased	facilitating memorial practices

Table 7-1. Four duties described by stewards. The duties reflect tensions between the needs of the deceased and the needs of survivors, as well as existing data authored by the deceased and the new moderated data contributed by survivors.

that they would provide at least the option to speak to the owner and clarify any instructions:

> *If I did receive this [notification pre-mortem] without a conversation, I would make calls [to the account owner] asking, you know, "hey what's going on?" Kind of get a little bit more detail… (P01)*

Giving a steward the opportunity to confirm the owner's wishes could also provide the opportunity to confirm the owner's choice of them as steward and clarify their rationale. Although participants all claimed they would accept the role of steward if no one else could, participants often questioned whether they would be the right person to steward the account regardless of the closeness of their relationship.

> *If for some reason I was the only person that Mara or Jean-Claude could find to take over their Facebook account and that was their wishes, then I would say yes and I would do what they asked. (P16)*

> *I mean, you are not going to decline… (P10)*

Given complex social situations, last requests often need clarification. The importance of discussing last requests pre-mortem is significant given that existing tools and services typically send messages, notifications, and provide access to data to the bereaved after the owner's death. Actions taken post-mortem foreclose the opportunity to clarify expectations, which, as others have noted, presents a challenge for the bereaved (Massimi & Baecker, 2010). Indeed, most services activate some

time after the owner's death (typically 1-3 months post-mortem), a design feature that presents challenges to the stewardship duty we discuss next.

7.3.1.2 Providing Information Surrounding the Death

Likely duties of the steward include posting informational and logistic details on the deceased's Wall, such as an obituary or funeral announcement. For example, P03 told us about the benefits of a family member who acted as a source of information on Facebook following the death of a high-school friend:

> *His timeline was filling… with lots of questions and people expressing grief and it was definitely in need for someone to come in and sort of manage the situation. It was almost like if everyone showed up at the church for a funeral and nothing was happening… I think it was very important for someone to come in and go "Thank you all for your kind messages. The family really appreciates it, I want to give you an update on what's happening..." And it really was purely informational… (P03)*

In the absence of an individual to act as a central informational resource, information tends to emerge haphazardly on the deceased's profile or through other sources. Participants described distress at the absence of a clear indicator that the owner had indeed died. Through the interviews I've conducted, I've heard stories in which the profile was flooded with posts expressing shock and sorrow, but without anyone clearly sharing the news of the death. Typical of social network site communication, and as discussed in Chapter 5, friends post Wall content to communicate directly

(though publicly) with the account owner, but rarely with others in the owner's social network. Our interviews in this study suggest that the designation of a steward may be one way to overcome this social network site norm and provide an "official" source of information needed by the surviving community.

As stewards perform these informational tasks, identifying them and their role may be important. Concerns over the legitimacy of their actions and how their actions impacted others were common throughout interviews. Participants provided a number of possibilities, such as an indicator next to any content they posted on the deceased's Wall, the ability to post content on behalf of the deceased, or as P16 explained, directly in their profile information:

> *I feel like its important… for the people to know that there was somebody who was [an] acting trustee… A message would come up "This account has now been given to the care of Sahar" or maybe I could write a message … (P16)*

Participants' desires were partially motivated by a wish to make others aware of them as a resource. However, such an indication would also serve to legitimatize their actions, particularly when their behavior differs from other survivors. Acts of communication, for example, would often involve speaking to the deceased's network of friends, violating the norm of speaking to the deceased directly. In this case, making their role as steward visible would also help mitigate any misgivings others might have about departing from the stylistic norm.

givgnktukdkdvevdgccchtdfidvnguurLegitimacy was also deemed important when making changes to past data or changing settings on the account, discussed in the next section.

7.3.1.3 Preserving the Memory of the Deceased

In absence of any clear directives, maintaining the status quo at the time of death was a common strategy described by participants to avoid disrespecting the wishes of the deceased. Participants often stated they would not alter account settings or existing content unless explicitly directed to do so in the owner's last requests. For most, the presence of profile content at the time of death represented at least an implicit acceptance by the deceased, and therefore should not be altered.

> *It's just sort of… weird. It would be like going into somebody's office and rearranging their stuff… like [how] you thought it should be [arranged], instead of how they had it already. (P13)*

Participants commonly used place-based metaphors, such as the office above, to describe their inaction, overlooking, of course, that in the physical world inaction is almost never the answer. For example, after the mourning period, an office would be packed and made ready for a new inhabitant, a child's bedroom might eventually be turned into a home office, and so on. Stewards experience a tension between a desire to maintain the owner's content and the needs of new inhabitants of the owner's profile, raising questions about the length of time for which inaction is a viable strategy.

In some cases, stewards may believe that preserving an appropriate memory of a loved one mandates some content curation. Participants rationalized these changes in the name of creating a more accurate or appropriate representation of the deceased and an ideal memorial space for the bereaved. While in the minority, P14 explained that he would delete "the trivial stuff" to make the "page seem more humanized, more personal." In contrast, the majority of participants viewed any content removal as inauthentic representations of the person "*even if… their entire Timeline was FarmVille notifications*" (P13).

When stewards do make changes, the presumed intent of the deceased, as well as the expressiveness attributed to the data, help inform the steward's choices. In these cases, a helpful distinction can be made between factual and expressive data. Seven participants suggested they might change data they considered factual, such as removing a mailing address or adding a high school they imagined the deceased had "forgotten" to include on their profile. Expressive data, particularly status updates and photos, were approached much more cautiously. The lines between these types of data, however, can certainly blur:

> *Languages… maybe they fibbed a bit. I wouldn't go "They were wrong, they didn't know Arabic." If they thought they knew Arabic, they thought they knew Arabic. I wouldn't change that. (P14)*

We see here a subtle distinction between information about the deceased and actions taken by the deceased. Preserving the memory of the deceased on social network sites

is complicated, given that pre-mortem data about the deceased is typically available as a product of actions taken by the deceased.

Determining whether profile content was the result of the deceased's intentional actions was pertinent when considering changes to the data. To probe this issue, the screenshot of the Facebook Timeline in our sketch packet included a sensitive item: an indication that the owner had "Liked" a Facebook page titled "Having a fun day killing hookers and stealing cars, now time to play GTA [Grand Theft Auto]." When participants discussed this entry, they actively considered how best to manage it relative to a personal rubric in which they imagined both the circumstances under which this page was "Liked" (An accident? An avid gamer?), and how the deceased would have wanted them to respond.

> *He's a jokester… and all of his friends could know that its a joke because he's a joker and you don't want to take that away so that people in a time of sorrow can have a little laugh… "He's dead but he still made me laugh." (P10)*

In this case, P10's explanation reframes content that might offend some survivors into an item that might bring fellow survivors some relief from their grief.

Stewards imagined fielding a plethora of different types of requests from friends, family, and other survivors. Participants almost always discussed requests in terms of conflicts – either between requests or with the status quo of the profile. While most participants talked about the potential difficulty of having to negotiate between

conflicting requests, for P03, the ambiguities resulted in him erring on the side of inaction:

> *If I'm erasing all these pieces of Daniel that were real… just because they didn't fit into my way of viewing Daniel… I'm erasing pieces of him that are never coming back and what everybody is going to see is… my interpretation of Daniel. (P03)*

Thus, even as stewards can play important roles in preserving the use of data, their actions can be a threat to the data as well. Even when well intended, changes to profile content about the deceased oblige us to ask: Whose version of the deceased?

In the absence of a steward, contrasting perspectives may result in the types of conflicts between survivors (see Chapter 5; *c.f.*, A. Marwick & Ellison, 2012). A steward – able to functionally act as the deceased, while not actually the deceased – can moderate some of these issues, but must negotiate and reconcile their own understandings of the deceased with those of others. If stewards do act beyond the requests provided by the deceased, they must attempt to do so by balancing what they perceive as the deceased's intentions with the interests of those who are grieving – including themselves.

While the deceased's Facebook profile is filled with previous actions, the memory the steward seeks to preserve is one held by survivors. This requires stewards to strike a balance between retaining the record of past actions of the deceased and actively managing the current needs of survivors. If stewards start making changes, they may

be left having to account for the reasoning behind them. Even curation by the best-intended steward is selective and always represents some kind of loss. Others have already argued for the importance of technology to support "multiple representations in an archive" (Odom et al., 2012), but while the steward is technically empowered to make these representations, they may not know how to do this or for whom.

7.3.1.4 Facilitating Memorial Practices of Survivors

In addition to preserving a memory of the deceased, stewardship involves facilitating the practices of survivors as they mourn and memorialize the deceased. Participants provided diverse strategies for meeting survivors' needs, including non-action, changing privacy settings, encouraging the posting of memories and photos, and regular posting of memorial content. Participants consistently described a desire to facilitate memorializing practices, often drawing on experiences in their own lives:

> *Posting messages [on the deceased's Wall] seems to make some people feel better… I would want that to be available... (P16)*

Participants focused on two types of content in particular: memories posted by other survivors to the deceased's Wall and photos of the deceased:

> *The things that I see on their walls are the absolute best... the little random memories. This is something that I started doing… inspired by these people [other survivors]… Just because my memories of somebody can be a lot different… and I like to see people share their memories of something that I may have forgotten. (P01)*

The role of photography in how we represent and remember the dead (Batchen, 2006) certainly extends to social media. The value participants placed on photos reflects their importance and confirms what others have documented (Getty et al., 2011; Maciel & Pereira, 2012):

> *I would want pictures... and nice memories… A space for their memories to be curated and maybe put some into an album of "Favorite moments" -- a place for other people to go to look at the good things… [they] did in their life. Kind of like a big scrapbook... for other people who also are fond of this person and remember the good stuff. (P16)*

Stewards might also include the commemoration of important days and events from the deceased's life. This result complements findings from Chapter 5 that indicate an uptick in activity related to such events on deceased profiles.

> *Just as a social thing I would probably try to commemorate anniversaries, death,… the birthday. "Let's think about so-and-so on his birthday. Does anybody have a good story?" So try to make it like the community hang out… (P02)*

Beyond common memorial events, some participants suggested that they might continue temporally-based social media practices in which the deceased engaged while alive. P13, for example, imagined she might continue to post "Throwback Thursdays":

> *It might be kind of cool… "Today, August 8th, back in '09 Mason was at the gym…" Because you can go back and see those posts, so it might be something to bring back… to share that again. This is what Mason liked to do...(P13)*

In addition to fostering interaction, stewardship appears to involve meeting the unknown, but anticipated, needs of survivors. Issues around managing a safe space for grieving survivors frequently involved who was allowed to participate in the online memorial space. Most (but not all) participants described being ill-equipped to make decisions about new friend requests made to the deceased's account post-mortem and were skeptical of the motivations behind them. Otherwise, stewards leaned toward an inclusive approach provided individuals behaved in what participants felt was an appropriate manner:

> *Yeah, because it should function as kind of a safe space, like a memorial - - like going to somebody's grave, but on Facebook. If somebody is going to like deface it with graffiti then that's an issue, but if they're going to leave little flowers and notes and stuff, whatever. (P13)*

As with the management of data posted by the deceased, data posted by survivors also creates some tensions. There is a tension between new data contributed by survivors and existing data – between preserving the deceased's profile and providing a space for memorialization – as well as between the potentially conflicting needs of

survivors. However, a steward can speak to and negotiate with survivors, where no such option exists with the deceased.

Managing a defaced profile or a potential conflict between survivors on the Wall was often discussed as a hypothetical scenario. However, for a few, the importance of actively moderating the account was more prescient. One participant spoke to us about an auto-accident in high school, in which most in the car died as a result of an intoxicated driver. He shared the very real possibility of upsetting content:

> *Especially for Mason, if people started putting slander – "Oh, you were driving drunk and you were the reason my sister died"... I would block those people. I want it to be a peaceful account. He passed away. Let's keep it clean. His family is already hurting. They don't need to see those kinds of things... I'm not afraid to block people. (P14)*

In these cases, to maintain a safe space for the bereaved (Marwick & Ellison, 2012), participants explained that they would prioritize the needs of those they perceive to be most close to the deceased. However, the priority given to various relationships deserves additional study.

7.3.2 WEIGHING SOCIAL RESPONSIBILITIES

Approaching stewardship as a set of social responsibilities, there are questions around balancing the care of the deceased, survivors, and the data associated with the account. Participants described preserving the deceased's memory, often by maintaining as much of the deceased's profile data as possible and by executing any

last requests. Acting as an information source and facilitating memorial practices, meanwhile, were important services a steward could provide to other survivors.

The duties outlined require that stewards balance two tensions: the needs of the deceased verses survivors and preservation of existing data verses facilitation of memorializing practices that result in new data. Often these tensions are aligned – for example, preservation of existing data frequently meets the needs of survivors. However, when these tensions are in conflict, stewards must prioritize needs. An analysis of how participants prioritized needs resulted in our development of a hierarchy of responsibility that describes how participants evaluated requests. In this section we start by describing the hierarchy and then we demonstrate how the hierarchy informed the ways participants approached the extreme scenario of deleting the deceased's account.

