Griefbots. A New Way of Communicating With The Dead?

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Abstract

There is a growing number of new digital technologies mediating the experiences of grief and the continuing bonds between the bereaved and their loved ones following death. One of the most recent technological developments is the "griefbot". Based on the digital footprint of the deceased, griefbots allow two-way communication between mourners and the digital version of the dead through a conversational interface or chat. This paper explores the mediational role that griefbots might have in the grieving process vis-à-vis that of other digital technologies, such as social media services or digital memorials on the Internet. After briefly reviewing the new possibilities offered by the Internet in the way people relate with the dead, we delve into the particularities of griefbots, focusing on the two-way communication afforded by this technology and the sense of simulation derived from the virtual interaction between the living and the dead. Discussion leads us to emphasize that, while both the Internet and griefbots bring about a significant spatial and temporal expansion to the grief experience –affording a more direct way to communicate with the dead anywhere and at any time– they differ in that, unlike the socially shared virtual space between mourners and loved ones in most digital memorials, griefbots imply a private conversational space between the mourner and the deceased person. The paper concludes by pointing to some ethical issues that griefbots, as a profit-oriented afterlife industry, might raise for both mourners and the dead in our increasingly digital societies.

The sudden death of Roman Mazurenko in a car accident in 2015 left Eugenia Kuyda with the need to speak to her friend one last time. Rereading Roman's old text messages, she thought that they might be used as the basis for a chatbot—one capable of simulating her friend's conversational style—thus enabling her to communicate with him once again (Newton, 2016). Using over 8,000 lines of text messages from her friend's conversations with different people, and a neural network developed at her artificial intelligence start-up, Kuyda built a chatbot which those who had been close to Roman reportedly found eerily convincing (Elder, 2020). Chatbots are "computer application[s] with artificial intelligence (AI) capable of generating a two-way conversation between a human being and a machine (robot) through a conversational interface or chat" (Ávila-Tomás et al., 2020, p. 33). Since the creation of the first-ever chatbot ELIZA—a program impersonating a psychotherapist, devised in 1966 by Joseph Weizenbaum—, advances in artificial intelligence have changed the way we interact with machines such as the increasingly popular voice-based assistants. Following this trend, programs powered by AI engines are also likely to change the way we interact with the dead in a not-too-distant future. Similarly to Kuyda's case, different projects are currently being devoted to these so-called *griefbots*—chatbots based on the digital footprint left behind by the deceased through social media, emails, texting and messaging systems—with the aim of providing the bereaved with the chance to speak to their loved ones after their death. The data scientist Muhammad Ahmad is working on a messenger program that imitates his father's speech pattern so that his grandchildren can bond with him (Godfrey, 2019). In 2014, the entrepreneur Marius Ursache envisaged Eterni.me, a service whereby you could develop your own digital avatar with which your descendants could interact after your death. In turn, Microsoft has recently abandoned a project to develop a conversational chatbot of a specific person based on her/his social data, despite having patented the system to do so (Abramson & Johnson, 2020). Microsoft's General Manager of AI programs, Tim O'Brien (2021), recently referred to the project as disturbing.[1]

The prospect of a future in which we can communicate with our dead via their digital footprint generates a mix of curiosity and concern. There is concern about the impact griefbots might have on the bereaved. In line with *Black Mirror*'s 'Be Right Back', (Brooker & Harris, 2013), some of Mazurenko's friends expressed concern that Kuyda's device might leave people "mired in grief but drawn back into the pseudo-relationship, unable to move on but unfulfilled by the facsimile of a loved one" (Elder, 2020, p. 74). If, as is commonly understood, the grieving process ends once we overcome the loss and say goodbye to our loved ones by letting go of the ties that bind us to them,[2] then it seems reasonable for alarm bells to ring in the face of an artefact that perpetuates the continuation of these bonds. Conversely, a growing trend in grief studies questions the need to break the affective bonds with the departed. According to the *continuing bonds* model (Silverman, Klass & Nickman, 1996), rather than sever the attachments with the deceased and *move on*, the grieving

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[1] This is not the case with Google and its—apparently less "disturbing"—assistant *Loretta*. The *Loretta* ad (Google, 2020), aired during the 2020 Super Bowl, features a widower using a voice assistant as an aid to remember little things about his late wife Loretta (Leaver, 2021).

