

Remembering me: big data, individual identity, and the psychological necessity of forgetting

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Abstract Each of us has a personal narrative: a story that defines us, and one that we tell about ourselves to our inner and outer worlds. A strong sense of identity is rooted in a personal narrative that has coherence and correspondence (Conway in *J Mem Lang* 53:594–628, 2005): coherence in the sense that the story we tell is consistent with and supportive of our current version of ‘self’; and correspondence in the sense that the story reflects the contents of autobiographical memory and the meaning of our experiences. These goals are achieved by a reciprocal interaction of autobiographical memory and the self, in which memories consistent with the self-image are reinforced, in turn strengthening the self-image they reflect. Thus, personal narratives depend crucially on the malleable nature of autobiographical memory: a strong sense of self requires that one remember what matters, and forget what does not. Today, anyone who is active online generates a highly detailed, ever—expanding, and permanent digital biographical ‘memory’—memory that identifies where we go, what we say, who we see, and what we do in increasing detail as our physical lives become more and more enmeshed with electronic devices capable of recording our communications, online activities, movements, and even bodily functions. This paper explores the consequences of this digital record for identity, arguing that it presents a challenge to our ability to construct our own personal narratives—narratives that are central to a sense of ‘self’. In the end, the ‘right to be forgotten’ may be, above all else, a psychological necessity that is core to identity—and therefore a value that we must ensure is protected.

Keywords Privacy · Identity · Right to be forgotten

In 1994, Ulrich Neisser and Robyn Fivush edited a book entitled “The Remembering Self: Construction and Accuracy in the Self-Narrative”. In his chapter on the truth and falsehood of self-narratives (Neisser 1994), Neisser remarks: “the ordinary course of life rarely generates objective records” (p. 2). When that statement was made, it was undoubtedly accurate. Today, however, anyone who ventures onto the Internet leaves behind an almost incomprehensibly detailed biographical archive, consisting of personal information that individuals willingly and knowingly provide about themselves, information about them that others contribute, and digital traces of online actions that are created automatically, without direct involvement and sometimes without user knowledge, by the software and devices with which we interact. Thus rather than ‘rarely’ generating objective records, the ‘ordinary course of life’ today generates vast array of detailed, articulated, and deeply informative records: a ‘digital shadow’ that combines data created by users themselves (‘digital footprints’) with data created by others about them (‘data shadows’: Koops 2011). This paper explores the implications of digital shadows for identity, ultimately arguing is that our ability to construct and maintain our own identities is threatened by digital systems that ‘remember’ everything about us: thus, there is value in, and a need for, *forgetting* and *being forgotten*.

Identity, narrative, and memory

Personal narratives are important for, if not equivalent to, identity (McAdams 1992, 1996). The narratives we tell to define ourselves draw selectively and strategically from our individual histories to constitute stories that demonstrate

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both coherence and correspondence (Conway 2005): coherence in the sense that the story is consistent with and supportive of the current version of ‘self’; and correspondence in the sense that the story reflects the content and meaning of autobiographical memory. These goals are achieved by a reciprocal interaction of autobiographical memory and the self, in which memories consistent with the self-image are reinforced, in turn strengthening the (typically favourable) self-image that those memories reflect (McAdams and McLean 2013).

Lived experience reinforces the notion that memory is critical to identity: for example, conditions that lead to impairment in autobiographical memory (e.g., Alzheimer’s disease) are said to lead to “loss of self” (Addis and Tippett 2004). Faced with the specter of a self that disappears as life memories erode, it is tempting to conclude that a flawless biographical memory is the optimal state. Research on *hyperthymesia*, or ‘unusual autobiographical memory’ (Parker et al. 2006), however, suggests otherwise, and those living with the condition describe their memories as ‘tyrannical’. By virtue of their inescapable accuracy and completeness, these memories compromise the ability to construct and recraft integrated personal narratives that tell us, and others, ‘who we are’ (McAdams 2003; Price and Davis 2008).

