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A Sort of Permanence: Digital Remains and Posthuman Encounters with Death

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Abstract Digital remains, in the shape of devices and traces of digital content and interaction stored on the devices themselves and online, left behind by the deceased have come to play important parts in the lives of those who live on. With a posthumanist perspective we explore how user-driven engagement with digital remains are changing and diversifying existing practices related to loss and grieving. The digital remains can be seen to contain the "essence" of the deceased person embodied within the digital device. Based on interviews and observations gathered from the contexts of Israel, the UK and Sweden, we investigate the role of digital remains in bereavement and what implications the eventual obsolescence of these remains might have for continuing bonds. In doing so we seek to increase our understanding of the (post)human encounter with death and the human capabilities of digital remains.

Keywords digital remains, posthumanism, bereavement, continuing bonds.

A SORT OF PERMANENCE: DIGITAL REMAINS AND POSTHUMAN ENCOUNTERS WITH DEATH

When people die, they leave all sorts of things behind. Things left behind may be property to be passed to an inheritor or other types of everyday material things to be used by some other person, such as photos and mementos. These days, as digital devices increasingly saturate our lives, other types of remains are also left behind. Smartphones, laptops, and tablets have become integral parts of everyday life, mediating as well as containing our digital engagement with ourselves, each other, and the world. As a result, the digital remains in the form of devices and content, such as traces of online activities, communication, photos or playlists, left behind by the deceased have come to play important parts in the lives of those who live on.

The continuing bonds theory of bereavement (Klass et al., 1996) emphasises the importance of maintaining a relationship with the deceased, disputing the idea that everything ceases with death, pointing instead to something more enduring and persistent, or, as Refslund Christensen and Sandvik (2014) put it 'Death ends a life, *not* a relationship.' Digital remains may function as transitional objects (Mowlabocus, 2016), helping the bereaved to transition and adapt to the new relationship with deceased loved ones, offering the bereaved means to continue bonds (Klass et al., 1996; Walsh & McGoldrick, 2004) and as tools for making sense of loss.

With a posthumanist approach, digital remains can be seen as containing the "essence" of a deceased person. Embodied within the digital device. However, as noted by Walter (2015), digital remains are ephemeral. In terms of hardware and digital content, obsolescence is built-in by design. So, like our physical selves, these digital remains are mortal; They are designed to 'die' (Hård af Segerstad et al., 2020; 2021).

In this paper, we trace the idea that digital remains in the shape of the physical devices (smartphones) and the digital traces of content and interaction stored on the smartphones themselves

and online, can be regarded as extensions of the body and the person in the posthumanist sense. By placing death and bereavement in the context of posthumanism, we investigate new ways in which digital remains are experienced by the bereaved as an extension of the deceased person and can even be used to give a sense of bringing a person 'back to life'. We also examine the challenges and technological limits of posthumous persistence in this context.

DIGITAL REMAINS

Scholars have approached the concept of digital remains from various disciplines. The scope of what the concept might encompass has differed but has mainly referred to the digital artifacts that users of social network services and other online services leave behind when they die, i.e., the digital content stored online or on physical hardware, such as laptops and hard drives (Gibson, 2014; Wright, 2014). The concept *digital afterlife* is a key issue to a wide variety of professionals, such as grief counsellors, palliative caregivers, and educators. Existing research includes how people use the internet to memorialize the dead (Bell et al., 2015; Marwick & Ellison, 2012; Pennington, 2013), mourning on social media (Brubaker et al., 2013; Sofka & Cupit, 2012; Walter et al., 2012); how the Internet enables continuing bonds with the dead (Bailey et al., 2015; Bouc et al., 2016; Christensen & Sandvik, 2015; Kasket, 2012; Walter, 2015); and grief tourism and RIP trolls (Phillips, 2011).

In the legal literature, the terms *digital estate* and *digital assets* assume that personal digital content is a property that might be inherited (Morse & Birnhack, 2019; Öhman & Watson, 2019). *Digital legacy* is a term used in the same context to refer to an intergenerational relationship. The deceased person conveys a set of values and beliefs he or she hopes would guide their loved ones. Finally, digital footprint is another term that has been used. Digital footprint is the trail, traces, or "footprints" which people leave online, knowingly (e.g., posting on social media or sending emails) or unknowingly (e.g., web server logs metadata and search history) (cf. Muhammad et al., 2018).