[2] This popular assumption is strongly influenced by the Freudian letting-go approach.

process implies *moving with* an ongoing connection to those no longer living. This sense of connection, with positive effects on coping with loss, may appear in the form of dreams, invoking the example of the deceased as a standard of self-judgment or, more generally, through an inner dialogue by imagining their responses to one's actions and beliefs (Stroebe et al., 1996). According to Norlock (2017), imaginal relationships with the dead "are meaningful even when they are no longer reciprocal" (p. 342). However, while having an internal conversation with the deceased by the graveside is quite common, the prospect of holding an external and reciprocal conversation with a griefbot might transform our sense of connection to the departed and thereby our grieving process in general. In addition to the impact of griefbots on the bereaved, there is also concern about their impact on both the dead and the very idea of death (Savin-Baden and Burden, 2019), as these devices promise to recreate, and in so doing perpetuate, the identity of those no longer living.

In sum, the possible use of griefbots as new technological artefacts to cope with loss opens up a series of questions regarding our digital human existence (Lagerkvist, 2017). Mourners' unique response to loss, including the way of maintaining their bonds with the deceased, is not an exclusively intrapsychic phenomenon (Neimeyer, Klass & Dennis, 2014), but one elaborated together with other people in specific socio-cultural contexts—with social norms on how people should grieve—and mediated by those technological artefacts available in any given historical moment. According to cultural psychology (Brescó, Roncancio, Branco & Mattos, 2019; Vygotsky, 1978; Wertsch, 1998), human action is characterized by an irreducible tension between agents and cultural tools which simultaneously constrain and enable experience, such as when mourning and remembering the dead through a picture (Jiménez-Alonso & Brescó, 2021a; 2021b) or a memorial site (Brescó & Wagoner, 2019). In a similar vein, Walter (2015) posits that technologies—ranging from sculptures, writing and music to today's Internet—not only mediate how we communicate with the living, but also the way we communicate with the dead, thus making them socially present. From this perspective, griefbots are just another technological artefact—endowed with their own peculiarities—to be added to the wide range of "old" and "new" technologies mediating our experience of grief in our societies.

Drawing from this framework, what follows is a reflection on the mediational role of *thanatechnology* (Sofka, 1997) or new digital technologies, such as the Internet and griefbots, in the grieving process, and more particularly, on the continuing bonds with our loved ones after their departure. We will first focus on the possibilities introduced by the Internet, including the new ways in which we communicate with the dead on social network services (SNSs) and the digital permanence of the latter in cyberspace. From there we will move on to discuss the particularities of griefbots, focusing on the two-way communication afforded by this technology and the sense of simulation derived from the virtual interaction between the living and the dead. After contrasting, in the discussion section, the main affordances of the Internet and griefbots and their respective implications on grief, death and our imaginal relationship with those no longer with us, we will conclude by briefly flagging up some ethical issues raised by the use of griefbots, affecting both the living and the dead.

Exploring the Mediational Role of Digital Technologies in the Grieving Process

If we look at history, we can see various ways of mediating communication between the living and the dead, including ways of impersonating the latter in line with the griefbot rationale. As Elder (2020) notes, "the emerging technologies we encounter today have roots in very old tendencies" (p. 84). Drawing on the funeral rituals discussed by the 3rd -century-BCE Confucian scholar, Xunzi, Elder (2020) examines the "impersonator of the dead", a designated representative playing the part of the deceased person, thus offering those present the opportunity to interact with the departed as a means of facilitating mourning. Another example can be found in spiritualistic séances, where the dead manifest at the bereaved's questions. While these practices, unlike the previous example of the impersonator, may be prompted by a greater quest for realism, they focus more heavily on the departed than on the survivors (Beischel, Mosher & Boccuzzi, 2015). The telephone constitutes a more recent artefact which, according to Walter (2015), permitted tele-presence—a non-physical co-presence—between interlocutors, comparable to that between the living and the dead. As a socially validated technology, the phone can be used to leave text and voice messages for the deceased or to hold one-way conversations with them, as in the case of the *wind phone* in Japan; a phone box built by Itaru Sasaki to cope with his cousin's death, but which was eventually opened to the public following the 2011 tsunami.[3] Lastly, the current digital world has expanded the possibilities of communication and mourning (Dilmaç, 2018) from online memorials—where the bereaved can honour the dead—to platforms entrusted to manage the digital legacy of the latter and deliver personal messages to the living. In this sprawling digital domain, we can also find "digital zombies" (Bassett, 2015) re-animated through interactive tombstones with barcodes, unintended encounters with "Internet ghosts" re-appearing from the cloud (Cann, 2014), as well as attempts to create digital avatars (Fussell, 2016) and griefbots.