It appears, then, that forgetting is as crucial to identity as is remembering. Indeed, Connerton (2008) identifies forgetting ‘*constitutive in the formation of a new identity*’ as one of eight forms of forgetting, remarking that ‘what is allowed to be forgotten provides living space for present projects’ (p. 63). Connerton is explicit in his assertion that forgetting is critical to the ongoing project of the self—we cannot grow, or change, if we are too closely and unwaveringly held to the details of our pasts. To this end, we are aided by biological memories—mine of my own history, and yours of me—that are much less than perfect records of a lived life. Biological memories are selective—what is retained is only what is relevant *at the time*. They are also prone to disruption and decay—those memories that are rehearsed or revisited tend to persist, while others that are not recalled tend to fade over time. Biological memory is not an eidetic reflection of the past.

Digital shadows and the problems of the ‘perfect’ record

In comparison to biological memories, digital records are both complete and permanent, and the digital shadow therefore has these same characteristics. Some of the more evident contributors to the digital shadow are social network profiles, populated by users with personal details that include name, birth date, relationship status, preferences,

activities, photographs, friends and acquaintances, etc. This self-initiated online archive is augmented by the information provided by others: photographs, posted by friends and tagged and indexed so that they are associated with a personal profile, widely visible comments that can constitute an ongoing semi-public social discourse, and annotations on photographs or other digital artifacts provided as part of the personal profile are only some examples. Perhaps more significant are the activity traces that are the byproduct of our online actions and interactions, recorded, collected, and archived in many cases without our active intervention or even knowledge, including records of website visits, online browsing, purchasing history, time-stamped cell phone locations, and more. These digital traces are only increasing as ubiquitous technology infiltrates our everyday lives. When internet-enabled devices join the ‘internet of things’, for example, additional details of our lives become ‘datified’: data records can be generated by activities as mundane as opening a garage door or turning on a light, raising associated privacy concerns, and new technologies offer opportunities for surveillance, including self-surveillance in the form of continuous monitoring and recording of personal data such as health-related information. Integration of data sources allows even great insight into personal lives. Applications that ‘mash up’ (combine) data from different sources can reveal entirely new information, and powerful data analytics can support the inference of hidden information from that which is revealed (e.g., Kosinski et al. 2013). The end result is a digital shadow which is not only a ‘snapshot’ of the current self, but which incorporates within it a detailed record of the past, resembling more the ‘tyrannical’ all-inclusive autobiographical memory of those living with hyperthymesia than it does the typical autobiographical memory that supports a strong an integrated sense of self.

Of course, digital records are not *memories* per se, and thus one might argue that they do not pose a threat to personal narratives that are necessarily based on selective attention to particular aspects of personal history. The digital record, however, constitutes an array of *potential* memories (Hand 2014; Sellen et al. 2007), the very existence of which may compromise our ability to forget, or move on (Allen 2008). This is particularly true since the interaction between biological memory and externalized memory is complex (van den Eede 2010), with no natural dividing line. The increasing availability and capacity of digital storage has the potential to alter the balance between biological and external memories (Fawns 2013), which is particularly relevant given that biological and technological ‘memories’ have different characteristics (O’Hara 2010). One salient difference is that biological memories tend to be ‘processed’, capturing the essence of what is remembered, in contrast with digital memories that

typical capture a ‘true’ representation (albeit from a limited perspective). The danger, according to O’Hara (2010) is that

... we will be confronted with the truth and nothing but the truth—but not necessarily (in fact, probably not) the whole truth (p. 16, emphasis original).

The point is that forgetting some aspects of individual history is *necessary* to identity—but the continued existence of a perfect and complete history could pose a challenge to this psychologically necessary function if every detail that I forget is retained in a digital archive, ready to remind me again of that which is no longer relevant to my identity.

Furthermore, digital shadows don’t just reveal an ‘entire life’ (Zeit Online 2011)—they reveal an entire life made up of separable instants that can be reconfigured to construct innumerable life narratives. The power of transactional data to support personal stories was made evident when Malte Spitz, a member of the German Green party, published his archived cell phone data (Zeit Online 2011). Zeit Online created an interactive map that displayed the timeline of the activity records, commenting that

seen individually, the pieces of data are almost inconsequential and harmless. But, taken together, then provide what investigators call a profile—a clear picture of a person’s habits and preferences, and indeed, of his or her life.