7.3.2.1 Hierarchy of Responsibility

When stewards are unable to resolve conflicting needs through alternative solutions, decisions may be informed by the identity of the requestor and their rationale for the request. Across our interviews a clear prioritization of needs was evident:

1. *Explicit requests from the deceased* serve as specific requests made in advance of death in anticipation of no longer being able to make requests.
2. *Needs of survivors* can be accommodated, provided they do not conflict with the wishes of the deceased or impact other survivors.

3. *Perceived wishes of the deceased* impact decisions that are made on behalf of the deceased, but for which there are no explicit instructions.

The priority the deceased holds in this hierarchy presents a problem given that they are not present to make their wishes known. Last requests are one way to make wishes explicit, but in the absence of tools designed to declare and share these requests for online accounts, explicit requests from the deceased rarely exist. Even when the deceased provided last requests, the requests imagined by interviewees lacked sufficient information or context to enable stewards to always understand the spirit or motivation behind them. Explicit instructions cannot cover all scenarios – many of which the deceased will have never experienced or anticipated. This results in stewards having to consider the perceived wishes of the deceased, wishes that cannot be verified.

Although perceived wishes are given least priority, they represent a means through which explicit requests of the deceased can be interpreted in ways that justify meeting the needs of survivors. For example, one can imagine a scenario in which the deceased's request to maintain the profile so that people have a place to convene is interpreted to also mean proactively supporting the bereaved. Conversely, perceived wishes of the deceased could be overruled by explicit requests of the deceased in unforeseen circumstances.

Throughout the hierarchy, but particularly when weighing needs of survivors, scope and severity of impact play a prominent role when considering content changes. For

example, restricting an offensive commenter's access to the profile Wall may negatively impact one individual, while ensuring a "safe space" for everyone else. In contrast, a scenario in which a close family member requests the profile be deleted, despite the benefits it provides others, was deeply troubling for participants. Isolating content through separate spaces, such as a public memorial page and a private profile, can reduce conflicts between multiple requests. Likewise, reversible strategies, such as changing privacy settings instead of deleting content, preserves the ability to undo stewardship decisions at a later point.

7.3.2.2 Deleting an Account

To demonstrate use of the hierarchy and how survivors invoked the wishes of the deceased, we examine stewardship in relationship to one particular Facebook feature: account deletion. As an extreme act of stewardship, the prospect of deleting the deceased's account resulted in concerns that cut across the duties we have described. Participants' responses highlighted tensions between the privileging the profile as a site owned by the deceased and its new role as a memorial, and subsequently, tensions between the needs of the deceased and survivors.

Explicit requests from the deceased served as the most core obligation of stewardship. While participants typically had a strong preference for preserving content, the steward's role in executing last requests obligated most participants to delete the account if explicitly requested:

> *I think if Daniel had said… "I want you to maintain this account for a set amount of years" and if he had left instructions to delete the account after a certain amount of time, I would absolutely honor his wishes… It would be very difficult… [but] I would have to do that. (P03)*

Likewise, if the owner had requested the account be kept active, participants indicated they would attempt to maintain the profile, even if others objected. Imagining a scenario in which the deceased's parents asked that their son's profile be deleted, P08 explained that he "would be clear with his parents that this was his last wish. And it would be this way in spite of their discomfort." However, requests from immediate family were particularly challenging given the potential depth of their grief. Continuing on, P08 explained:

> *For me the more difficult question is the opposite… if they [the parents] begged me to not delete it and he wanted it gone... I could see that their feeling on it might be something akin to me killing him all over again… killing off any remnant of their memory of him. (P08)*

The responsibility a steward has to those grieving was a concern of participants, particularly for scenarios in which the steward cannot meet their needs. P08's comment speaks to the importance of developing additional tools (or making existing tools more readily apparent) that can provide stewards with alternative strategies for meeting divergent needs – in this case, perhaps an offline archive for the deceased's parents.

In very palpable ways, stewards bear responsibilities to those impacted by fulfilling requests of the deceased or other survivors. As such, deleting the profile becomes more fraught when it is an active site of memorialization for a grieving community. When we asked participants how the level of activity on the profile might impact their decisions, two common strategies were shared: alternative solutions that might decouple conflicting needs and explaining their actions (and the deceased's wishes) in a way that attempts to enroll others into the hierarchy. Both of these strategies were evident when P09 talked about how she might handle a request from the deceased to delete the account:

> *I mean I would delete the account. But maybe a different page can be made…? Yeah, I would send out some kind of message that just let people know that she requested it… that she told me that she wanted it to be deleted. (P09)*

The challenge is that with the deceased unable to reiterate, clarify, or contextualize the meaning or importance of their request, survivors (including a steward) are left to interpret them on behalf of the deceased. The weighing of options, then, also becomes a process through which a steward must weigh the relative legitimacy of various interpretations of the deceased's intent. In more ambiguous scenarios, participants adopted the perspective of the deceased as a way of arriving at a rationale:

> *My goal would be to try to maintain the page at all cost, unless… I could not see hurting see my friend's mother. Because I would… go back and go "okay what would Daniel do? If something was hurting his mom would Daniel go 'look this is bigger than the both of us, you're just going to have to get over it'?" He would not do that... he probably would shut down the page. (P03)*

In the most complex of scenarios, the steward is left weighing not only the explicit last requests of the deceased against the needs of survivors, but also the deceased's intent as projected by both the steward and the other survivors. This can be emotionally burdensome and may lead to questions about the legitimacy of their role as a steward.

7.4 CONCLUSION

Prevailing approaches to digital legacies adopt a model of inheritance for post-mortem data management. However, framing digital legacies in terms of inheritance reduces them to a collection of digital assets whose ownership can be transferred. In this study, we found that prospective inheritors of Facebook accounts did not talk in terms of inheritance or ownership, but instead as an undocumented role that we termed "stewardship." Notably, we argue that stewards are concerned with the relationships represented in and surrounding post-mortem data, rather than data alone. Subsequently, design efforts focused on the inheritance of data alone may be inadequate for the needs of stewards.

When using inheritance as a model, two positions are privileged: the deceased and the inheritor, the latter of which can be any survivor. Stewardship provides a model that allows us to account for alternatives to ownership and a new role that includes a small but important set of users. Stewardship allows us to consider needs particular to those who act as mediators of the deceased's data and moderators of the needs of various survivors. In the case of social network sites, the rich social interactions and public nature of profiles may ultimately limit the utility of inheritance. Stewardship, meanwhile, acknowledges profiles as active communal spaces with shifting needs by attending to the management of the profile space and multiple parties.

I have outlined duties and challenges that can accompany the stewardship of a deceased friend's Facebook account. Our analyses indicate that Facebook stewardship involves four types of duties that leave stewards weighing the needs of the deceased and various survivors. Enumerating specific design recommendations is beyond the scope of this initial study and requires future study. However, future research on the needs of stewards requires acknowledging the potential of stewardship in the design of systems that seek to attend to post-mortem issues.

The challenges associated with stewardship that I have presented here demonstrate the importance of acknowledging stewardship in the design of systems that seek to support post-mortem data management as well as the need for tools to support stewardship duties. Most pertinent on Facebook is providing structure and support for the difficult and potentially emotionally taxing demands that a steward might

face. In moments of conflict, stewards are placed in positions to have their judgment of and their relationship with the deceased challenged. This raises questions about the steward's own experience of mourning, and their ability to develop and maintain a "continuing bond" (Klass *et al.*, 1996; Klass, 2006) with the deceased. When using stewardship as an approach, issues such as these are brought to the fore in ways unseen when designing for inheritance alone.

While accessing the deceased's account with their username and password technically allows them to perform the tasks participants enumerated, it amounts to a work-around. Individuals are making use of the system because they do not otherwise have the ability to achieve their objectives. However, their practices are unanticipated and not legible to the system. While the needs of a steward would clearly vary across platforms, throughout this dissertation I demonstrated the complexity of what this might involve.

On social network sites, the design of stewardship should involve more than just managing and maintaining the profile. It should include caring for the communal space on the profile, the community of friends who mourn and remain connected to the deceased, and the deceased continued presence on a shifting technical platform overtime. In other words, stewardship should attend to what the post-mortem digital identity stands in as, the network of collaborators that continue to construct the digital identity, and various contexts of which the delegated digital identity is a part.

Selecting a steward can be viewed as a form of delegation in its own right, although in this case, between social actors.

[8]
CONCLUSION

Digital identities, as socio-technical constructions, are delegations that stand in on our behalf. By examining death in the context of social network sites, I have highlighted the ways in which digital identities, as result of the transfer of activity from social to technical actors, stand in within the context of social relationships and computational ecosystems. In each of the preceding chapters, I highlighted ways in which digital identities stand in by focusing on a specific aspect of death on social network sites – from the profile, to social experiences of death on these systems, to the design of post-mortem systems. However, the findings in each are predicated on a digital identity infrastructure that persists digital identities post-mortem.

As socio-technical representations, digital identities can stand in for both technical and social actors. Social media platforms read these digital identities as they draw connections between users, parse activity to suggest new content, recommend birthday wishes, or connect users to pertinent advertising. Socially, we craft digital

identities as we articulate personal details about ourselves while completing a profile, or post status updates from our daily lives. Likewise, we make use of digital identities as we connect with new friends, and catch-up on existing friends' recent life events.

Digital identities become actors within the sociotechnical networks that comprise social network sites. In line with Latour's equation of sleeping policemen and speed bumps (Latour, 1992), we delegate a range of interpersonal activities and face-to-face self-presentations into the digital identities we co-construct with the software on social media platforms. Long after we turn off our screens and go to bed, our social network site profiles continue to tell others who we are, where we live, who our friends are, and provide a stream of newsworthy tidbits from our daily lives. Having delegated our cocktail conversation worthy factoids to our online profiles, these profiles – acting as computational doppelgangers – perform the work of maintaining social connections for us. However, the work of our digital identities are often made invisible under the guise of asynchronous interaction that allows us to claim that *we are the ones sharing this content rather than the platform and the delegated digital identity.* The hiding of the platform and computational work is an active and intentional part of the design of social network sites, allowing computational representations of our identities take on our unique and distinct agency. My profile is not *me*, but both the system and its cultural adoption support this idea and reinforce the view that my profile is *mine*.

Our digital identity infrastructure is inverted (Bowker, 1994) by death, exposing the construction of our digital identities and their role in the interactions social network sites enable. Delegation, in turn, allows us to theoretically engage the sociotechnical relationships that surround and co-construct these digital identities. Post-mortem profiles highlight the ways that digital identities (pre and post-mortem) stand in. This project shows us how delegation of self-presentation to technological platforms transforms social processes, and in the case of death, sustains and enables new types of social practices as well. The post-mortem social networking practices in which people engage on the profiles of their deceased friends are distinct, but not dissimilar from our everyday social media practices. Meanwhile, with the system's lack of awareness about death, it continues to maintain the deceased's presence as if they were alive. The deceased appear in lists of friends, continue to have birthdays celebrated online, and their profiles remain a places where friends can gather. At a fundamental level, they technically remain part of the population. When Facebook employees or algorithms query the database to count how many "people" are on the platform, post-mortem accounts continue to stand in and be counted.

Examining social and technical practices not only allows us to see how the digital identity is socially constructed and stands in, but also allows us to consider what it stands in as. Within the context of social network sites, digital identities can stand in as the individual, interpersonal relationships, and a community.

Post-mortem digital identities continue to stand in as the individual who once "owned" the identity. Their profile and data persist the social performances and acts of self-presentation that individuals have delegated to the technical systems and that continue to be performed in their absence. Status updates, photos, and life events all are assembled to present a partial timeline of the deceased's life. Technologically, the post-mortem account is no different than the pre-mortem account. Unless a service provider has marked the account in some way (*e.g.*, Facebook's memorialization), the system understands a post-mortem account as either an account that no one has logged into recently, or, in the case that someone continues to log into the deceased's account, as an account that is still used by the deceased themselves.

Post-mortem digital identities also stand in as part of interpersonal relationships. Digital identities, pre and post-mortem, are linked to each other on social network sites in order to capture and persist representations of the relationships between people. Unless that link is severed (*e.g.*, by unfriending), social network sites will represent the friendship that two friends have delegated into the system in perpetuity. So too with romantic relationships, family members, and even connections to and membership in groups, pages, events, and other social network site features. Through the profile, the post-mortem digital identity provides a site of interaction where friends and loved ones continue to interact with the deceased. The post-mortem profils becomes a place where the bereaved can post memories, provide updates about their own lives, and maintain a connection with the deceased. Likewise, the post-mortem profile has more than just a timeline of the deceased's life. The

continued presence of the deceased's digital identity maintains relationship timelines as well. Shared trips, life events, and even the mundane web content shared between friends can stand in as a record (albeit partial) of these interpersonal relationships.

Finally, post-mortem digital identities also continue to stand-in as part of a community in which the digital identity is situated. Their place in a broader community is seen when they are listed as a mutual friend, when they provide a link between distinct social groups, and when they remain part of the demographic whole of a platform's population. When the deceased are not technically differentiated from the living, they continue as part of the set of digital identities that individuals can add to groups, tag in photos, or invite to play the latest Facebook game. Likewise, post-mortem digital identities continue to fuel algorithmic content like birthday reminders, problematic suggestions like Reconnect, and nostalgic prompts to look back at old content as seen with Facebook's "On This Day" feature. Ultimately, the deceased continue to stand-in as part of the human experience captured on these social network sites and what are amounting to the largest social archives in human history.