The continuing bonds model, based on the imaginal relationship between the living and the dead, is a framework that is particularly suited to exploring how different technologies mediate these relationships, whether by enabling one-way communication, as in the case of the phone, or a two-way interaction through spiritualistic séances or the "impersonator of the dead". This exploration is particularly relevant within the context of new technologies, for they bestow a certain digital immortality on the dead, with whom one can interact in different ways. Along these lines, Savin-Baden, Burden & Taylor (2017) differentiate between one-way and two-way immortality. In the former—typified by online memorials—the posthumous digital presence of the deceased "is purely 'read-only'. It is possible to view it, read it, even get messages from it, but not to engage in a dialogue with it" (p. 21). In turn, two-way immortality implies "the potential for the digital identity to interact with the living world […] from two-way text or even voice and video conversations to analysis of stock market activities" (p. 21). Drawing on the distinction made by Savin-Baden et

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[3] There are works exploring inverse cases, namely of bereaved who claim to have received phone calls from the dead—see classic work by Rogo and Bayless (1979).

al. (2017), the following sections address the mediational role of new digital technologies in communication between the living and the dead, focusing on the Internet, on the one hand, and griefbots, on the other.

Grief and the Internet: Expanding Death-related Experiences

Communication with the dead, according to Lagerkvist (2013), "reflects the gist of social media practices of our time: selves in constant connectivity even with the ultimate others—the dead" (p. 104). This constant connection afforded by the Internet among the living is also mediating the continuing bonds between the living and the dead. Yet how is the Internet, including social networks and online memorials, mediating mourning and the way we conceive of and relate to the dead in our digital era? What possibilities does this relatively new technology offer compared to previous technologies? Brubaker, Hayes and Dourish (2013) address these questions by highlighting the temporal, spatial and social expansions of death-related experiences resulting from the use of SNSs. In their own words:

> Temporally, we see pliability in this asynchronous medium (particularly around notification of death) and an interweaving of death into everyday SNS 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 SNSs and the resulting forms of context collapse in online self-presentation (Brubaker et al., 2013, p. 159).

These three dimensions of digital grief seem to allow for a more personalized way of expressing and sharing, at our own pace, our mourning experience in connection with other mourners in need of the same social support (Gamba, 2018). This results in an open and communal space—less constrained by the norms and physical limitations of traditional offline rituals—where both mourners and the mourned can be constantly connected from different global locations (Lingel, 2013). The digital practices enabled by SNSs are also contributing to blurring the traditional boundaries between public and private mourning (Myles, Cherba & Millerand, 2019) in that they offer new spaces for articulating collective grief (Wagoner & Brescó, 2021), sharing our innermost feelings and emotions among strangers, and bringing more visibility to marginalized groups and forms of disenfranchised grief (Doka, 1989). As a result, mourning has become an everyday practice in the online world, and is thus no longer secluded from the rest of society or sequestered within the private sphere (Walter, Hourizi, Moncur & Pitsillides, 2012).

In essence, the temporal, spatial and social expansion resulting from the use of SNSs is inevitably changing the experience of grief in our societies. On the one hand, these aspects are mediating new ways in which the bereaved express and cope with loss, while managing the continuing bonds with their loved ones and commemorating their memory. On the other hand, these technologies also bring about new conceptions of the dead stimulated by new ways of existing posthumously in the digital

world. For instance, the deceased's virtual identity is often still accessible. Users can visit their profile pages, read the deceased's previous posts and even post messages on Facebook memorial pages (Moyer & Enck, 2020). In this regard, a new aspect of digital technologies is that they enable a sense of permanent presence of the dead or, as Walter et al. (2012) put it, "a plausible geography of the dead residing in cyberspace" (p. 293). This digital permanence, combined with the presence of a social community sharing the same virtual space from different locations, contributes in turn to legitimating the practice of interacting with the dead. In Kasket (2012a), we find some users reporting the feeling that the dead are there listening online behind the screen and receiving the message. Despite not expecting a two-way communication, many users claim that replies from their loved ones come forth via dreams and signs in the real world. In certain cases, the strong bond with the digital presence of the deceased leads some users to say that the eventual deletion of their profile would amount to losing the last bit of their loved ones (Kasket, 2012a).