The focus in this paper is on personal, non-proprietary and, what Morse and Birnhack (2019) describe as "often mundane digital informational trails of ordinary people, whose orphaned data may facilitate their loved ones' grief, rather than a legacy in the conventional meaning" (p.3). Like Morse and Birnhack (2019), we use the term digital remains to avoid the proprietary and intergenerational orientations. Our use of the concept encompasses both the material hardware of smartphones specifically and the digital content made up by the trail of data passively and actively created in life by the deceased while using online apps and services.

POSTHUMANIST PERSPECTIVES ON CONTINUING BONDS

Our understanding of the role of increasingly ubiquitous and integrated digital tools in our everyday lives is rooted in a posthumanist approach as well as in media scholarship. For decades, scholars in the *posthumanist tradition* have discussed the relationship between humans and non-human agents, such as animals and machines. Posthumanism accepts technology as a source for the reconfiguration of the human. Bolter (2016) argues that Donna Haraway (2013) has been important in exploring "the porous character of these boundaries on the continuum machine–human–animal" (Bolter, 2016, p. 2). Furthermore, Bolter argues, Haraway offered "the cyborg as a contemporary cultural metaphor in order to capture the ambivalent condition of contemporary human beings, whose bodies are open to forms of technological modification and intervention" (Bolter, 2016, p. 2).

In the same vein, Park and Kaye (2019) argue that human beings have been trying to enhance their physical and mental capabilities for thousands of years. One example is the use of external objects to extend the capabilities of the self (Masci, 2016), which McClelland (1951) argues becomes

part of the self when they can be controlled, just as an arm or a leg. The greater the control, the more closely the object becomes allied with the self. Park and Kaye (2019) suggested the extended-self thesis, first put forward by Belk (1988), as a fruitful way for understanding the relationship between humans and technologies by asserting how the self extends "beyond the body through the interaction between humans and technology" (p. 216). They explore several ways the smartphone can be argued to extend human capabilities or the self, referring to three types of self-extension via the smartphone: functional, anthropomorphic, and ontological extension (Park & Kaye, 2019). In this sense, the smartphone might be regarded as an extension of the human body (Davel, 2017; Walsh & White, 2007), or "prostheses" (Haraway, 2006); part of a user's identity (Vykoukalová, 2007), and part of the fabric of everyday life (Ling, 2004).

We specifically regard the smartphone as a digital device that accentuates a posthumanist understanding of the relationship between humans and non-human objects - even more so than other everyday digital devices, such as tablets and laptops. Smartphones are equipped with functionalities that extend and enhance our mental and physical human capabilities when used for "outsourcing" cognitive capacities on external memory systems or extending our physical capabilities when used for communication at a distance or as a magnifying glass. Several scholars have also argued that the smartphone is a type of "affective technology" that is deeply connected to the emotional lives of users (Fortunati & Vincent, 2009; Silva, 2012).

Taken together, the multi-layered (posthumanist) capacities of the smartphone can be seen to embody the *apparatgeist* or the essence of the user, connecting to and extending the physical, psychological, emotional, and spiritual aspects of the self. Katz and Aakhus (Katz, 2017; Katz & Aakhus, 2002) introduced the concept of *apparatgeist* "as a way to capture and categorize a novel way of thinking about how humans, when alive, invest their technology with meaning and use devices and machines to pursue social and symbolic routines" (Katz, 2017, p. 15). The theory emphasises how the mobile device becomes more than the technology and affordances of the apparatus.

This thinking prompts us to consider important questions about what happens to our digital remains when we die. Pitsillides and Jefferies (2013) consider a posthumanist approach as making room for new conceptions of thinking about the role of the dead in society, including "the agency they still have through: memory, things they leave behind, social networks, spaces, paths: *digital or otherwise*". If technology can extend the life of digital selves beyond death, what does this mean from the perspective of the bereaved? What are the limits of this posthumous persistence?