In each case, post-mortem digital identities highlight the ways in which digital identities are delegated constructions that stand in for all of us, even while we are alive. Our digital identities stand in as our proxies, amenable to computation and readily presented on social network sites and other platforms. They stand in within our interpersonal relationships, maintaining a link to other people's digital identities,

and providing a digital target for any interpersonal interactions of which we are a part. And our digital identities stand in within a community of peers, representing us in lists of friends while also allowing us to participate in shared conversations and engage with information as it flows throughout the site. Digital identities are performing social work, work that has been delegated into digital systems where these digital identities are persisted and new types of social practices are made possible. However, the various ways that digital identities stand in present a conceptual challenge the technical foundations of digital identity. The social and technical activities around post-mortem profiles demonstrate that digital identities are far more complex than just representing a single individual within a computational system.

8.1 FEATURES OF DELEGATED DIGITAL IDENTITIES

The use of digital identities has enabled social behavior that would be hard to imagine otherwise. If nothing else, it would be hard to imagine the size of the social networks that people routinely maintain today were it not for social network site profiles standing in as us and performing relationship work. At a minimum, social network sites maintain connections between digital identities. The consequence is that people remain connected to each other, relationships do not decay over time, and as a result, the possibility of seeing information from their lives remains. The connections between people and the way information is shared, however, are dependent on the technological platforms that enable these representations.

Contemporary social media is predicated on enabling these practices, but the infrastructure was not.

If we account for the digital identity as an actor, we are then pressed to reframe questions around online self-presentation as questions of delegated presentation to a sociotechnical actor. In turn, we are left needing to account for the slippages that occur when we fail to distinguish between a digital identity that acts *for* us, rather than *as* us. Our social media profiles are not us, but as designers and consumers of social media, we often treat them as if they are. Approaching post-mortem digital identities as delegations highlights three features that apply to digital identities in social computing systems more broadly.

8.1.1 DIGITAL IDENTITIES ARE PARTIAL REPRESENTATION

Social performances are delegated into digital identities, but digital identities are limited by the classification systems through which they are operationalized. The legibility of digital identities – to both human and non-human actors – is dependent on the classifications through which they are implemented. Profiles across social network site platforms consistently use attributes such as name, gender, and age. Humans may expect to see these now-familiar attributes, but can derive an identity from multiple streams of structured and unstructured content (*e.g.,* comments and Wall posts) when these attributes are not present. Non-human actors, however, rely on profile attributes and the structured classification systems encoded into the platform to make human identities legible to computation.

Systems require that we make representations of non-computational concepts in order to make them amenable to computation. People, and their "identities", are one such concept. Computers cannot run code on people, but calculations can be made on the data about people. Representing people computationally, however, is necessarily limited. After all, the representation is not the person, but rather a set of attributes predefined and constrained by the collection of standards and classification systems implemented in the design of the digital identity.

The selectiveness of representations can be seen in how systems are designed and how individuals engage with them. Designers make choices about what information their systems include, and the valid range of values they can capture. MySpace, for example, included zodiac signs, income, and tattoos as basic profile attributes. Facebook does not, but includes more elaborate and schematized ways of enumerating one's educational and occupational histories in order to facilitate connections to others within the networks that represent these social contexts. People, likewise, make choices about how to use these profile attributes, if at all. People reflexively self-present on these platforms in relationship to the classifications they are provided.

The implementation of classification systems – formal or ad hoc – always renders some attributes visible, while obscuring others (Bowker & Star, 1999). In this dissertation, the central limitation of digital identities on social network sites that I have highlighted is their limited ability to capture and represent mortality. What

results is a computational ontology in which mortality does not exist, and resulting designs that presume users are always alive. However, even when mortality is added (as with Facebook's memorialization) the design of digital identities maintain a user-centered approach that privileges self-presentation. The design of social network sites precludes a person from reporting their own death and requires that someone other than the account holder notify the platform. Memorializing the deceased's account flies in the face of the design and broad assumption that the account holder produces the profile content and manages the content associated with their "identity."

8.1.2 DIGITAL IDENTITIES ARE OUT OF SYNC

As delegated social performances, digital identities are always out of date to some degree. To the extent that social network site profiles attempt to be representations of people's identities (which is their stated purpose), there is an assumed parity between the technical identity and social identity. However, the representation is never perfect, and in the case of social media, it is often out of sync. Because digital identities can stand in, and are used as proxies for those they represent, synchronization becomes consequential when the design and use of systems assumes that the identities are in sync, or, as is often the case, that the social and technical identities are one and the same.

There are two notable ways that parity between people and digital identities that represent them breaks down, each of which highlight the impossibility of ever achieving that parity. First, social and technical identities fall out of sync simply due to the latency of data individuals provide to social network sites. A person may have

not updated their profile with their latest job, or posted a status recently, and so the technical representation might be out of date. If we think of social media data as personal information streams (Kivran-Swaine & Naaman, 2011; Naaman, Boase, & Lai, 2010), digital identities fall out of sync because social network sites do not make use of live and automated data streams (which one might argue would bring us closer to "in sync").

On social network sites, changes to profiles are most-often the direct by-product of human behavior. One may not update their status to indicate that they are mountain biking in the Rocky Mountains precisely because they are currently preoccupied with the trail. Updates, therefore, commonly take the form of pre-emptive declarations ("I'm about to go mountain biking!") or reflections and celebrations after the fact ("I just had the best ride!"). As Derrida notes (Derrida, 1998), constructing a representation of an activity is to actively not be engaging in that activity. There is always a difference between the act and its representation.

Second, parity breaks down when attributes about an individual cannot be represented within the technical definition of the digital identity. The limitations of the computational representation preclude pertinent information from being included in the digital identity. Even if live streams of data from a person were possible, it is not possible to capture all information. We see this clearly around the absence of mortality in social network site profiles. A key attribute about the person is missing. For those who are connected to post-mortem profiles, this creates

ambiguity, at best, or a potentially upsetting misrepresentation when the dead are included in a network of living friends.

However, while the ambiguities around death may be disconcerting, I do not mean to suggest that digital identities should ideally be complete and always accurate representations. The wealth of literature on context collapse provides ample evidence to the importance of partial and selective representation. The representational breakdown comes to bear in assumptions of parity made by technical actors and those that design them. Delegation challenges parity by calling attention to how individuals transfer their social performances to technological actors. The social act of sharing photos from a summer vacation is passed or off-loaded to a social network site where, once the photos are uploaded, the individual acts of sharing photos have been delegated to the technology. Delegation draws our attention to the practices involved in constructing and maintaining an always imperfect representation. In so doing, delegation asks both social scholars and systems designers to consider the gap between the lived experience of an individual and that which has been delegated to the social network site.

As such, by highlighting the role of delegation, we can better attend to the always already partiality of digital identities. When considering the practices of delegation that result in the representation, we are able to see the conditions and conditionality of the data. And when parity is no longer assumed, we are able to start asking in what ways data are representative rather than be met with surprised when they are not.

8.1.3 DIGITAL IDENTITIES ARE NETWORKED DELEGATIONS

Digital identities are not constructed in isolation. They are collaborative identities in large networked groups. The social performances that are delegated into digital identities are informed by the perceived audience; however, the audience is able to contribute directly to digital identities on social network sites as well. The role of the network is evidenced by the continued use of the digital identity, contributions to the digital identity made post-mortem by friends, and the persistence of the digital identity within a changing social network. Even if these profiles are out of sync, this is not to say that they are stale or "frozen" (boyd & Heer, 2006). The collaborative nature of these identities is evidenced by their continued use, elaboration post-mortem, and ongoing place within a social network.

One reason that post-mortem social networking may be so compelling is that the messages posted to the deceased's profile appear even after the account holder's demise. Typing out a message, declaring "I remember when we…" may actually be the truest expression of remembering. It is notable, however, that this type of information, lightly classified at best, is also least legible to computation. The post-mortem profile, then, while legible to humans as a memorial, remains indistinguishable from pre-mortem profiles to the social network site platform.

Content added post-mortem contributes to the overall digital identity of the deceased. New stories, photos, and memories are added to the post-mortem profile, and existing content is often elaborated as, for example, people tag the deceased in photos and write about the memories these photos contain. Post-mortem social

networking behavior challenges any expectation or assumption that the profile is solely self-presentation authored by the account holder. The account holder may author it initially, but only in collaboration with the platform, and in the expectation of the profile becoming a site of interaction.

Furthermore, the network in which the deceased is situated changes over time. These changes resituate the digital identity in an ever-evolving context. For example, as comments migrate from updates about senior prom or graduation to marriages and newborn children, the deceased is positioned within a social community of adults rather than teens. These kinds of changes might be more or less profound depending on age at death, gender, cause of death, or other profile attributes of the deceased. The role of the network as more than just an audience is evidenced by the growing number of algorithms that not only spread identity across a network, but make decisions about how information should spread based on that network. Reconnect, the story with which I started this dissertation, serves as a prime example. The suggestions people received encouraging them to reconnect with their deceased friends were the result of the configuration of the deceased's social network. As such, the digital identity is a representation of not only the deceased, but of the deceased in relationship to their network.

Death highlights the limitations of how our digital identity infrastructure has designed and operationalized our social identities. Studying digital identity through the lens of delegation prompts new questions about the nature of an identity-as-

delegation that are worthy of future study. Delegation requires consideration of the coordination work that occurs between social and technical actors. It asks for an account of how agency shifts as social performances are delegated to technical actors. Delegation asks what types of performances can be delegated, into what technologies, and how those performances are transformed in the process. Delegation draws attention to the technology as an actor, allowing us to consider what social practices it enables now, as well as in the future as the data is persisted across shifting platforms and repurposed for new functionality and in new ways.

In this dissertation, death proved instrumental in highlighting the digital identity as a sociotechnical construction as it removed the "self" whose self-presentation digital identity literature is so often focused on. If we think about the profile as an expression of the network, we are prompted with questions about the utility of framing the digital identity as an individual in the design of social network site and digital identity architecture. When looking at the collaborative work that happens in, around, and with these digital identities, the boundaries of the "user" become less clear. The user for which the system was primarily designed has died, however, the system's expectations surrounding use have not. The profile remains theirs, as does the content that is posted to it, and the system still expects that, should any inaccurate or objectionable content be posted to the Wall, that the deceased account holder will log in and maintain the space.

Following the death of the account holder, the interconnections between the members of a social network are highlighted as they collaboratively author the memorial profile. These connections challenge where we might situate the boundaries of the "digital identity" and the "user" who authors it. Systems and analysis that assume (knowingly or otherwise) that the digital identity is produced by a single user account, and thus a single person, are at risk of attributing complex data to a single person. In doing so, they miss the networked complexity of data that is over-simplified when it is associated with a single user ID.

8.2 FUTURE DIRECTIONS

Post-mortem digital identities have become common place on social network sites. Overtime, the presence and impact of these post-mortem representations will become unavoidable. At the close of this project, I consider how the landscape might change in the future. Specifically, I highlight three areas worthy of scholarly attention. I start by considering the future of networked grief. Post-mortem digital identities on social network sites create the conditions under which the subjective experience of grief is shifting. This dissertation has characterized grief over the last six years in a variety of social and technical contexts, and in this section I highlight the importance and challenges associated with continued study on this front. Next, I detail an inevitable future in which many types of post-mortem data persist. I outline concerns related to the maintenance of these data, their dependence on the networks and platforms in which they are situated, and the opportunities and challenges associated with use of

post-mortem data. Finally, I conclude by returning to a consideration of the design of digital identity. I argue for a deeper understanding of the acts of delegation that produce digital identity, and the expectations held by both social and technical actors around these identities, as well as the creation of alternatives to our current infrastructure that will open up new opportunities for the design of identity technology.

8.2.1 NETWORKED GRIEF

We are entering a new era where the subjective experience of grief is shifting. This shift is in large part due to post-mortem digital identities constructed by the deceased and the interactive features which continue to be used post-mortem. Now a staple of social media content, grief is increasingly integrated into everyday media practices. Expressions of grief on social network sites are more crafted and communal in their presentation, and consist of micro-interactions – with the dead, with others who are grieving – that are more public in nature. Intimate and personal interactions occur in and are captured on online public spaces, which in turn are easily accessible and available to large numbers of people. While many formal and thoughtfully crafted messages are posted to post-mortem profiles, these interactions can also be short, quick, in the moment, and informal. Written in the context of the deceased's profile, messages expressing grief are more accountable to the still-present deceased, but these displays are performed within the gaze of others.

Over time, people are learning to recognize and understand the post-mortem interactions they encounter. However, the rate of technological change means that

the speed and variety of ways in which people appropriate technology for memorializing practices will outpace both the media literacy with which people interpret these practices and a scholarly understanding of how grieving happens in these new contexts. At the start of this project, many of my colleagues, friends, and research participants were confused by the continued presence of deceased profiles and the comments and messages others posted. Today, most have encountered post-mortem profiles and online expressions of grief. But even though post-mortem profiles and memorializing practices on social network sites are becoming common place, they may serve to elide the complex ways and diverse technological contexts in which we will increasingly encounter the dead.