This profile reveals when Spitz walked down the street, when he took a train, when he was in an airplane. It shows where he was in the cities he visited. It shows when he worked and when he slept, when he could be reached by phone and when was unavailable. It shows when he preferred to talk on his phone and when he preferred to send a text message. It shows which beer gardens he liked to visit in his free time. All in all, it reveals an entire life.

Mr. Spitz would no doubt describe himself as a staunch and committed environmentalist; one can imagine a rebuttal that focused instead on what might be very limited instances of environmentally unfriendly decisions, strung together to create a very different picture of Mr. Spitz’ choices and activities. It is all a matter of focus, and the detailed biographical archive supports refocusing at will. Therein the second core issue with the digital shadow: when a great deal of what we do, where we go, and what we think is revealed in an online archive, we lose control of our own life stories.

One cannot, and should not, argue that augmented or mediated memory is necessarily problematic. Textual, auditory, photographic and cinematic records (including digital forms of each) form a critical backdrop for historical

and collective memory; moreover, such records can provide (albeit potentially contested) evidence of historical events to those who have not witnessed them. Thousands of years of climate and atmospheric history, for example, can be gleaned from Antarctic ice cores, and these and other forms of data provide otherwise unknowable and incontrovertible evidence of climate change. On an individual basis, lifelogging, or the automatic and effortless capture of life events by a range of hardware and software devices (e.g., wearable cameras), has been celebrated as a method of augmenting human memory (Chen and Jones 2010; Sellen and Whittaker 2010), particularly (though not only) valuable for those living with memory impairments (Hodges et al. 2011; Kikhia et al. 2009).

The example of lifelogging is particularly instructive for the current discussion. ‘Lifeloggers’ actively and purposefully assemble a personal digital record—for their own purposes and under their own control. Although proponents of the practice celebrate the benefits while working out technical details, many have identified challenges and/or risks associated with lifelogging (Askoxylakis et al. 2011; Jacquemard et al. 2014; O’Hara et al. 2008; Sellen and Whittaker 2010). Lifelogging raises privacy and security concerns (Askoxylakis, et al. 2011), since the record can include highly sensitive information and in many cases captures information about others (and not just the self). One of the salient conclusions from empirical studies of lifelogging is that users want *control*—over what is logged, and over who has access to the information (Hand 2014; Zhou and Gurrin 2012)—undoubtedly as a way to manage personal privacy. Jacquemard et al. (2014) suggest that lifelogs have some positive consequences for personal autonomy, including the ability to correct inaccurate (and potentially harmful) recollections of personal activity (Janevic et al. 2012). At the same time, many recognize the threat to forgetting that is presented by lifelogging, with negative consequences for personal identity (Jacquemard et al. 2014), including the possibility of distortion or disruption of both personal narrative and identity (O’Hara 2010). These concerns are expressed in relation to a digital archive initiated and held by individuals themselves; they are only more acute in relation to the record collaboratively developed and shared with a social network, or the detailed digital shadow generated by our online activities.

We might be tempted to dismiss any possibility of identity threat from the digital shadow on the basis of the argument that, after all, external records of the self have always existed (e.g., diaries, photographs, even memories). Again, though, it is critical to consider the *nature* of the digital record—detailed, searchable, automatically collected—to understand why the consequences might be different. Physical records and biological memories are subject to selective deposit and selective survival: what is

stored (and thus what is available for review/recall/interpretation) is only what matters *at the time*. The ease with which digital records can be created and stored, by contrast, ensures that ‘everything’ in a life could be recorded and archived. Indeed, with existing technology it is possible to capture a full video record of an average life at reasonable cost (O’Hara et al. 2006), and the detailed activity traces produced by our online activities are even easier to capture and store. As a result, it isn’t just *selected* aspects of a life story that will be available for rumination and re-interpretation: literally *everything* can become part of the digital record. The concern is not only that the rich digital record could support multiple (and inconsistent) interpretations of a life by focusing on different aspects of the record. There is also the specter of a life lived *today* being interpreted in light of the standards, values, and morals that characterize some future moment. It is easy to imagine that a coherent and correspondent (in the sense used by Conway 2005) personal narrative could be threatened by re-interpretation and retelling (both internal and external) based on an eidetic record of life events.