BETWEEN DIGITAL ENDURANCE, DIGITAL EPHEMERALITY, AND OBSOLESCENCE

In a not too distant past, the promise of digitalising analogue documents, such as printed photos, was embraced in the hope that it would provide means for durability. Digitalising photos, storing them on hard drives, or uploading them to service providers' cloud-based platforms would allow us to secure their existence for eternity and offer easy means for sharing and multiplying. However, as Kasket (2020) puts it, "forever may actually mean until corporations fail, data storage systems prove insufficient and/or technological obsolescence hit" (p. 27). Kneese (2019) points to the planned obsolescence of Apple products, with "perpetual updates and upgrades for software packages, in Silicon Valley's race for the 'new'". Paradoxically, this built-in obsolescence will eventually make the digital devices, the apps and platforms we use and access for communication today inaccessible. In short, in order to keep stoking the market and urging us to invest in new gadgets and turn to new services constantly, digital devices are designed to die. This precarity may have serious consequences for the role that digital remains may have for the bereaved.

Stokes (2015) introduced the term 'second death' to discuss the impact that the deletion of digital remains may have on the 'ontological and ethical status of the dead'. Digital data may easily be deleted intentionally or unintentionally by the user. They may also be deleted or made inaccessible if a platform provider goes bust and ceases to provide its services (cf. Kasket, 2020). Bassett (2018) also highlighted that the questionable endurance of digital remains creates new forms of anxiety for the bereaved. Building on the work of Stokes (2015), she suggests that the fear of deletion or loss of the data created by - or commemorating - the deceased is being experienced by some as a 'second loss' or 'second death'. Abidin (2018) also found that digitally literate users feared the loss of digital footprints, artifacts, and meaningful connections with the deceased. As a result, some of Abidin's (2018) informants took care to store the precious remains by downloading or print-screening and saving the content of their deceased friend's accounts on hard drives. Even so, an unexpected computer crash or technological failure might spark a second wave of loss if stored online information is deleted.

In this paper, we explore how a posthumanist approach can extend our understanding of bereavement and mortal encounters with digital remains beyond what has been conveyed by continuing bonds. With a posthumanist perspective, we examine the meaning of digital remains for those who have lost a loved one: how users interact with digital remains and how the technological possibilities for extending (aspects of) the self in digital afterlife bears out in practice for the bereaved.

METHOD AND MATERIAL

The authors of this paper are academic researchers in three different countries (UK, Sweden, and Israel), undertaking qualitative studies into the role of digital remains in bereavement. Our observations and reflections from our respective studies (2014 - 2020) were the point of departure for this work.

Our UK sample originated from two studies. For the first study, participants who had engaged with online the digital remains of loved ones were recruited via two UK national charities (PAPYRUS Prevention of Young Suicide and Survivors of Bereavement by Suicide). Eleven bereaved people aged between 20 - 60 years were interviewed, including friends, siblings, and parents.

For the second UK study, a panel of experts with lived experience of being bereaved or affected by suicide and/or supporting those affected or bereaved was convened as part of a knowledge exchange workshop. The workshop brought together a purposive sample with a wide range of experiences to discuss, reflect and share knowledge on social media use following a suicide. Attendees were subsequently invited to participate in research interviews. They were also invited to nominate others with relevant lived experience, facilitating a "snowballing" data collection method. As a result, six professionals and two participants with lived experience were interviewed. Three of the professionals also had lived experience.

Our Israeli data originate from an autoethnographic study of family members' engagement with the digital remains of a deceased relative. These included social media profiles on Facebook, the instant messaging app WhatsApp, and a smartphone. The researcher recorded the family members' interaction during a six-month period following the death of the family member. Data included 30 screenshots of WhatsApp and Facebook messages, documentation of family conversations around digital remains, and field notes.

Data from the Swedish study stems from semi-structured interviews with members of a closed group on Facebook dedicated to bereaved parents in Sweden (of which one of the researchers is a member, which enabled access to the community). After completing an online questionnaire, participants were invited to contact the researcher for follow-up interviews. This approach resulted

in four interviews (three women and one man) loosely organized around broad themes of how participants use the closed Facebook group and other digital remains such as smartphones.