Just as with social network sites, the nature of these encounters will be shaped by who the technology is designed to serve. Post-mortem profiles, as both authored identities and memorials used by the bereaved, expose a tension between the needs of account holders and the needs of the community to which they are connected. Post-mortem profiles were authored and crafted by the deceased, and retain a sense of their ownership even after they have died. "Funerals are for the living" maybe a common aphorism, but one that is troubled when memorial practices occur within the profile and the digital identity that embodied the deceased while they were alive. The needs of the community are challenged when they occur within a space that remains in the control of the now deceased account holder. The digital identity ambiguously varies from a representation of the deceased, to the collective expressions of the deceased, to the deceased themselves.

The bereaved post for their own needs and desires, to display their grief in ways that are informed by the presumed audience, community, and the public environment in which these messages appear. Still, the messages that people write primarily address and engage the deceased whose space it is, even post-mortem. The infrastructural history that informs the design of social network site accounts and associated profiles privileges the needs and wishes of the deceased. The primacy of the account holder – alive or dead – is reflected in the entire design of social network sites, from concept, to source code, to policy.

Given the role of technology in shaping digital identity, what then are individuals grieving when they visit and interact with post-mortem profiles? Are they only grieving what can be represented within the platform? Clearly this is not the case, although the platform may influence what types of information are privileged, and in so doing, the ways that individuals appropriate social network sites for expressing grief.

Interpersonal relationships change post-mortem, but the designs of these systems currently have limited ability to incorporate and accommodate those changes. The use of social network sites for memorializing the dead extend far beyond the interactions the system designers had in mind, and in turn demonstrates the significant challenges that exist for these systems when it comes to understanding and representing grief in computational terms. Grief highlights how social network sites serve as arenas in which we craft our relationships to each other. These crafted

relationships, however, are premised on the infrastructural design of social network site platforms where relationships are expressed through lists of friends, the tagging of photos, and the posting of messages on post-mortem profiles.

8.2.2 POST-MORTEM DATA & INTERACTION

In addition to the continued study of post-mortem social networking and the memorializing practices in which people engage in online spaces, post-mortem data presents some domain-specific issues that emerge when considering delegation and digital identities over the long term. There are three concerns that I have not discussed in this dissertation but which deserve brief attention: long term management of digital identities; the inter-dependence of digital identities and the platforms in which they are constructed and hosted; and the inevitable future of post-mortem interaction.

The long-term management of digital identities – over years, or even generations – raises technical and social questions. The user-centric approach to digital identity lifecycles has temporal limitations given that individuals are expected to provision and manage their own accounts. These limitations are clear post-mortem, but even more so when considering the management of accounts and data over years, decades, or centuries. The work presented in Chapter 7 on stewardship considers the experiences of someone receiving and caring for the post-mortem identity of a friend or loved one. But what happens when these stewards die? The long-term endurance of records is more commonly discussed in archival and curatorial studies, but given the large archives that social media platforms are enabling for everyone, it is worth

considering how to address the needs of the population at large by incorporating long-term data management policies and tools.

Discussing the management of digital identities over lifetimes, however, presumes that the platforms in which these identities live will persist that long, and in their current form. With Facebook just having passed its eleventh anniversary, such thinking is probably naive. To the extent that digital identities on social network sites serve as an enduring memorial, the role of social network sites as platforms is important to consider. I have discussed post-mortem data elsewhere, arguing for a platform-perspective on personal archives (Acker & Brubaker, 2014). At a minimum it is important that social media platforms provide tools to export data and create autonomous archives. However, there is a challenge given the networked nature of the archive. Given that digital identities are networked delegations, what is one capturing when creating a personal archive to be rendered outside the social network site? Where should we draw the boundaries of such an archive?

The explosion of personal data precipitates an astounding quantity and variety of post-mortem data. What will our relationships to post-mortem data be? While much of the focus of this dissertation has been on post-mortem profiles, encounters with and the management of post-mortem data represent some of the most challenging aspects of death on social network sites. Unexpected encounters with death and grief on social network sites most commonly occur when post-mortem data is used and presented beyond the context of the profile. People variously describe these

encounters as either the most unsettling or serendipitous. As post-mortem data increases in size and variety, how should we approach these data? What are its potential uses? There are clearly a number of privacy, policy, and legal issues to be considered when answering these questions. In this work, however, I focus on the types of interactions that could be designed and the potential consequences of those design choices.

To date, the majority of post-mortem interactions that have been announced and released have been sensational by design. However, they do not have to be. Early on in this project while colleagues and collaborators frequently commented on the "creepiness" of death on social network sites, I was struck by a video created by Jessica Beltran for the 2011 Visions of Ubicomp competition entitled "Life Fingerprint."[16]

During one scene, a young couple sits on a couch talking about their recent trip, which in turn prompts memories of their deceased friend Luci. "Wouldn't [it] be great to talk with her right now?", the man asks, and then speaks a command: "System, appear Luci." A young woman appears on the couch next to the couple, and after exchanging hellos, the conversation continues on naturally as Luci asks, "Why did you remember me?" Beltran's video prompted me to rethink the "creepiness" of this space and the possibilities for post-mortem data. In Luci I saw a careful balance between animating the dead and providing a rich interactive form of

[16] https://www.youtube.com/watch?v=KsVU7VCx5EE

remembrance, between technological immortality and an interactive archive full of memories of a loved one.

One scenario I have subsequently found myself sharing involves searching for a restaurant using Yelp, but a version of the app fully populated with a deceased friend or relative's ratings. Could we imagine searching for a Mexican restaurant similar to the kind that grandma liked? Post-mortem data opens up the potential to thoughtfully infuse even the most common user interactions with aspects of remembrance.

There is no longer a question about whether systems can support post-mortem interactions. Instead, the question that remains is about the nature of these interactions. Post-mortem data is opening up a new interaction space that would benefit from a range of research, designs, and services experimenting with ways to maintain, reflect on, and use these data.

8.2.3 THE DESIGN OF DIGITAL IDENTITY

Our subjectivity, personhood, and social lives are increasingly expressed through data that are structured and crafted to make them legible for computational systems. Death on social network sites exposes how these structured data are called on to represent us, the important details these data might exclude, and the unexpected outcomes that can occur. Yet we are represented by selective and structured data throughout contemporary life. We are represented through structured data in dating profiles, credit scores, and medical records, to name just a few.

As our lives are increasingly mediated by and interwoven with technology, even something as subjectively felt as identity, one's sense of self, and one's place within a larger community, fall under the structuring gaze of technology. The designs of our technology impact what is captured and what can be represented. Given the role of technology in enabling human experiences, even while mediating them, it is critical that future scholarship engage how identity is represented within technical systems, the symbiotic relationships we develop with these representations, and the forms of translation that occur when our very subjectivity is made computational.

Identity, in digital systems, has traditionally been used as a way to identify a user and control access to specific resources. Digital identity's early predecessors were gate keepers for systems. Essentially digital padlocks, the earliest examples can be seen in the system passwords required prior to using a machine. As time-sharing and multi-user systems were developed, it was important to differentiate users in order to appropriately handle their requests as they interacted with these systems. Because differentiating users also served to distinctly identify these users, use of digital identity was extended to control increasingly complex rules around access as well as to organize personal information on these systems. While the multiple users of these early systems would inevitably create ways to communicate and interact with each other, computer security approaches to identity are prevalent throughout our technical infrastructure, and they shape the types of computational identities that are possible at foundational levels.

The primary questions of digital identity systems are "Who are you?" and "Are you on the list of those allowed to access this resource?" The first question is one of identification. Digital identity infrastructure is predicated on a governmental mode of identity that focuses on the unique identifiability of an individual. Identification requires presenting the right kind of information in order to be recognized by the identifying agent. A driver's license is presented when ordering alcohol at a bar. A passport is used when crossing international borders. And today, usernames and passwords are used when accessing most computational systems. Each of these examples requires a different kind of identity performance, specific to the context and actor asking for the identity. To be valid, identities must be legible to the systems that read them. Providing a bartender with your social media credentials is unlikely to lead to the desired result. Likewise, it is not possible to provide your driver's license to the login form on a social network site.

The second question – "Are you on the list of those allowed to access this resource?" – is one of authorization. In each of these examples, delegated forms of identity are used to demonstrate who an individual is such that the actor identifying the individual (be it bartender or authentication algorithm) can determine whether they should grant access. To do so, the identity must be legible to the recipient, adhering to a set of standards.

The focus on authentication and authorization creates a conceptual foundation that shapes how digital identity is discussed on social network sites. Even when the focus

shifts to representing details about the individual and the potential of the platform for self-expression and interpersonal communication, the importance of the unique authenticated individual remains. The specific attributes that make up a system's digital identity vary across social media platforms, but at the core of these designs is the infrastructural assumption that a single user will login with her or her user credentials, uniquely identifying that person to the system. Expectations around data ownership and control typically follow. These expectations are mirrored in colloquial phrases that reinforce this ownership, such as "Check out My-Space," and "Do you have a Facebook?"

Our social computing needs have outgrown our digital identity infrastructure. After all, on social media, making content available is often more important than who owns, controls, and can access the content. The existing infrastructure does not easily enable the kinds of collective ownership of content that people may feel around, for example, group photos. Similarly, the existing infrastructure is limited in its ability for one person to act on behalf of an other, as would happen in the case of the stewardship duties enumerated in Chapter 7. In this way, death is but one scenario that highlights the limitations of how we currently approach identity in computational spaces. These limitations also provide a starting point for thinking through the possible scenarios in which infrastructural alternatives might better serve designers and users.

Given the extent to which we are engaging socially and interpersonally in mediated forms, and the significant role that technical representations of identity play in these interactions, social and technical scholars are left with important questions: How do we challenge, break open, and expose the current assumptions and limitations of the technical design of identity? And in what other ways might we design identity in our technical systems? What are the operating assumptions that figure into current constructions? And how might questioning these assumptions allow us to design new forms of technology through which people might experience new ways of being?

The objective is not to replace an inadequate infrastructure. Despite its limitations, our current digital identity infrastructure is excellent in many scenarios. Instead, the aim is to create a suite of infrastructural options available to designers to enable them to make decisions about digital identity within their systems so that the current user-centered approach to digital identity is no longer selected by default. The objective is to create options and tools that make identity a visible part of the design process around which designers make choices, rather than an infrastructure that, today, is often invisible. In so doing, the aim is to expose different ways identity could be conceptualized within technological systems.

Our systems are designed based on metaphors (Philip E Agre, 1997). Two user accounts, once connected, are called "friends." A stream of personal data, when displayed chronologically, is called a "timeline." And the collection of information attached to a user's account is called an "identity." These metaphors are important. A

good metaphor provides a shorthand for how part of the system works, and its relationship to the overall design.

Our current digital identity infrastructure is based on metaphor as well. The prevalent metaphor is of the singularly identifiable and autonomous person. This metaphor equates the digital identity with the person. This metaphor enables the digital identity to stand in as the person within the computational system where the person cannot feasibly stand, as well as in the interpersonal interactions and relationships captured in digital environments. This metaphor is modernist and Cartesian in its formation, equating and collapsing an individual's consciousness with their body (Poster, 2006). As a result, our digital identities become interchangeable representations and proxies of our analog selves. The collection of data associated with these identities amount to "digital bodies" (Luckman, 1999) that may be interconnected and networked, but much like our physical bodies, they conceptually remain autonomous. With this metaphor comes a form of embodiment that carries expectations of ownership, management, and control. Yet following death, the integrity of this metaphor begins to fail. The digital body looses its analog counter part, and the boundaries between autonomous digital bodies break down as survivors turn to the deceased's profile and continue to author the deceased's identity.

The modernist, single-user metaphor is ideally suited for interactions that are limited to a single person and a system. But social computing systems have grown past these singular interactions to include interactions around families and communities,

interactions where people act as part of a collective whole, as multiple people, or on behalf of others, and interactions where the uniqueness of the topic is more important than the uniqueness of the user. Each of these interactions has particular design needs. They each suggest a different relationship between the system, its users, and the data that is stored and presented. But the current technical options for digital identity provide few conceptual alternatives to the singular and autonomous user.

We need new metaphors. We need new ways to conceptually articulate relationships between people, accounts, and data. Such metaphors can help us understand how to interact with systems when our single-user metaphor fails, but they also open up the possibility of new forms of digital identity as well. How, for example, might we design an identity infrastructure that identifies you as a community, rather than as an individual? And what types of sociality might this infrastructure enable?

As we seek to expand the vision of human-centered computing to include more diverse types of humans, it is critical that we think beyond individual people, individual users, and consider the very types of humanity that we are representing in our designs. Clearly, identity is important to us as social actors, but the wealth of literature from the social sciences and humanities focused on defining, expanding, and debating what identity can be has made little impact on how we technically architect identity within our social computing systems. If anything is clear from decades of identity research, it is that there is no singularly "correct" approach to identity. The lack of consensus suggests that multiple approaches to identity within

our computational systems are necessary, and that opening up digital identity as an active research and design space is important if technology is to serve and broaden the full range of human experience.

Across any configuration of digital identity, a sociotechnical approach that attends to delegation will allow us to examine the symbiotic relationships between people and their computational proxies. A sociotechnical analysis of the delegation of digital identity allows us to unpack the ontological foundations from which both social and technical actors conceptualize and represent each other. It allows us to look at the gaps and identify the incompatibilities between the two. As in the analysis I have shared here, it is not enough to show that social network sites failed to account for death. Rather, by comparing how social and technical actors understand death, we are able to see that for technical actors, "death" might mean something different all together.