In reflecting on the dead's digital being, Kasket (2012b) highlights the 'thingness' of Facebook profiles in the form of durability which, in turn, has an impact on the ongoing connection between the mourner and the deceased. However, this digital immortality in cyberspace—whether in the form of Facebook memorials, digital zombies or Internet ghosts—might have a negative side. According to Dilmaç (2018), this continuous presence of the dead is at odds with the necessary role that the "rites of passage" play in the grieving process. Although this digital presence is conducive to maintaining an affective link with the dead, the personal and social ceremonies that mark the passage of a person from one state to another might be hampered on the Internet. In Dilmaç's own words: "due to the Internet, the dead no longer travels from one world to the next: she or he disappears physically but is all the more present on the Web" (p. 289). Whether these online mourning practices involve a radical shift from the traditional offline rites or just a spatial temporal and social expansion of the latter—e.g., the dead are physically present in cemeteries, though their access is limited in time and space—, the digital immortality afforded by the new technologies raises a series of considerations on the way we mourn. However, these considerations take on another level of complexity when moving from one-way immortality—in the form of passive digital memories such as Facebook profiles—to a two-way immortality afforded by griefbots.

Grief and Griefbots: A Two-way Dialogue with the Dead?

Besides online memorials and other kinds of passive digital memories, digital immortalization can take the form of AI-powered computer applications capable of a two-way conversation by means of an interface or chatbot. Designed from the deceased's digital footprint —such as Mazurenko's text messages used by Kuyda— griefbots can potentially comprise all digital traces left behind after death, including "*intentional digital traces*—emails, texts, blog posts, Facebook and photographs—and *unintentional digital traces*—records of website searches, logs of movements and phone calls" (Savin-Baden & Burden, 2019, p. 92). Some authors talk about digital memories related to these posthumous digital selves, while others use the term "narbs" (Mitra, 2010) or crumbs to refer to these "digital souls" (Paul-Choudhury,

2011). Savin-Baden et al. (2017) reduce digital immortality to code and data kept alive by a hosting company. However this digital immortalization may be understood, the main feature that this technology brings into mourning practices is the possibility of a two-way conversation between the living and the dead by simulating the latter's conversational style and speech patterns. Crucially, unlike online memorials, this bi-directionality enabled by the griefbot also implies a certain agentiality on the part of the deceased person. Thus, a fundamental difference between chatting with the bot of your loved one and posting messages on her Facebook profile—or holding an imaginal dialogue by her graveside—is that, in the first case, the conversation does not just depend on the survivor's initiative for it to take place. Thus, on the one hand, the griefbot's responses go beyond the bereaved's agency, although they do depend indirectly on a "third party": the griefbot programmer or designer. On the other hand, it might well happen that the griefbot initiates a conversation autonomously, thus requesting an answer from the bereaved. Lastly, the fact that the conversation is made tangible in the form of written or oral messages adds certain materiality—a 'thingness', to use Kasket's (2012b) expression—to the intimate dialogue between the bereaved and the deceased, and with it, a certain illusion of reality.

However, ethical and even legal considerations aside—briefly touched upon in the conclusion section—, digital identities created through our digital traces are not without problems. In the opinion of Elder (2020), "such bots make poor substitutes for living friends and family" (p. 85). According to this author, these bots are blind to the multiple public selves we present in our conversations with different people and contexts. In mixing them up and disproportionately drawing on data taken from certain conversations over others—typically those held online—these applications might fail to respect the integrity of the deceased's memory. Furthermore, "the fact that the bot draws on past experiences to predict future responses might mean that it is incapable of adapting, growing, and changing with the other person" (Elder, 2020, p. 75). Along these lines, Ahmad (2016) highlights that "interactions which are deeper are much harder to emulate, require more data and relatively sophisticated methods" (p. 401). In any case, for this author, beyond griefbots' ability to simulate the deceased's identity, the main point lies in the mourners' experience of interacting with the bot and the extent to which they engage in this simulation game. The focus on the mourners' experience leads Ahmad (2016) to revisit the Turing Test—originally called the *imitation game*—through which a machine's ability to exhibit intelligent behaviour indistinguishable from that of a human being is tested by a human evaluator on the basis of a conversation between a human and a machine designed to produce human-like responses. In a gradualist approach to the challenge of simulating interaction with a dead person, Ahmad (2016) envisions a griefbot operating through a text modality only—similar to Kuyda's application—as the simplest and easiest way to pass the Turing Test within a mourning context, where familiarity and emotional attachment to the deceased are, unlike in Turing's original test, crucial.