From our joint pool, we extracted narrative data from individuals who had engaged with the digital remains of a lost loved one or individuals who worked in a professional capacity to support the bereaved. These participants were able to reflect on the topic based on their professional practice experience.

The interviews and observations in our pool of data were recorded with the interviewees' consent. Interviews lasted between 60 and 120 minutes, and all were transcribed verbatim and de-identified in the process. Participants have been given pseudonyms, and excerpts from the Swedish and Israeli data have been translated into English. Data were stored on secure password-protected repositories at our respective academic institutions.

In all cases, interviews focused on the personal stories of our participants, following a narrative methodology approach (Spector-Mersel, 2010) and focused on the special circumstances of coping with grief through digital remains. Our data - the stories produced during the interviews and observations - were created for the researchers and were influenced by the way the teller had understood the purpose of the study and by the interaction between the researcher and the narrator. In line with narrative inquiry, our interviews started with an open non-directing question (e.g., *Tell me the story of your personal loss, I'd like to hear how you coped with it through digital means*) to encourage the flow of the story and invite a temporal account. Then, with a qualitative descriptive approach, we compared thematic notes from our respective analyses and identified similarities in patterns (or themes) across the data set (Braun & Clarke, 2006).

FINDINGS

We construct our analysis around three themes: continuing bonds, sensemaking, and ephemerality of digital remains. We draw upon the extended-self thesis (Park and Kaye, 2019) to frame our analysis, offering new insights for understanding the aspects of mourning and grief work described from a post-humanist lens. In doing so, we seek to increase our understanding of the (post)human encounter with death.

DIGITAL REMAINS AS TOOLS FOR CONTINUING BONDS

In our pool of data, we found examples of smartphones, and the digital content contained within, being used by the bereaved as tools for continuing bonds: mobile phones, music tracks, ringtones, messages, images, and voicemails, in particular, were used in a variety of ways to enable points of contact between the living and the dead.

In the UK data, Janet explains how, since the death of her son (approximately two years at the point of interview), she uses her smartphone to gain immediate access to his social media site as a way of staying close to him at all times: "*I can go on… my phone, anywhere I am, I can just go on to it and read it*". The proximity she refers to here is in the *physical* sense: she pats her pocket on her hip as she speaks, indicating where he is – on her smartphone, in her pocket. This gives her the feeling that, wherever she is, she can 'conjure' him up via his digital remains (photographs, videos, conversations, personal likes, and dislikes), instantaneously bringing him back to life, as it were, at the click of a button.

Alison, a bereavement support worker, narrated the story of a woman she supported (Lesley) whose husband had died suddenly. Lesley kept her husband's smartphone and continued to pay the bill after his death to use it. She had developed a habit of calling his smartphone (using her own smartphone) twice every day to listen to the ringtone. The ringtone was a favourite piece of music,

so it was meaningful to her. But more meaningful than that appeared to be the particular times during the day at which she called: these would be the time at which he would previously have left for work in the morning, and the time at which he would have previously left work at the end of the day to travel home. She did this Monday through Friday but not on the weekend. Alison explained:

> *[I] just feel as though if I play that ringtone, I won't feel as broken …. It's just making me feel better… it was just that ringtone… it didn't need to be his voice… it just needed to be that "I'm on my way home," you know, "I'm coming…"*

In the Swedish data, a bereaved parent shared her story of using the digital remains of their deceased daughter in several ways, regarding these as extensions of the lost person in a posthumanist sense. The bereaved parent continued to embed the deceased child into her everyday life by listening to the tracks on her Spotify lists. Since they used to listen to these tracks together, the music functioned both as a point of contact, giving a sense that she was present, and for comfort:

> *I feel that the music is a part of her. We talked earlier about how shoes and clothes are parts left behind, and I feel that the music also was a part of her…the digital traces gave me something. I could listen to her music. I could take part in stuff she'd posted on YouTube …it became a way to keep being in touch with her past in a way…*

Participants' words highlight the sense in which the smartphones enable a physical closeness to their deceased loved ones. At the same time, the content within the device (conversations, likes, voices, playlists, and sound) enables participants to feel spiritually close to their loved ones, especially at times when they are missed the most. Our data indicates the capacity of digital remains for extending continuing bonds in new ways, accentuating the embodiment and presence of the person within the device in the posthuman sense (as a functional extension of the self); how the essence of the person is retained and can be "brought back to life" through the affordances provided by technology; how the bereaved are able to pursue the social and symbolic routines invested in the devices by the deceased as a way of keeping them present, and reachable.