Accounting for the translation that occurs as we delegate human behavior to technical actors, particularly in light of the structures and metaphors at play, is necessary if we want to attend to the construction and implications of digital identity for both social and technical actors. Otherwise, we risk simply propagating additional studies that look at online practices and how our behavior is mediated on yet another online platform. Unpacking the socio-technical collaborations that produce computational representations of identity and the social experiences people have in relationship to these identities would help us as researchers, designers, and users of

technical systems to have a more nuanced and reasoned understanding of the relationship between human experiences of identity and their technical representations.

There are deep implications for how individuals understand themselves, as well as for how the types of interactions made possible and privileged by technical systems shape how we understand who we are and what we can become. When people interact with systems that make use of the modernist metaphor, they are engaging with a very limited notion of identity. As people construct their online profiles and make decisions about their digital identities, they engage with a system that makes them the sole owner of that identity. This metaphor is then reinforced through the numerous interactions enable by and that make use of these digital identities. Just as these designs frame individuals as autonomous actors, there are implications for how individuals relate to society, as well as the broader social structures that serve to establish, shift, and characterize what society is and what it can become.

As technology is further incorporated into every aspect of our lives, and as digital identities increasingly act on our behalf, bridging social and technical scholarship on digital identity will be necessary in order to bring human experiences into alignment with the technological representations of those experiences. Scholarship on social media focuses on the use and implications of these technological spaces, often relegating the technologies to platforms on which social activities occur rather than active participants. Not enough scholarship focuses on how the construction of these

computational spaces allow us to be certain kinds of people that are captured, measured, operationalized, and presented in very specific kinds of computationally friendly ways. Not enough scholarship focuses on the role that the computational representations that inhabit these spaces play in constructing forms of humanity. If we do not unpack the nature of the collaborations that produce these digital identities and explore their ramifications, not just for death, not just for grieving, but for the vast array of human experience that is happening in, on, and through computational platforms, we will be ill prepared as scholars, practitioners, users, and those tasked with understanding humanity, to make sense of our own digital age.

[A]

APPENDIX:

SAMPLE QUESTIONS FOR OPEN-ENDED INTERVIEWS ABOUT EXPERIENCES WITH DEATH ON SOCIAL NETWORK SITES

Using standard open-ended interview procedures, I used these questions as a general guide while allowing the participant to direct the course and direction of the interview.

1. When was the first time you noticed a profile belonging to someone who was dead?
2. What role do these dead profiles play in social networking sites?
3. What role does that person's profile play in your use of <name of social network site>?
4. If some of your social network site friends are dead, how often do you encounter their information while on <name of social network site>?
5. Do you actively seek out these profiles? If so, when, and why?

6. What kinds of activities have you observed on these profiles? How do you make sense of these activities?
7. Why do you think people post comments on these profiles?
8. Have you ever left a comment on one of these profiles?

   If so:

   a. Would you be willing to tell me about that comment?
   b. What motivated you to write the comment?
   c. To whom did you address the comment? (*e.g.*, dead individual, network of friends)
9. Do you feel that having dead friends on <name of social network site> is a good thing?
10. How would you feel if their accounts were removed?
11. Do you think the system could be better designed to account for dead users?
12. Who does the profile belong to now that its creator is dead?

[B]

APPENDIX:

SEMI-STRUCTURED INTERVIEW SCRIPT FOR MANAGEMENT OF POST-MORTEM FACEBOOK PROFILES

INTRODUCTION

In this section, introduce yourself, the project, and the mechanics of the interview.

1. Who I am, what I am doing.
2. Project description:
    a. This interview will include a series of questions coupled with some images of design concepts for a theoretical social media service we call Epilogue.
    b. As you know, we are talking with people who have had members of their social network die recently.
    c. And so today, we want to talk with you about...
3. Standard confidentiality and participation talk
4. Is it okay if I record this conversation/call?
5. Did you have any questions about this interview before we start?

6. Explanation of open-interview structure: Story-focused, "This is your interview."

DEMOGRAPHIC QUESTIONS

1. How old are you?
2. Gender?
3. Where do you live?
4. How would you describe your religious or spiritual affiliation?
5. When did you first start using social media?
6. What sorts of ways do you use social media now? (OPEN ENDED)

PERSPECTIVES AND EXPERIENCES RELATED TO DEATH

1. Because we are talking about end of life issues, could you tell me a little bit about your thoughts and experiences in relationship to death? (in general)
2. Do you have any experience with managing a person's stuff after they have died?

INFORMATION ABOUT THE DECEASED

1. Have you had many experiences with loss of those you know on social media?
2. When did you experience the most recent loss?
3. How did you learn of their passing?
4. How would you describe your relationship with him/her [prior to death]?
5. Could you describe your typical interactions? Where did they occur, and what were they like?
6. Is there anything they created or posted in their social media account you wish you had access to or a copy of?
7. Since [person] died, have there been times when you wanted to access some data but weren't able to? Or do you know of other people who have had this experience?

INFORMATION ABOUT LOSS

1. Is this your first experience with a loss?
2. Is this your first time experiencing the loss of a friend on social media?

APPLICATION SKETCHES AND FACEBOOK FUNCTIONALITY

In this section, we will introduce the idea of our application, and design sketches.

Introducing the Application

SCRIPT: Epilogue is a theoretical application that is linked with Facebook which gives users the ability to plan ahead and entrust someone else to receive their username and password so that they can manage their account after their death. We wanted to talk with people like you about what it might be like if you were to receive a request from this system.

We have four sets of design prototypes that we want to show you. With each image, we'd like to have you talk through the functionality and hear your thoughts and opinions. We'd specifically like to hear your thoughts about these interfaces in relationship to your experiences with [person that died].

[If in person]: Please feel free to modify these designs with your preferences -- scribble all over them, here is a crayon, go crazy.

Let's start with requests.

Requests [Projective Sketches]

SCRIPT: Lets start by having you think through receiving a request from [person] via this application. So imagine that you have just received a message from Epilogue letting you know that [person] has indicated that they would like you to manage their account after they die, and allowing you to login to their Facebook account.

These are some images of how that request would look like.

1. Concept #1A: "Continue", no option to reject
    a. Would you talk me through this interface?
    b. How would you feel if you were to receive this?

c. Why?

d. What would you like to see?

2. Concept #1B: “Accept/Decline”, option to decline

    a. Would you talk me through this interface?

    b. How would you feel if you were to receive this?

    c. Why?

    d. What would you like to see?

3. Concept #1C: “Pass it on”, option to forward request, or suggest (or even give access to) someone else

    a. Would you talk me through this interface?

    b. How would you feel if you were to receive this?

    c. Why?

    d. What would you like to see?

When [Projective Sketches]

SCRIPT: Now that you’ve got a sense of how the request works, lets continue to have you think about the timing of these messages. The way you were talking about the request in the previous section, it sounded like you were thinking you would get the request [when they die/before they die/after they die].

-- OR --

Now that you’ve got a sense of how the request works, lets continue to have you think about what it means to receive the request at different times.

1. Concept #2A

    a. How would you feel if you were to receive the request at this time?

    b. Why?

    c. What do you think would be different between the options?

2. Concept #2B

a. How would you feel if you were to receive the request at this time?

b. Why?

c. What do you think would be different between the options?

d. What would you prefer? Why?

3. Concept #2C

a. How would you feel if you were to receive the request at this time?

b. Why?

c. What do you think would be different between the options?

d. What would you prefer? Why?

Duties

SCRIPT: So let's assume that you decide to accept to become a trustee. When the time comes, you gain access to your friend's/family member's profile. At this time, you have certain privileges on their profile. These duties vary but we would like for you to think through these different responsibilities.

Open-ended questions [SITUATE THESE IN RELATIONSHIP TO THEIR EXPERIENCE].

1. What do you think your responsibilities or obligations would be?

2. What would you like to do?

3. Were there specific things that happened on [friend's] account that you think were beneficial or problematic? (Things to replicate or avoid)

Functionality

SCRIPT: We've talked about the duties you imagine you'd take on. Let's talk about some specific aspects of the Facebook system.

Researcher Note: *When probing, feel free to ask about temporality. E.g., "So you mentioned deleting SPAM messages after the person dies. Do you think you should be able to remove other messages that were posted before their death?"*

1. Concept #3A: Profile

a. Is there anything you would a) add, b) change, or c) remove?
    i. When?
        1. “Used to work at...”
        2. “Was in a relationship with...”
b. Have there been any times when this would have been important?

2. Concept #3B: Timeline
    a. Is there anything you would a) add, b) change, or c) remove?
        i. When?
    b. Have there been any times when this would have been important?
    c. What about messages left by others?
3. Concept #3C: Photos
    a. Is there anything you would a) add, b) change, or c) remove?
        i. When?
    b. Have there been any times when this would have been important?
4. Concept #3D: Friends
    a. Is there anything you would a) add, b) change, or c) remove?
        i. When?
    b. Have there been any times when this would have been important?
5. Concept #3E: Post Content as Deceased
    a. Is there anything you would a) add, b) change, or c) remove?
        i. When?
    b. Have there been any times when this would have been important?
6. Concept #3F: Privacy Settings
    a. Is there anything you would a) add, b) change, or c) remove?

        i. When?

    b. Have there been any times when this would have been important?

7. Concept #3G: Delete Account

    a. Is there anything you would a) add, b) change, or c) remove?

        i. When?

    b. Have there been any times when this would have been important?

YOUR OWN ACCOUNT

1. Is there someone you expect would do this?
2. Who wouldn't you want?
3. How would you want that person to manage your account?
4. Are there specific things you would like them to do?
5. Are there specific things you would not want them to do?

INTERVIEWEE'S GENERAL POSTMORTEM PREFERENCES

1. Do you maintain a will?
2. Who do you think would be responsible for your final affairs?

SUMMARY

SCRIPT: So now that we have looked through some of the prototypes of different ways this application might work...

1. Are there any things that stand out to you?
2. What might have made your experience with the passing of the deceased different?