Our digital shadows are essentially databases about us—some under our control, some not, all searchable, indexable, and reconfigurable. Hayles (2007) claims that narrative and database are ‘natural symbionts’ with a ‘mutually beneficial relation’ (p. 1063): a database “can construct relational juxtaposition but is helpless to interpret or explain them”, and therefore “it needs narrative to make its results meaningful” (p. 1063). Thus, data can ‘drive’ the story (Parasie and Dagiral 2012), and ‘mining’ of extensive databases can reveal otherwise unrecognized or unacknowledged truths about an individual or the world around them (e.g. Kosinski et al. 2013). Databases thus have the potential to spawn a proliferation of narratives (Hayles 2007), and therefore databases about a person have the potential to support *many* life narratives rather than one. The concern, of course, is that databases, like statistics, could be used to prove ‘anything’, and with a focus selective enough, tell virtually any life story. We are left with the deep and well-founded concern that the existence of the digital shadow could threaten the integrity of the personal narrative.

Protecting forgetting

Privacy regulation offers one potential avenue to address the issue. There can be no doubt that the accumulation of detailed personal information by various online actors constitutes a privacy issue. Moreover, many would agree that the identity implications of this digital shadow are themselves significant privacy concerns. Mirielle Hildebrandt (2006) argues that “that privacy can best be

understood as the virtual and actual space needed to continuously reconstruct the self in the face of ever changing contexts” (p. 44); this definition is reflected in Dave Matheson’s (2008) self-narrative account of deeply personal information (which he argues should be protected), in which he highlights “the individual’s ability to tell her own unique story” (p. 359). In framing their notions of the value of privacy, both Hildebrandt and Matheson appeal to the critical importance of self-narrative. Each notes that if a life is too public, the capacity to construct a meaningful personal narrative, and thus a meaningful personal identity, is reduced. Andrade (2012) makes a similar argument, stressing a ‘right to oblivion’, or a right to be ‘different from oneself’, but associating these concept with a right to identity, rather than a right to privacy. Both the European Union and the United States have implemented a ‘right to be forgotten’ (Bennett 2012), and this mechanism at first blush would appear to be ideal for addressing the concerns about identity and the digital shadow, particularly in the EU given the focus of the courts on personality rights and the right to human flourishing (van der Sloot 2014). As Koops (2011) points out, however, the right to tell one’s own story (and thus forget, and have forgotten, at least some of the myriad details collected in the digital shadow)

... is more philosophical and psychological in character, and stresses perhaps the right to forget rather than the right to be forgotten. [p. 252]

He argues that this right is difficult if not impossible to enforce, since it ‘seems to have to function *ex nunc* (when data are created) rather than *ex post* (when data are used in decision-making)’ (p. 253). He concludes that ‘this variant of the right to be forgotten does not have the character of a legal *right*, but rather of an *interest* or *value*’ (p. 253). The arguments presented in the current paper are consistent with this characterization, but rooted specifically in the value of *forgetting*. The personal details revealed in a digital shadow are not necessarily *private* in nature (see, e.g., Andrade 2012), and the risks for identity outlined in this paper do not arise from the public revelation of personal details. Instead, the point is that a fully functional identity *requires* that the past—at least those aspects that are unimportant and irrelevant—be allowed to fade away.