Park and Kaye (2019) suggested that smartphones may help users construct a personal narrative of the self and thus facilitate ontological security. For example, Lesley's use of her husband's smartphone in this way enables her to re-establish her lost routine and create the feeling that he is close to her, that he continues to exist. Her assertion that she "won't feel as broken" suggests that his digital remains facilitate an ontological security by bringing about a sense of continuity and control. Similarly, the Swedish parent's contention that listening to the music helped her to "keep in touch with her past" gives a sense of enabling continuity (with the extended self - by recreating experiences they used to have together), thus facilitating ontological security. For Janet, the material is more than a tool for continuing bonds; it is an anthropomorphic extension of her deceased son – a replacement representation or 'mini-me' of him (Kim & Sundar, 2012) - reflecting his personality and characteristics.

DIGITAL REMAINS AS TOOLS FOR SENSEMAKING

Our data contains examples of how participants used digital remains to make sense of the lives and deaths of their loved ones. For example, the bereaved parent in the Swedish data used traces of their deceased daughter's activities that they could access (such as postings on Facebook and YouTube, text messages). Songs and playlists on Spotify were also used as clues to find any indication of her state of mind. These active digital footprints were combined with passive traces of information from

various sources, such as metadata identifying the date and time when certain Spotify lists were created, what tracks they contain, how many times tracks have been played in an attempt to piece together the last period in their daughter's life.

> *Sometimes [reading] the text messages give me comfort, and sometimes I think that I wouldn't interpret now what she wrote then. It's so ambiguous… you read it differently now and think, "Was that a cry for help that I didn't pick up?"*

From the UK data, in Cheryl's account below, she describes how the Facebook page of her deceased son serves as a memory aid. More than that, the page is still active (as an extension of the person in the present) and being interacted with by others. This dynamic presence enables her not only to maintain memories of her son but also to create and re-create new memories, as she continues to learn new things about him, helping her to make new sense of his life:

> *They're like props… the actual Facebook account is very much a memory thing because … your memories start fading... with Facebook, there are lots of memories that … come out in dribs and drabs, and they're lovely because they're new to me, I'm never going to have a new photograph of [him]*

Our participants talked about using digital remains for sensemaking in two ways. The first is an attempt to figure out the last period of their deceased loved ones' lives. The second type of sensemaking was discovering new things about a person's life, creating new memories with the digital '*props*'. In both cases, sensemaking appears to be about trying to know the deceased better in death. From a posthumanist perspective, the bereaved engage in sensemaking by seeking new knowledge and undiscovered parts of the person that can be found within the digital remains and continue to function as part of the self after death. These extended selves live on; they are fluid and dynamic, allowing the meaning that the bereaved imbue in them to evolve and change. These practices facilitate new understanding or 'knowing' about the person and their motivations and intentions, as the bereaved visualise new aspects of the posthumous self in the present.

EPHEMERALITY OF DIGITAL REMAINS AS A THREAT FOR CONTINUING BONDS AND SENSEMAKING

The final theme in our analysis highlights how the bereaved experience the fragility of digital remains and the consequences of this for continuing bonds and sensemaking. Our data pointed at two types of secondary loss experiences. The first is actual loss of the digital remains because of system failure, platform or software obsolescence, password and access denial, or accidental deletion. A second type is the fear of secondary loss.

The following example from the Israeli data illustrates how a family lost the lingering online presence of a deceased relative and experienced a secondary loss. After his death, the widow of an enthusiastic Facebook and WhatsApp user (Rami) continued to use the smartphone he left behind and his social media accounts to share messages and publish posts. However, four months after his death, there was a new message in the family WhatsApp group: "Rami left the group". The family members were perplexed, as it looked like Rami had actioned the message until the following message appeared on the app: "Please update your WhatsApp app". It turned out that a missing system update of the app installed on the device that Rami had left behind gave the appearance that he left the group by his own volition. As a result of this built-in obsolescence, his continued participation in the family group ceased once more.