Pushing the Turing Test to the limit, we might consider, following Ahmad's (2016) argument, the extent to which "the ultimate version of such a simulacrum would be to interact with a live version of the deceased person" (p. 402). Even in the hypotheti-cal case that an exact copy of the deceased could be made, what would then be the difference from the point of view of the survivor's experience? In the Black Mirror´s

(Brooker & Harris, 2013) *Be Right Back* episode, it is suggested that the replacement of the dead person by his replica does not work because he is not, after all, a perfect copy. Despite being identical in almost every feature —same voice, same face, even the same freckles—, the copy, as a whole, fails to react in the way that the deceased would in the eyes of his fiancée. However, an alternative explanation is also possible. As Brinkmann (2018) points out, even if the copy were identical, the protagonist knows it is nonetheless a copy of her departed boyfriend. According to this author, along with an understanding of death, the other basic precondition for grief is the capacity to love. Brinkmann (2018) argues that our emotional attachments to particulars, including other human beings as individuals, are grounded in our extraordinary sense of the concrete. For instance, even if it were possible to exactly replicate, down to the last molecule, Da Vinci's Giaconda—or the FIFA World Cup won by your national team, for that matter—would it feel the same having these objects, or even a picture of them, vis-à-vis having the originals? According to Brinkmann (2018), despite knowing that these are identical copies in every respect, these replicas would never have the same emotional value to us, as in our view they would still be two independent objects with respect to the originals. Our attachment to particulars, our love for unique and concrete persons taken as a whole —not as a set of features that may be replicated—is at the core of our being-in-the-world, and grief reminds us of the uniqueness and irreplaceability of others. In Brinkmann's (2018) words, "ontologically, it means that genuine loss cannot be repaired" (p. 204).

However, authors such as Elder (2020) think that interaction with griefbots, as a means by which to extend and express the continuing bonds with the deceased, does not require large doses of illusion of reality to generate an emotional response on the part of the mourners, as they might already be predisposed to finding this interaction significant. Since ELIZA, the first-ever chatbot, the tendency of users to attribute anthropomorphic qualities to computers and even to accommodate to their way of interacting in order to make it easier for the bot to generate comprehensible responses is well known (Natale, 2019). As Elder (2020) points out:

"Just as even stylised googly eyes can activate people's social responses, the right phrase or joke offered up by the bot might evoke a rich array of memories and responses from a grieving person who has a substantial history with the original source of the bot's conversational data" (p. 76).

Again, what is relevant is not so much the griefbot's capacity to replicate the identity of the deceased, but the experience of the bereaved, her or his particular personalization of the bot through the way that it is used, and the kind of attributes projected onto it. Perhaps, we may hypothesise, the very fact that griefbots are not supposed to replace the identity of the deceased could enable users to engage in the simulation game, acting as if they were chatting with their loved ones. In fact, according to Despret (2015), such "as if" often appears in mourners' narratives—especially when they feel the presence of their loved ones in their everyday lives—, acting as a kind of operator that leaves open the possibility of such encounters between the living and the dead. And yet, behind the point-blank refusal of some at the prospect of engaging with griefbots is often the eerie feeling that there may indeed be something "true" in the bot's responses, as they are, after all, based on the deceased's digital footprint. This might be compared to the case of mourners who suffer hallucinations or claim

that their loved ones respond to them—whether in dreams or in real life. Similarly to the griefbot's messages, these kinds of responses are perceived in the form of "signs" that must be read; signs that, as Despret (2015) notes, mourners often care little to question whether or not they are real. Either way, regardless of the illusion of reality attributed to these interactions—be it imagined or materialized through text messages in the case of griefbots—, it may be said, following Despret's (2015) argument, that the dead exist not just in the memories of the living, but also through the ongoing impact the former have on the lives of the latter.