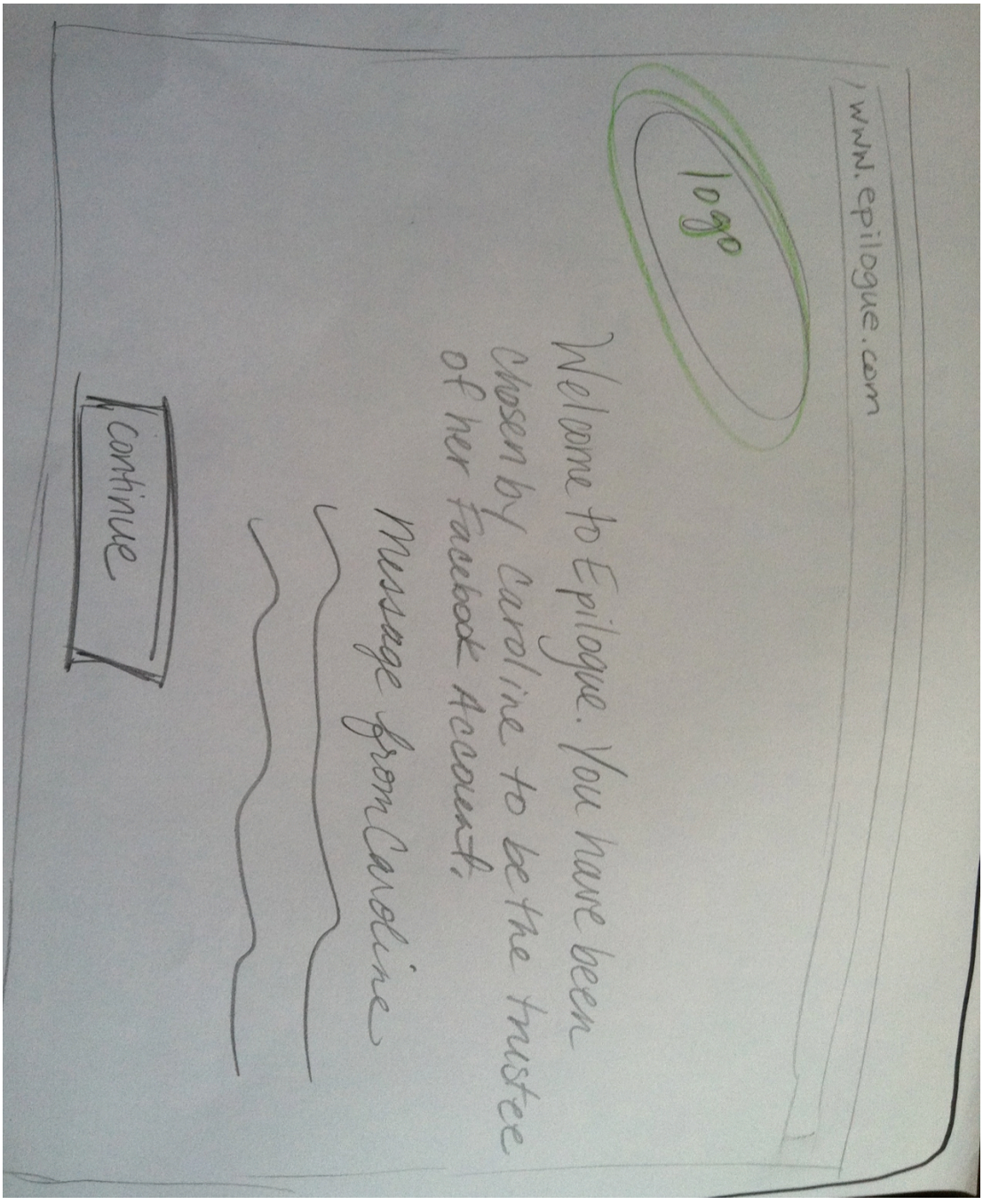
WRAP-UP

1. Any questions for me?
2. May we follow up with you?

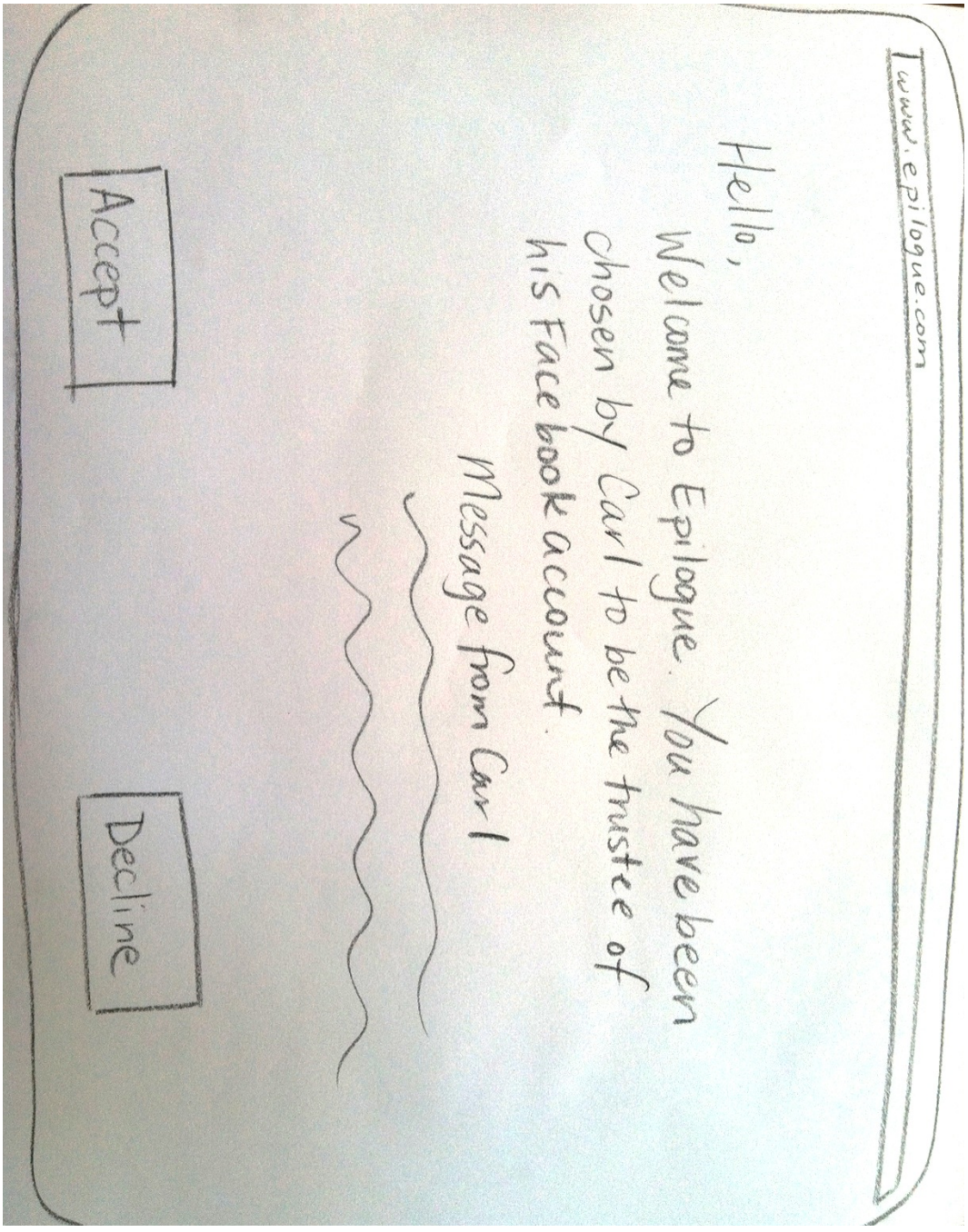
[C]
APPENDIX:
INTERVIEW SKETCHES AND FACEBOOK FEATURES

The following images were used during interviews on post-mortem data management. The images were presented as a packet when participants were interviewed in person, or sent as a PDF when participants were interviewed remotely. In both cases, participants were instructed to not look at the images until directed to do so, at which point participants were directed to and asked for feedback about each image in order.

CONCEPT #1A


www.epilogue.com
logo
Welcome to Epilogue. You have been
chosen by Caroline to be the trustee
of her Facebook Account.
Message from Caroline
Continue

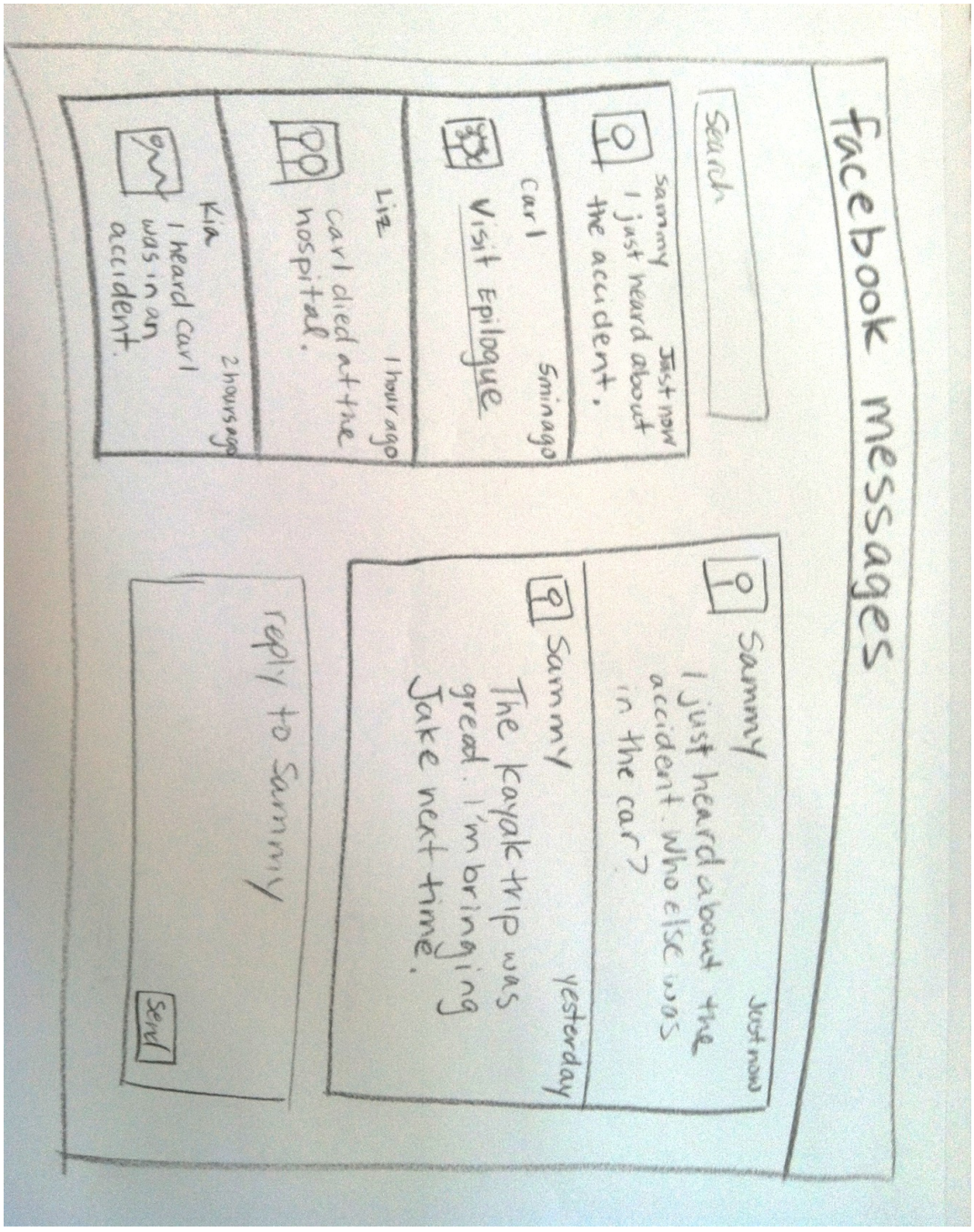
CONCEPT #1B


www.epilogue.com
Hello,
Welcome to Epilogue. You have been
chosen by Carl to be the trustee of
his Facebook account.
Message from Carl
Accept
Decline

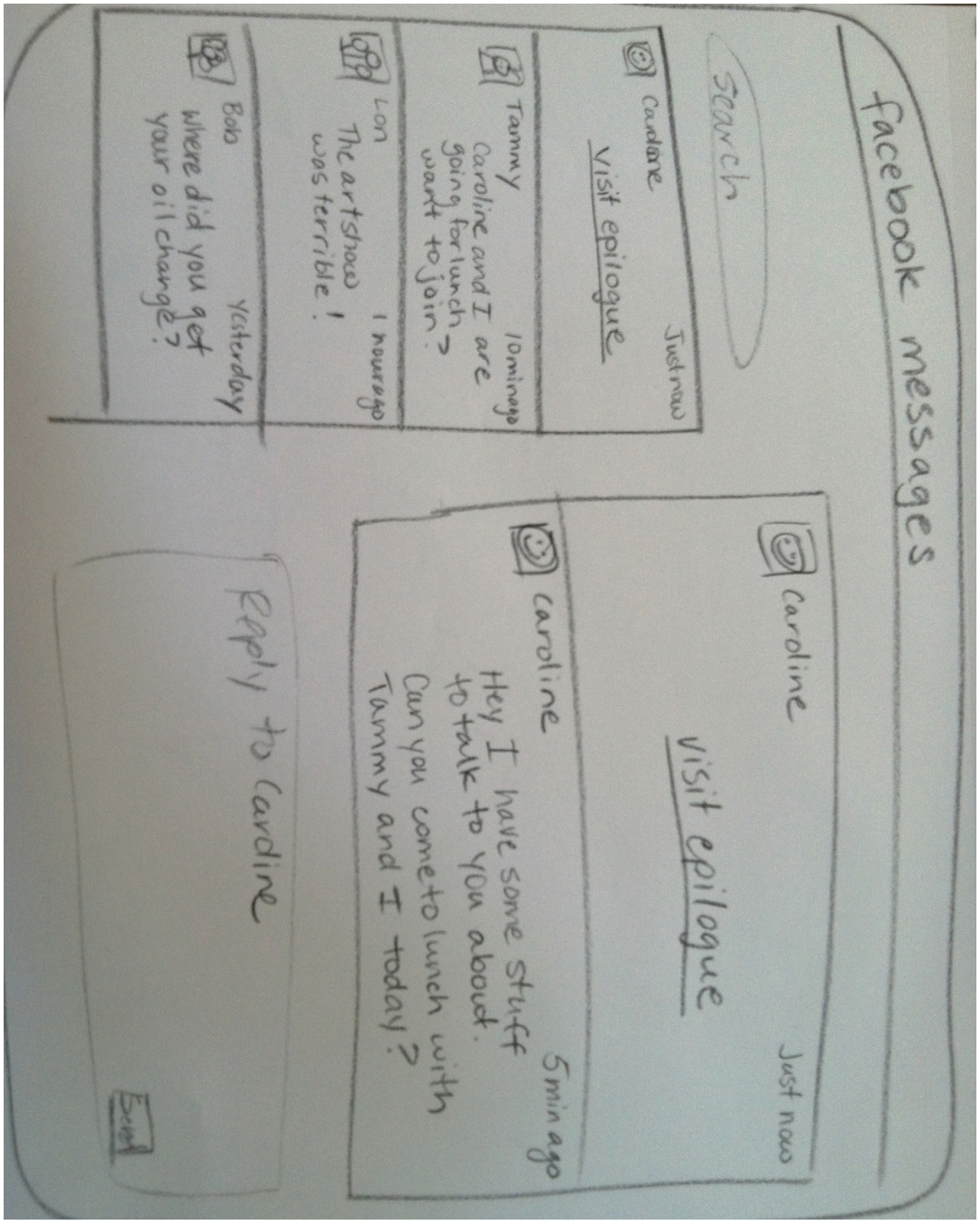
CONCEPT #1C

www.epilogue.com
Hello,
Welcome to Epilogue. You have been
Chosen by Pat to be the trustee
of their Facebook account.
message from Pat
Accept
Decline
Pass it on