If regulation isn’t an avenue to control the problem, perhaps what we need to do is address it at its source: limit the production and accrual of personal information in the first place. Many (users and non-users alike) take this hardline approach: abstention, they argue, is the only way to ensure that your personal information isn’t recorded. This instruction, however, doesn’t comport well with the reality of our mediated lives: it is a significant understatement to say that “communication uses of the Internet have become a very important part of young people’s

lives” (Subrahmanyam et al. 2008). In a world where a movement to quit Facebook is worthy of major press attention, it is evident that, in some very real sense, online social interaction *is* young people’s lives. Lest we judge too lightly the challenge of ‘opting out’ of the online life, consider this: solitary confinement of prisoners is characterized by many legal scholars as psychological torture, and even one day of forced silence would be challenging for most of us. For the connected youth of today, digital devices are ever-present and multifaceted communication channels, and going without them is like spending time in an isolation booth (see the results of the *Day Without Media* project, <http://withoutmedia.wordpress.com/>). Let’s face it: this isn’t a choice that anyone is likely to make voluntarily, and it is not an option that is realizable for the majority of us.

If we are resigned to the construction of the digital shadow, perhaps the best approach is one of management. Many Internet users are adopting this strategy, now regularly monitoring their own online presence for the purposes of reputation management. Some advocate a ‘do it yourself’ approach to the management of online; others feel the task is best left to professionals, and there are a number of them prepared to fill the void. Reputation.com is one such company, offering a suite of integrated services: *myreputation*, to establish a positive and accurate image online; *myprivacy* to assess, manage, and control your information; and *reputationdefender* to suppress negative information and fix false or misleading reviews bad press, wrongful lawsuits, or disputes (www.reputationdefender.com). Even the most sophisticated of these strategies, however, addresses only the tip of the information iceberg, and the vast majority of strategies rely on a technique of burying offending information rather than removing it. If you do manage to banish the link to an offending image to the fourth page of hits that appear when you ‘Google’ yourself, some enterprising and dedicated searcher (or a casual acquaintance with too much time and idle curiosity on their hands) is sure to find it. Moreover, it will take much more than a standard ‘reputation management’ effort to address the innumerable digital archives that include transactional records of your online activities. These may be difficult to locate and challenging to integrate into a single digital shadow, but it is exactly these challenges that render them relatively immune to the efforts of those who would manage, to their own ends, their digital profiles.

Perhaps the most promising response—in fact, the central thesis of Mayer-Schönberger’s book ‘Delete’ (2009)—is to ‘reintroduce forgetting’ into the biographical archive. Mayer-Schönberger suggests that we “reset the balance, making forgetting just a tiny bit easier again than remembering” (p. 169) in order to redress the technologically-induced shift that has left us, for arguably the first

time in history, with ‘save’ as the default. His proposal involves requiring an ‘expiry date’ to be associated with each bit of digitally archived information; if the expiry date passes without further action, the information is rendered inaccessible. While the details of this proposal remain necessarily vague the principal is clear: Mayer-Schönberger’s goal is to return us to a state where we must “choose deliberately what to remember” (p. 198). Dodge and Kitchen (2007) take a slightly different approach: they argue that an ‘ethics of forgetting’ is critical to the responsible use of life-logging systems designed to “store and manage a lifetime’s worth of everything—at least everything that can be digitized” (Gemmel et al. 2003, as cited in Dodge and Kitchen 2007). They propose a range of algorithmic strategies “such as erasing, blurring, aggregating, injecting noise, data perturbing, masking, and so on that would be used to ‘upset’ the life-log records” (p. 442). Their goal is to build in ‘necessary processes’ of forgetting modeled on the natural forgetting that characterizes biological memory (see also Korenhof 2013). While a slavish reproduction of the particular idiosyncrasies of biological memory isn’t a necessary (or even necessarily best) option, the notion of instituting forgetting in digital archives is gaining traction. Van Heerde (2010), for example, proposes “privacy-aware data management by means of data degradation”, whereby sensitive data becomes less sensitive over time as a result of various processes of degradation; Korenhof et al. (2015) similarly propose that ‘time’ (passed) should influence the implementation of the ‘right to be forgotten’. As Bannon (2006) argues, we need to re-think the design of ubiquitous technologies to incorporate (at least some) forgetting (O’Hara 2010; van den Eede 2010). In this way we can re-establish the balance between what is remembered and what is forgotten, and allow individuals the necessary privileged access to their own life stories and thus to their own identities.

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