In any case, the two-way interaction made possible by griefbots, combined with the material quality of the messages left by the digital version of the loved one, might be problematic, particularly in mourners with avoidance/denial patterns or complicated grief symptoms. While griefbots might be helpful as part of grieving rituals, especially in the initial moments after death as a way of communicating with the deceased one last time—similarly to what Kuyda did with her friend—, problems could arise if the virtual relationship with the dead becomes a chronic coping strategy of denial. In that regard, the main features offered by this new technology might encourage the bereaved to become trapped in a perpetual two-way conversation driven by a logic beyond their agency, not necessarily based on therapeutic criteria, and outside the social connections provided by the SNS.

Discussion: Towards a More Individualist Grief?

Rather than an automatic reaction to death, grief involves an elaborated emotional response whereby the bereaved tries to reconstruct a world challenged by loss and integrate the death of the loved one into a life that will never be the same (Brinkmann, 2020). Along with the rituals intended to overcome the initial shock and to honour the dead (Candle & Phillips, 2003), different technological artefacts have historically been mediating the grieving process and shaping the continuing bonds between the living and the dead (Klass et al., 1996).

As the literature shows (Walter et al., 2012), new digital technologies are changing the way we mourn by providing new spaces to express the ongoing connection with our loved ones. These new technologies are certainly not necessary in order to maintain a continuing bond with the dead, as "people talk to the dead offline, and receive advice from them, not least in cemeteries" (Walter et al., 2012, p. 293). What changes is the expansion that these new technologies contribute to the experience of grief (Brubaker et al., 2013). Both the Internet—including SNSs and online memorials—and griefbots imply an obvious temporal and spatial expansion, as they provide an easier and more direct way to communicate with the dead anywhere and at any time. Moreover, the periodic updates on Facebook, or continuous chatting with a griefbot, create a feeling that the dead are listening behind the screen and keeping up with the living's latest news (Kasket, 2012b). This in turn contributes to a sense of tele-presence or co-presence which, "for members of the 'Facebook generation', may feel as close as those who are present in an embodied way" (Kasket, 2012a, p. 62). However, this sense of being co-present might vary depending on the technology being used. As Walter et al. (2012) note, "one of the curious features of SNSs, unlike

most e-mails and all letters, phone calls, and face-to-face conversations, is that a reply is not necessarily expected" (p. 292). As a result, these authors conclude, "communicating to a deceased person online is thus no different from communicating to a living addressee" (p. 292). Conversely, due to the two-way communication enabled by griefbots, a reply is expected—eagerly expected we may say—from the dead addressee, thereby potentially encouraging the development of a greater emotional dependence on the bot in certain cases. Similarly to what occurs with certain profiles of dead people on SNSs (Kasket, 2012), this might result in the need to perpetuate the communication with the bot to avoid losing the loved one for a second time.

While, as we have seen, both SNSs and griefbots bring a significant spatial and temporal expansion to the grief experience, they differ when it comes to the social expansion alluded to by Brubaker et al. (2013). Thus, while co-presence between mourners and loved ones is socially shared within the same virtual space in the case of SNSs, with griefbots this co-presence is confined to the private conversational space between the mourner and the deceased person. If, as Walter et al. (2012) point out, SNSs have de-sequestered death from the private sphere by bringing it into the everyday and communal space of the Internet, will griefbots contribute to confining death and mourning back within the private domain? Will griefbots encourage individual memorialization of loss over its commemoration—literally, remembering in common? Along with these questions, we may also wonder about the extent to which social authorization to address the dead—permitted by the presence of an audience on Facebook—would have paved the way to a more private mode of communicating with loved ones via a griefbot. To what degree, once this conversation with the dead turns private, would mourners be willing to keep using a more public way of communicating with their loved ones through SNSs? Will griefbots contribute to a more individualistic way of mourning? To what extent could this result in a self-centred way of relating to and appropriating the deceased's memory through exclusive, private and unshared communication with the dead? For instance, will it be possible for different people to privately interact with a griefbot based on the digital footprint of the same relative? Will griefbots be a technology more suited to individualistic societies increasingly deprived of collective rituals (Lalande & Bonanno, 2006) and therefore more in need of spaces that allow for this private communication? And, last but not least, will griefbots hold us back from moving on by "inviting us to interact with them, both in ways that preclude forming new attachments […] and in ways that keep us turning to the deceased for support when we ought to be reaching out to others in our social network"? (Elder, 2020, p. 76).