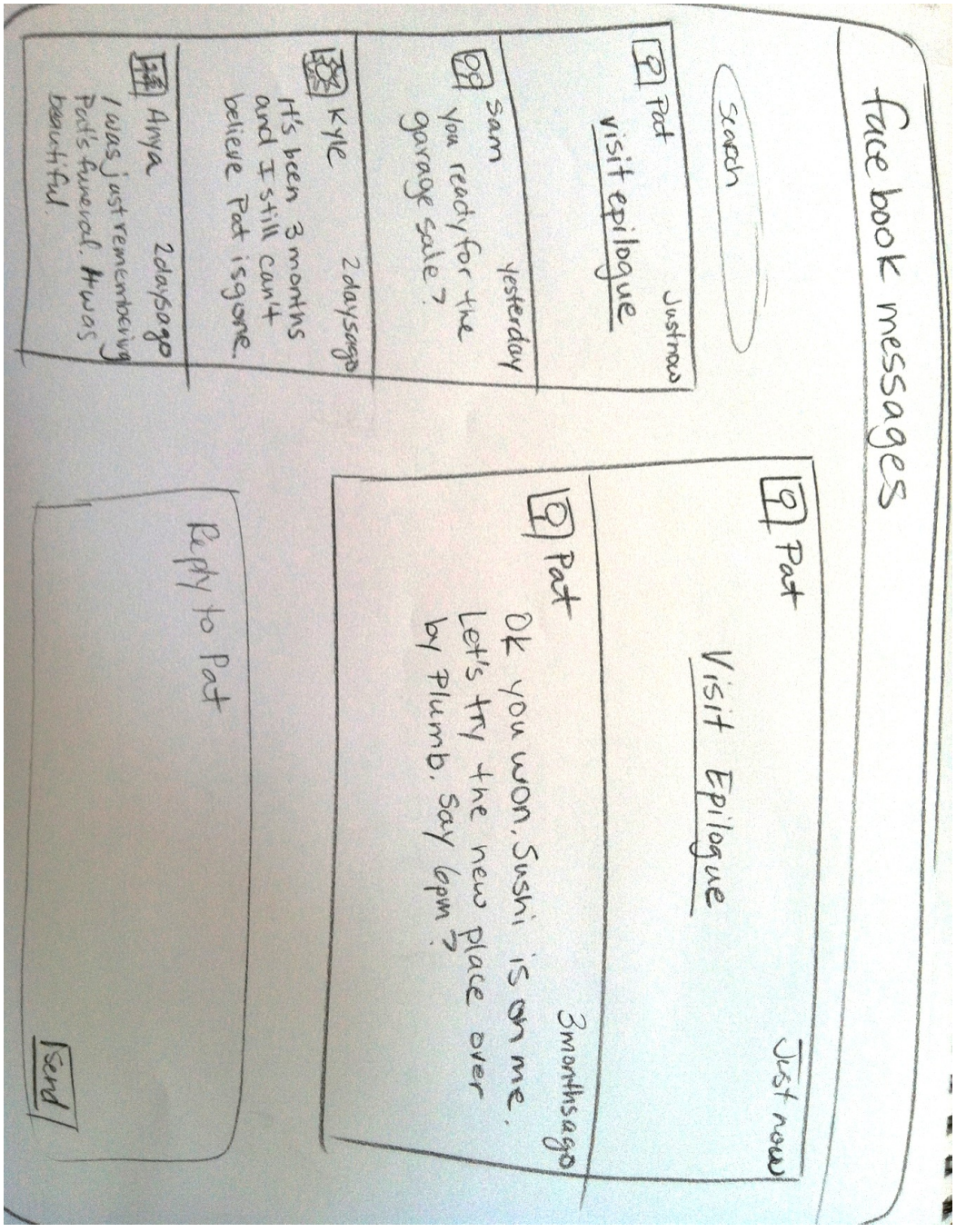
CONCEPT #2A: AT DEATH



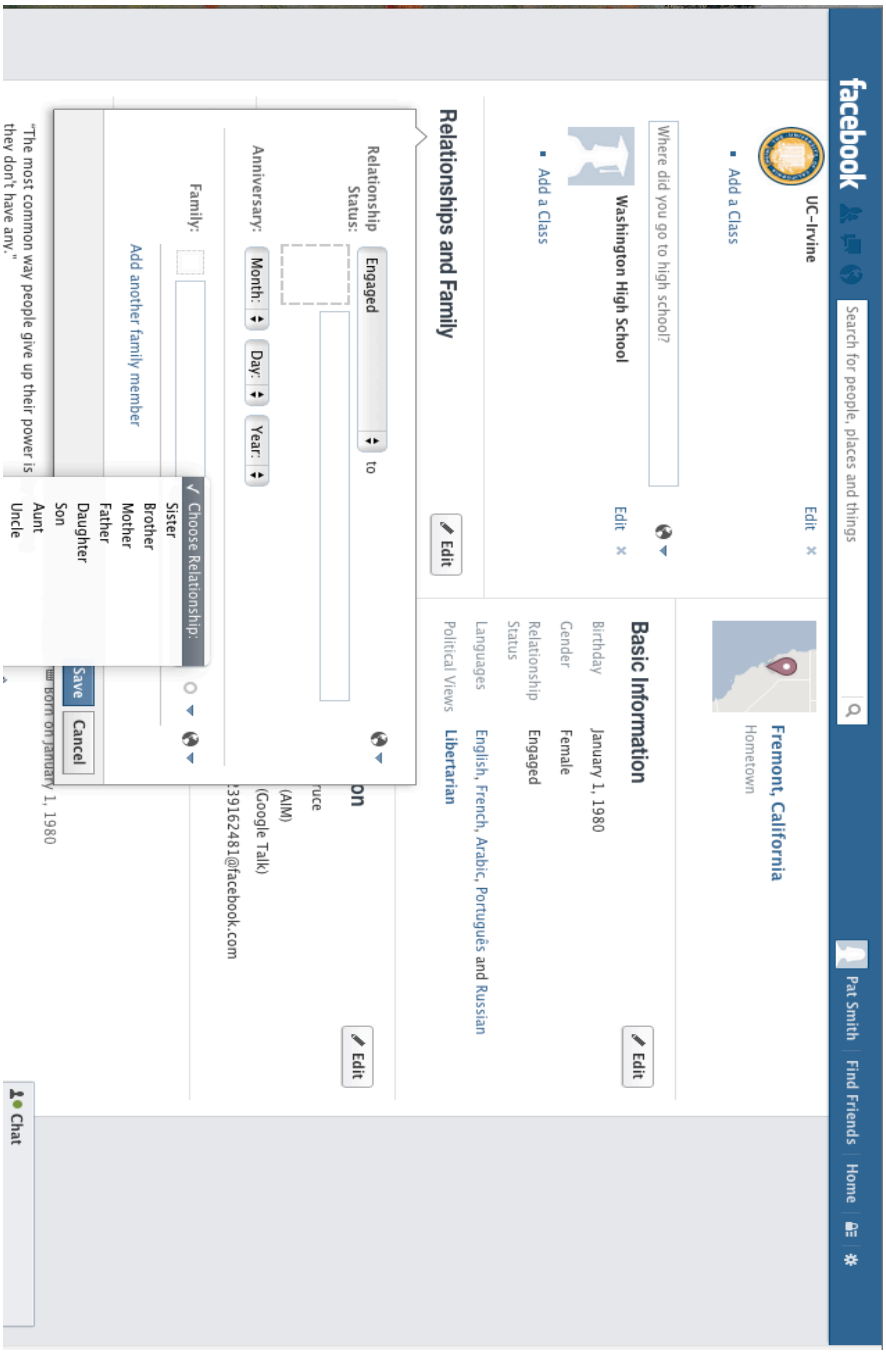
CONCEPT #2B: PRIOR TO DEATH



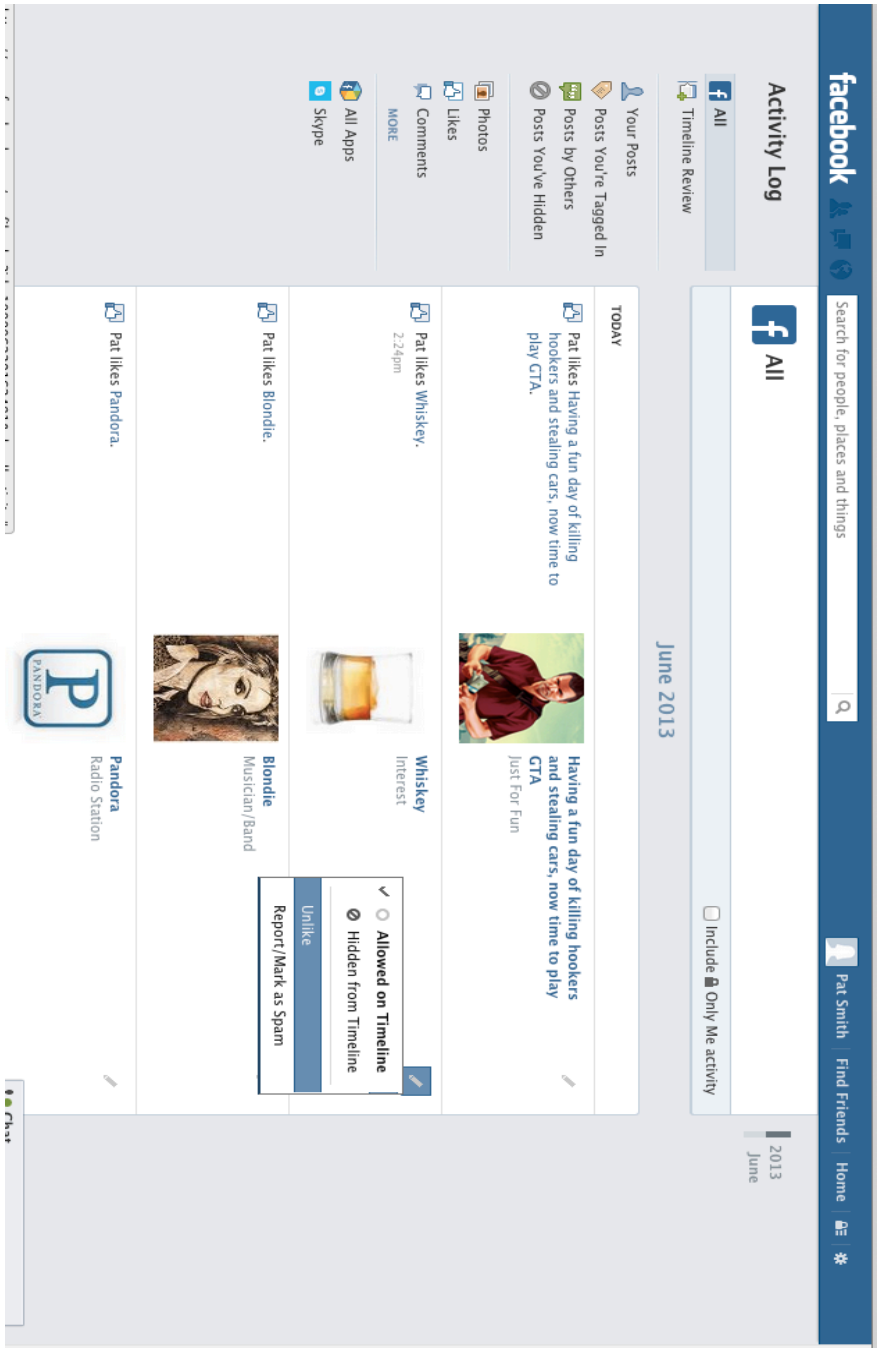
CONCEPT #2C: 3+ MONTHS AFTER DEATH



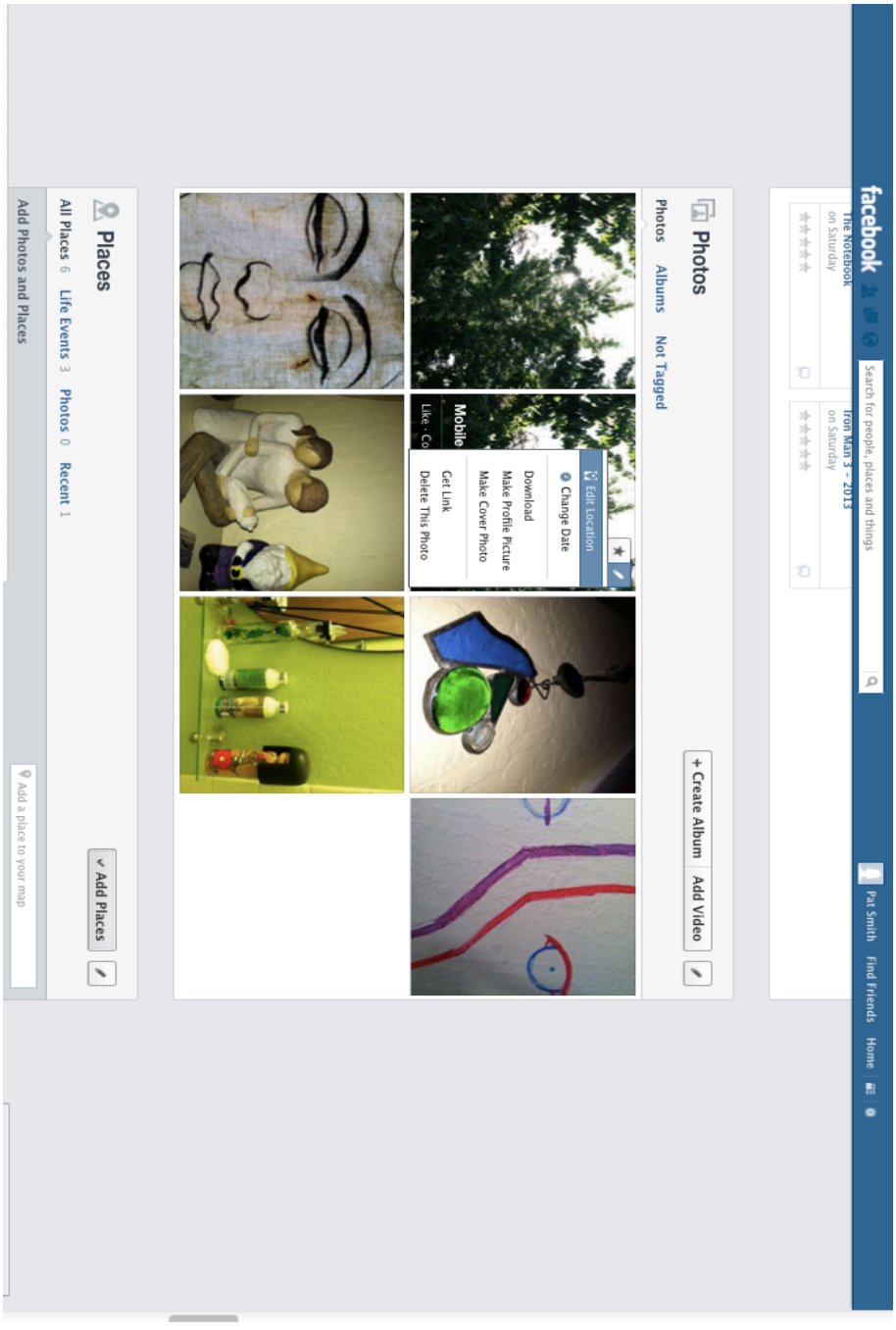
FACEBOOK FEATURE #3A



FACEBOOK FEATURE #3B