The bereaved parent in the Swedish data described that despite producing a death certificate proving the passing of their daughter, they were denied access to some sources of digital remains (password-protected accounts on Google, Facebook, and Apple, for instance). Not knowing if the accounts they could not access would have contained meaningful information caused ambiguous feelings. They had hoped access to the content would have helped them in their search for answers, and the loss (or non-access) to this content posed a threat to their need for sensemaking. Acknowledging their child's integrity and accepting policies to protect posthumous privacy, the parent reflected on whether having access would have been useful: *"The optimal thing would have been … access to all her Messenger and email conversations. But then again, I don't know if that would have been good for me".*

In the UK data, Cheryl described the accidental deletion of her son's digital remains from his smartphone (which was still in contract and being paid for) as a *secondary loss*. Louise (Cheryl's daughter) reflects on what the loss of her brother's digital remains mean for her mother: *"Quite quickly, that phone became a shell… became quite functional and not emotional anymore… it definitely torments her…".*

Something here alludes to the posthuman quality of digital remains: once the data is lost, part of the essence of her son is gone (leaving behind just the shell, an empty vessel). Despite the loss of digital data, Cheryl kept the phone, replacing her own phone with the one that belonged to her son, because, as she said, *"…there's a real connection with that phone...".* At the same time, she acknowledges the ephemerality of the device: *"But it's going to wear out... eventually... it's slower than it was, and the battery charger doesn't work as well …. It's going to become dated and not function as it should".*

Cheryl describes the ephemerality of the device as a slow, gradual decline. Conversely, the grief councellor Larry describes the very sudden loss of the digital remains of a young woman's estranged parent. The following extract stresses the meaning of the loss and the effect it had on her:

> *… her mum died, and this girl lost all her photographs and was totally and utterly traumatised... that was the only thing that she had of her mum…. she broke her phone… there was no way of getting that back...there was no cloud there. There was no back-up… so it was gone*

In the Swedish data, a bereaved parent described actions they have taken for trying to make the fragile digital conversations they had with their deceased child more permanent:

> *I've saved our [text] conversations…copied them into a Word document because I'm afraid they will go missing, and I really don't want that because it's really the last I have left of that communication… I've saved it in the cloud … and I hope there will be a backup if something happens*

The parent recounts transferring digital remains (emails and text messages) from their mobile device to an online repository, having faith in this as a safer way than storing them on their own device. In the UK, Larry also recognised the fragility of digital remains: "*there's never ever any guarantee that it's always going to be there*".

In the next extract, he goes on to compare human memory with digital memory, drawing parallels with the ephemerality of both. He describes how fear of secondary loss motivated him to seek ways to increase the durability of his digital material to ensure its survival:

> *We made a decision … that we would go through all our favourite pictures on our phones and...have them printed… so that you've got something tangible, something you can touch and… make it real…because devices can be stolen, or they can break... Or… become outdated… I think people realise that technology changes and that they need to convert it into more secure means…. That sort of permanence….*

From a posthumanist perspective, we learn much about what digital remains mean to the bereaved by looking at what happens when they become obsolete or deleted. Louise's suggestion that the smartphone became a 'shell' following the deletion of data speaks to the posthuman quality - the anthropomorphic extension of the self - which is now gone, and the importance of this dimension for the bereaved ('not emotional anymore'). As digital remains disintegrate, or even when they are transformed into hard copy form, extended selves disintegrate, and the material loses its posthuman quality; just traces of the self are left - there is no longer anything to interact with or control; no longer anything that is 'alive' and dynamic; no longer anything that can grow and change or evolve; no longer something to connect with on a human level.

DISCUSSION

Despite being based on a small sample, our study offers insights into how bereaved individuals make use of and integrate the digital remains in their everyday life, what roles these digital remains play in their grieving process and adaptation to the 'new normal' in which the bereaved find themselves, and what happens when access to digital remains is not, or no longer, available. Moreover, our findings from data collected in three different countries suggest these practices are not limited to a particular data set or sociocultural settings. Building on this knowledge, future studies may offer a wider and more detailed diversity of perspectives and contexts.