This takes us back to the main question of this paper, the potential mediating role of griefbots in relation to mourning and the continuing bonds with our loved ones after their death; a question that we can hopefully address with broader perspective at this point. To begin with, it is worth recalling that grieving processes are culturally mediated by manifold co-existing technologies and rituals that mourners have at hand, thus enabling different ways of connecting with the dead, whether more publicly or privately, both online and offline. It should equally be borne in mind that the potential impact of griefbots on the continuing bonds with the dead will depend on how, for what purpose or at what point in the grieving process this technology is used by each particular individual. For instance, it will depend on whether the dialogue

held with the bot is aimed at connecting with one's inner feelings and the reality of the loss, at momentarily avoiding coping with the loss—e.g., during the initial days following a traumatic death—or whether it is used as a way of installing oneself in permanent denial. In Kuyda's case, the griefbot did not replace her friend Roman; as Kuyda herself comments, it was simply a tool that helped her to progressively integrate the loss of her friend into her life. Similarly to other mediational tools—ranging from the impersonators of the dead in ancient China to the wind telephone in today´s Japan—, griefbots might ultimately provide a socially authorized channel for mourners to engage in the simulation game of communicating with the dead.

In any case, it is worth emphasizing that the mediational role of griefbots in the grieving process cannot be fully studied by merely focusing on the technology alone. As Elder (2020) indicates, "figuring out in advance exactly what would constitute best practices for supporting the bereaved via this technology may be impossible" (p. 85). Although griefbots have a set of affordances that make them different from other technologies—allowing two-way-dialogue, a sense of simulation, digital permanence and private conversation with the dead—this does not imply that they will apply equally to all users. Affordances derived from the materiality and design of technological artefacts provide a set of possibilities for action (Glăveanu, 2021). Griefbots allow, facilitate, invite, and also constrain or prevent, certain ways of communicating with the dead. In short, mediation does not imply causal determination. According to cultural psychology, there is always a distributed agency between individuals and the possibilities of action offered by the technologies available to them in a given sociocultural context (Wertsch, 1998). Therefore, we may conclude that while griefbots might be beneficial in some cases, they could be counterproductive in others, depending on manifold factors, such as the kind and frequency of use, the type of loss, the point in the grieving process, the mourner's age, etc.

Conclusions: Ethical implications of Griefbots

As a new technology having a potential impact on the way we mourn, conceive of death and relate to those who are no longer with us, griefbots raise a number of ethical issues that will certainly generate debate in our increasingly digital societies. As Natale's (2019) work on the social discourses triggered by the invention of ELIZA shows, "software artefacts become contested objects whose meanings and interpretations are the subject of complex negotiations within the public sphere" (p. 713). By way of conclusion, we will briefly map out some of the ethical issues that the advent of griefbots may pose in relation to the living and the dead.

Ethical Implications for the Dead

While offering us digital immortality by promising to store, as it were, our personality after our departure (Basset, 2015), these technologies leave us "vulnerable about where our traces may be situated and how they may bear on our lives and afterlives" (Lagerkvist, 2014, p. 105). This raises ethical concerns about the kind of digital surrogates that we will leave behind and the extent to which these technologies will

secure the integrity of the deceased's memory. In this regard, it is important to bear in mind that digital fingerprints are based on traces left behind in our on-line life, thus leaving out our conversations and interactions in the off-line world, most probably with people closer to us. However, there is not just the fact that data are disproportionately taken from certain conversations over others, thus failing to respect the integrity of the deceased's memory. As pointed out above, in drawing on the dead's total digital fingerprint, these technologies might disclose the dead's multiple public selves shown in conversations with different people in different digital fora throughout their lives, thereby revealing some facets of our loved ones they did not want us to discover—facets that perhaps we would rather not know either.