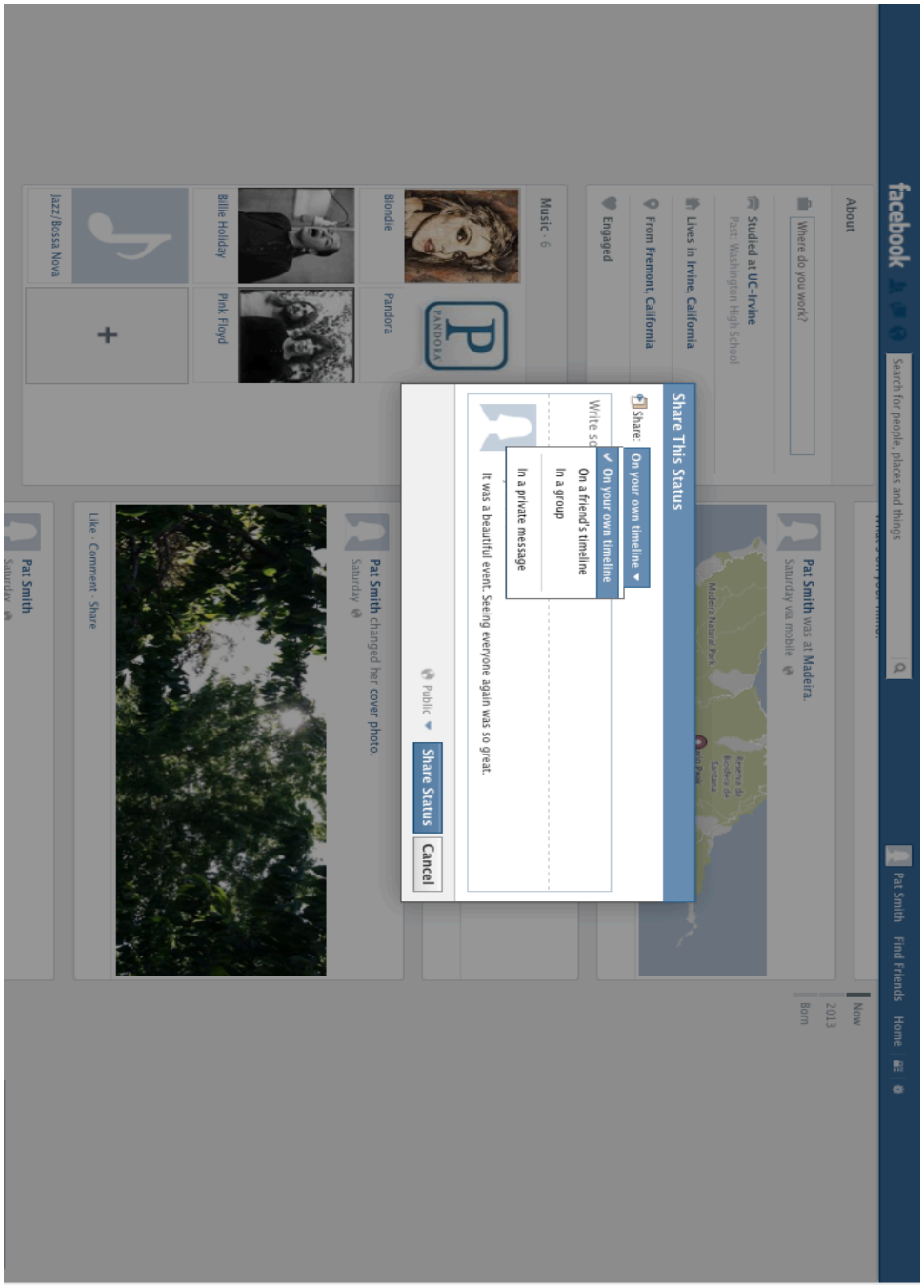


FACEBOOK FEATURE #3C

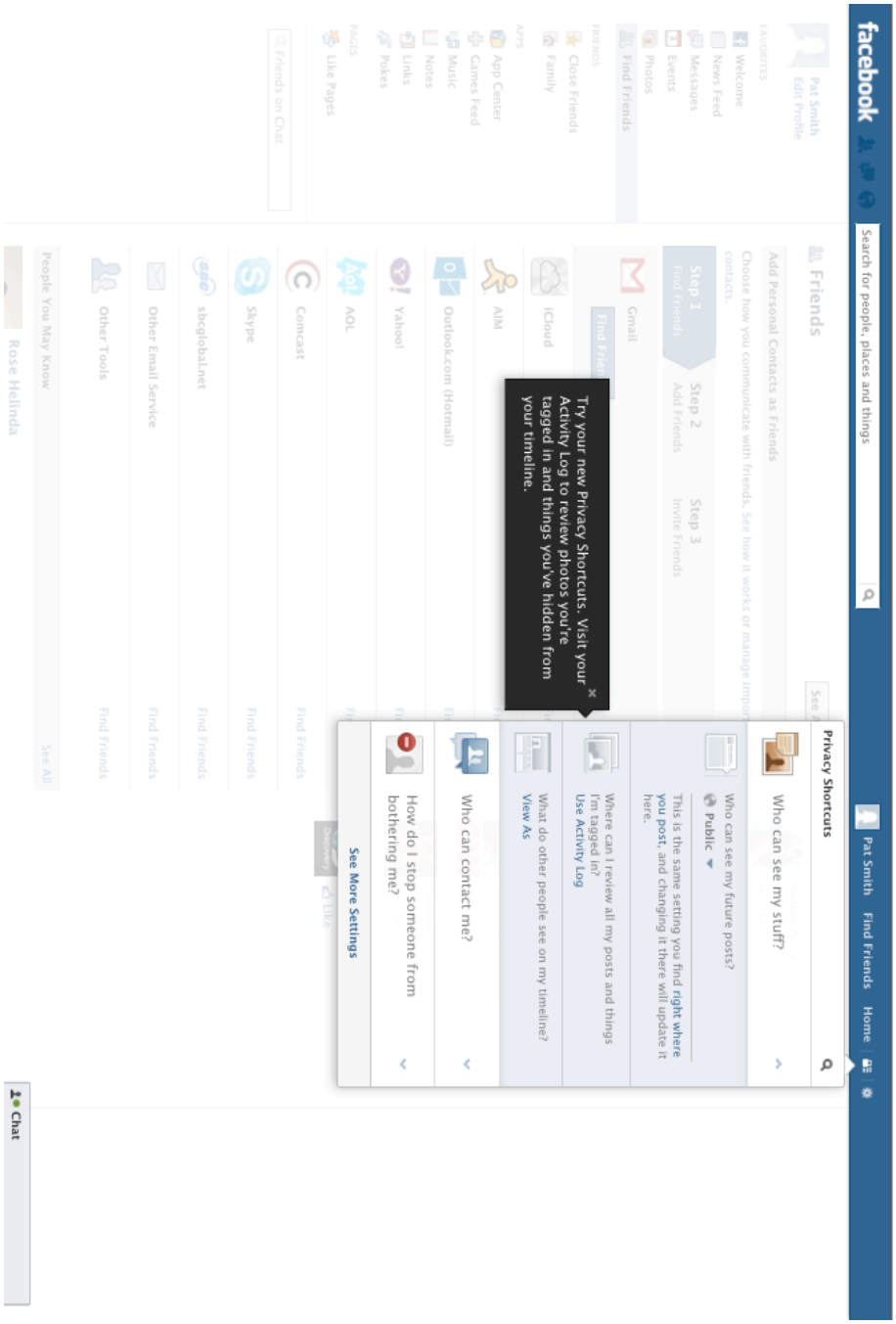


FACEBOOK FEATURE #3D

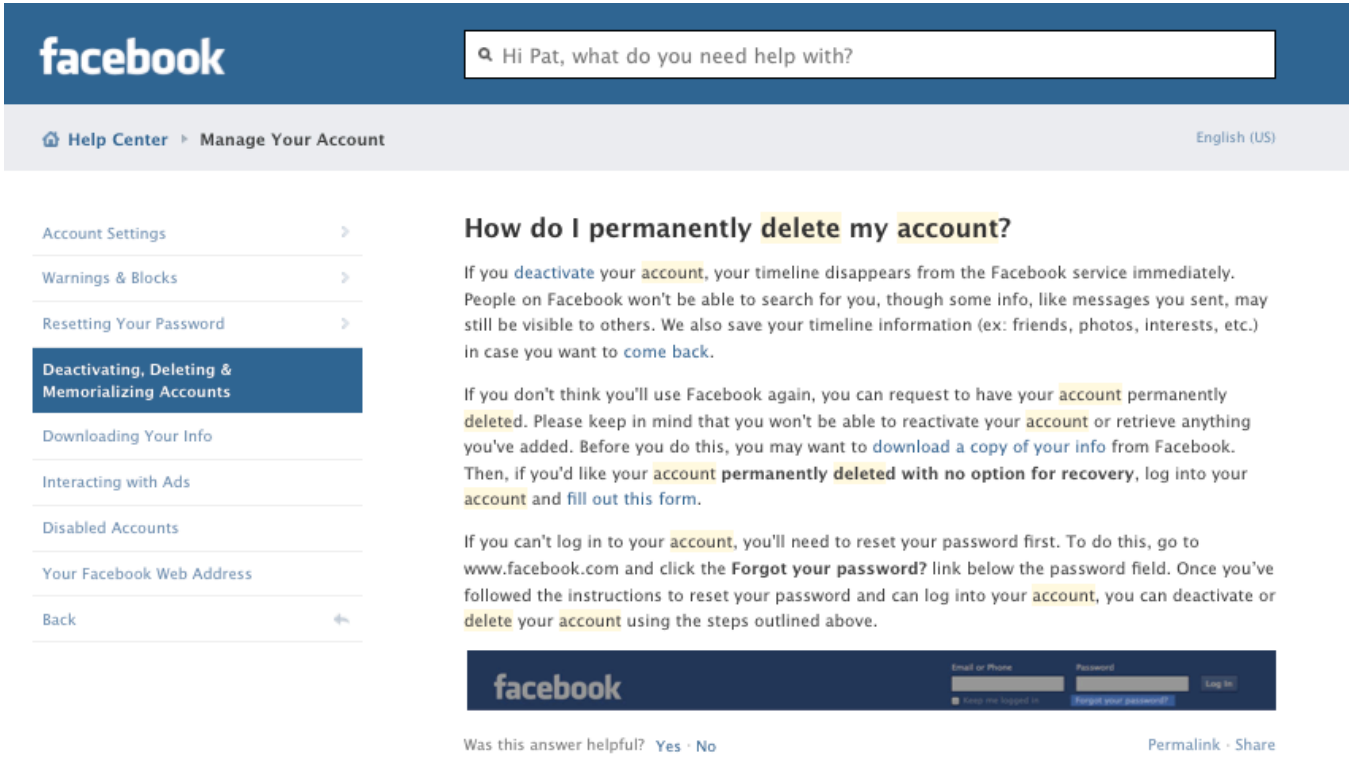
FACEBOOK FEATURE #3E



FACEBOOK FEATURE #3F



FACEBOOK FEATURE #3G



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