The themes we constructed are not mutually exclusive. Each of our data sets had illustrative examples which overlapped into all three. Thematising this way helped us to conceptualise and discuss, but excerpts from the narratives were often characterised by all three themes. For example, copies of an email conversation transferred into a Word document formed a way to make the ephemeral digital trace more permanent. At the same time, that document then became a tool for continuing bonds and a way to facilitate sensemaking. Hence, in re-reading the conversation, it became a tool for re-interpreting or re-imagining previous memories and previous perceptions of the deceased person and events.

Posthumanism tells us about our relationship with technology and how it becomes an inseparable part of us, an *extension of ourselves*. When we die, a posthumanist perspective enables us to conceptualise how digital remains can be seen as an extension of the self, left behind after death embodying the *apparatgeist* or essence of the deceased person in the present. Our data has illustrated how, when users die, the bereaved use smartphones to connect to the extended selves (of the deceased); to continue relationships and the social and symbolic routines invested in the devices by the deceased as a way of keeping them (those elements of extended selves) alive, and to maintain some semblance of control and *continuity* over them and their posthumous digital 'afterlives'.

For Rami's family, his continued posthumous presence in the WhatsApp group maintained a sense of continuity, family routines, habits, practices, and ways of doing things (and being), thereby facilitating ontological security for the family. The notion of 'deleting' him from the group did not occur to the family. In fact, the opposite was the case, as it was for other participants in our data who deliberately kept the devices, continued contracts, and paid bills in order to facilitate and continue their relationships, routines and rituals.

Thus, a posthumanist lens adds to our understanding of mourning in a digital age by illuminating the human capacities that digital remains are imbued with, adding a new dimension to continuing bonds. It helps us to see that the mobile device is more than the technology and affordances of the apparatus; it is much more than a mourning object. As has been argued by Fortunato and Vincent (2009) and Silva (2012), and shown in our data, the smartphone is a type of "affective technology" that is deeply connected to the emotional lives of users, and after death, deeply connected to the emotional lives of the bereaved. This can be seen to be connected to the qualities of the hardware itself that has been handled by the deceased and played a part in the everyday life and formation of that person. It serves as an intimate connection for the bereaved, leaving a physical trace that can be kept close and carried around and even used. It also serves as a point of connection to the content left behind on the device created by the deceased, or created on the device and stored online, with the power to both give a sense of connection and a sense of prolonging or bringing back to life.

At the same time, paradoxically, digital remains are in many ways more fragile and less durable than physical remains such as cherished items and possessions, which cannot be duplicated but also cannot so easily be deleted (at the click of a button) by accident or otherwise. Like human memories that fade and fail, digital memories also decay and decompose; the content can be wiped out or the software can become obsolete. Moreover, while the posthuman presence of the deceased is extended by the smartphone's communication tools, Park and Kaye (2019) point out that such extensionism takes place by the will of the bereaved. Consequently, as O'Connor (2020) suggests, it is not necessarily the technology itself, rather the capacity of the bereaved to harness it that facilitates the continuation of the relationship with the deceased and accords it the potential to live on.

Thus, digital technology, despite all of its affordances, does not have the power to immortalise forever as was once hoped. Our data indicates, as Kasket (2020) argued, that digital technology has the power to bring back to life only for as long as servers exist, software exists, or until products and devices are superseded, updated and become obsolete. This can have significant consequences for the bereaved, as suggested by Bassett (2018). This specific new form of secondary loss (whether gradual, as in the case of Cheryl whose son's smartphone began to slow down and not function as it should; or sudden, as in the young woman Larry described, whose photographs were suddenly lost when her smartphone was damaged), appears to be inevitable. Should technology be designed to overcome ephemerality? Would this be possible or even desirable? For now, it seems that, for those who use digital remains to engage in sensemaking and to continue bonds, there is only a sort of permanence, where the dead are still very much present amongst the living, but at the same time always in the process of dying.

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