Our communications on the Internet or on smartphones are typically seen as mundane and ephemeral. However, Kuyda's use of Roman's text messages to design a chatbot for coping with her grief shows us how long-lasting and transcendental our digital remains may be (Newton, 2016). From our multiple selves performed in different digital domains, to all the unintentional digital traces—such as records of website searches—, the exponential accumulation of digital remains in cyberspace is making us increasingly aware of the extent to which our digital life may affect the way we will be remembered after death.[4] Even though mortality is probably perceived as something beyond the horizon for most members of the Internet generation (Walter et al., 2012), this scenario is leading some people to take pre-mortem decisions in order to manage their post-death digital presence, for instance in the form of digital wills, with instructions specifying what to do with our digital legacy (Savin-Baden & Burden, 2019). Along these lines, Öhman and Floridi (2018) suggest approaching the ethical debate on digital remains by seeking "inspiration from frameworks that regulate commercial usage of organic human remains" (p. 319). More specifically, these authors argue that digital remains "should be seen as the remains of an informational human body, that is, not merely regarded as a chattel or an estate, but as something constitutive of one's personhood" (p. 319).

In sum, nascent afterlife technology is bound to navigate through delicate and somewhat unchartered ethical and even legal territory in the years to come. A case in point is *Intellitar*, a start-up that offered a 'virtual eternity' to its clients, which went defunct in 2012 because of legal issues. In its CEO's own words, "it's a pretty simple story really, […] we had a tremendous amount of momentum but then we got into an intellectual property dispute. It was going to be a long, expensive IP lawsuit" (Fussell, 2016, para. 10).

Ethical Implications for the Living

The future use of griefbots also poses important ethical questions in relation to the bereaved and, more specifically, regarding the potential impact these technologies may have on their grieving process. These questions lead us to consider the difference between what is technologically possible and what is therapeutically beneficial

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[4] This is also true in the everyday use of SNSs. As Currie (2007) points out, the speed of near instantaneity enabled by modern technologies leads us to experience the present as the object of a future memory, as it becomes apparent in today's tendency to stream our lives through social media (see also Brescó, 2021).

for those who have lost a loved one, thus bringing to the fore the different—and not necessarily convergent—logics involved in the use of these new technologies. As Öhman and Floridi (2018) remind us, digital afterlife companies are, after all, a profit-seeking industry based on the use of digital remains and the monetization of the digital afterlife of Internet users, something that may not necessarily be in the best interests of the bereaved or suited to their psychological needs during their grieving process. According to these authors:

> Such capitalization of digital remains may have far-reaching consequences, especially as capital requires human labour to remain productive. In other words, an increasing volume of digital remains necessitates an increase in posthumous interaction online. If not deleting them, what would make the cost of storing billions of dead profiles financially viable? (Öhman & Floridi, 2018, p. 319).

It goes without saying that the need to obtain an economic return on digital remains by encouraging posthumous interaction might have serious implications for those using a griefbot in their grieving process. We may well imagine afterlife companies implementing different strategies to keep mourners hooked, for instance by sending unsolicited messages, notifications, or updates from their loved ones whenever users are inactive. To what degree could a grieving person ignore or refuse to answer these messages? Without attributing a deterministic causal role to these technologies, the two-way interaction allowed by griefbots, along with their private use, might in certain cases be detrimental to the bereaved's grieving process. This could become even more serious depending on the cognitive and affective capacity of the mourners, as well as on their social support. For instance, Ahmad (2016) wonders how children would respond to such an interaction and poses the hypothetical case of a child growing up interacting with a griefbot of a dead relative. Would the child be capable of differentiating between simulation and reality?

However, considering the distributed agency between individuals and the possibilities offered by the technologies available, one might also contemplate the ethical issues concerning not only the role of griefbots in relation to the grieving process, but also the use that mourners might make of these technologies. Along these lines, Ahmad (2016) raises the question as to whether the interaction with the bot will end up changing the perception we have of our departed loved ones. In other words, to what extent could the appropriation of the dead through the private use of their digital copy eventually affect our sense of loss? Brinkmann's (2018) answer to that question is that, if continuing bonds are understood as the ongoing connection that we have with the deceased, we would be impoverishing that bond by turning the other into something that only has meaning in relation to ourselves, as if our loved one's death only mattered because of its effect on us. As this author reminds us, "grief is not just about the fact that *I lose someone*, but also about the more fundamental fact that *someone no longer exists*" (Brinkmann, 2018, p. 182, italics in the original). In this sense, for all the temporary relief a digital copy might bring, we may venture to say that griefbots will never replace our grief (or love) for those who are no longer with us.

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Compliance with Ethical Standards

Conflict of interest The author declares no potential conflicts of interest with respect to the research, authorship, and/or publication of this article.

Ethical Approval This article does not contain any studies with human participants performed by any of the authors.

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