

“The end of privacy as we know it”

Reconsidering public space in the age of Google Glass

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Introduction

The introduction of Google Glass in 2013 attracted much public attention and initiated a race for the commercial development of mixed reality goggles. Google Glass (hereafter Glass) is a head-mounted display in the shape of eye-glasses with camera that can overlay and augment the physical world with virtual information. The device is always present in the user’s field of sight and demands close attention during each interaction. Glass enables online search, personalized suggestions and navigation in real-time. Also, Glass can take pictures and record the surroundings, share and store them online, while not providing clear signals to the outside. While Glass does not allow a continuous recording, “those who wish to can record, rewind and rewatch more of what they see more easily – and where everyone else can end up recorded as part of the process” (*The Economist*, 2013).

In view of its surreptitious recording capabilities, Glass generated various concerns, primarily related to privacy. Soon after its introduction, “Glass-free zones” emerged on some business premises, where owners considered the video camera embedded in Glass to be a violation of privacy of their clients. Other creative appropriation of Glass included sabotaging the functioning of device by blocking its Wi-Fi connectivity. Even though Google emphasized the privacy-conscious character of Glass as a device providing control over user’s information, privacy appeared as an unattained cornerstone for the societal acceptability of Glass.

Google withdrew Glass for redesign in 2015, only two years after its introduction. However, this does not mark the end of privacy concerns related to mixed reality devices. An updated version of Glass appeared in July 2017, currently available only for enterprise use (Levy 2017). Moreover, camera-equipped devices, similar to Glass, increasingly enter the market of mixed reality glasses (e. g. HoloLens by Microsoft (2015), Spectacles by Snap (2017) and EyeTrack Insight by Olympus (2017)). To this end, the debate around Google Glass and privacy remains relevant. In anticipation of the further integration of mixed reality devices into the daily lives of people, it is important to understand the

privacy concerns they generate, their foundation and implications. Glass, just as other mixed reality goggles, can be used in different social scenarios, ranging from face-to-face intimate encounters to the use in public space. Conceived as a locus for socialization, interaction, and identity representation, public space embeds both individual, interpersonal and larger group concerns. Therefore, in this chapter, we seek to examine the impact of mixed reality glasses on the nature of public space, and suggest to turn to Glass as a device with history in this regard.

Philosophically, we rely on the theory of technological mediation (Verbeek 2005, 2011) and the thought of Hannah Arendt (1990, 2013) to understand Google Glass better. The theory of technological mediation understands technologies to be in dynamic, mediating relations with the people and the world (Ihde 1990; Verbeek 2005). As such, people and technologies are not independent of each other, because, on one hand, people design technologies with certain intentions; but on the other hand, these same technologies help to shape the perceptions and interpretation of the world and consequently influence the way people act. The ethical consequence of this is that human values are also not independent of technologies – technologies mediate morality (Verbeek 2011). In the current study, we want to understand how privacy as a value takes shape in relation to Google Glass in public space.

We also suggest viewing Glass through the metaphorical concept of a mask, as interpreted by the political philosopher Hannah Arendt. According to Arendt (1990, 2013), a mask concerns the intricate relationship between the identity construction and the appearance of a person in public, allowing a person to appear embodying a certain identity, a crafted position. For Arendt, maintaining a multiplicity of identity representations is an essential part of a public space. Applying the Arendtian concept of a mask to Glass allows us to extend its originally intended two-fold meaning, related to identity construction and representation, by including its function as a mask collector and narrator.

Contrary to Arendt, Glass seems to obscure the plurality of representations of the self in public by defining them through the prism of privacy as control of information. However, the practices Google Glass enables present a rich background for reasoning about privacy, where the logic of control may be one of many possibilities. To understand how people reason about privacy in relation to Glass, we will follow this technology in the practices it enables. We will do so by examining how privacy discussions about Google Glass emerge online, particularly on YouTube. As a space to capture a multitude of public perspectives in the form of videos and comments, YouTube is a valuable platform to understand the way people perceive a technology such as Google Glass, a technology that is not fully present, having been available only to some people and currently available only for enterprise use. Our empirical study will remain explorative because of the selective and constructed character of the comment base we analyze. It nonetheless provides a deeper understanding of how people

try to make sense of augmented and mixed reality technologies by presenting a snapshot of privacy discussions on YouTube in relation to Glass.

The structure of our study is as follows. First, we elaborate on the theoretical cornerstone of our study, the theory of technological mediation. Then, we draw on the Arendtian concept of a mask to approach Glass as a technology in the public space and the uncertainty it entails.

Afterwards, we explain the explorative empirical philosophy, with attention to methodology, which we used to study the case of Glass and privacy. Finally, we proceed to the empirical study, where we identify and analyze several practices, depicting how people use or anticipate using Glass; investigate the practice-specific privacy puzzles and present privacy as a porous, contingent and multi-layered value. In the concluding part, we argue for an increased responsibility of Glass users to be aware of and preserve the multiple dimensions of the value of privacy, and thus safeguard the presence of plurality in the public space.

Highlighting the technological in privacy: the theory of technological mediation

Privacy, as a value, frequently features in public debate and policy-making. Despite the dominant legal and corporate discourse on privacy as information control and management (Data Protection Directive 1995), there is no one agreed definition. When we turn to historical accounts of privacy, we see that maintaining privacy has gradually changed with the introduction of new technologies. The mass appearance of photographs in newspapers at the end of the nineteenth century made us experience privacy as “the right to be let alone” (Warren and Brandeis 1890), followed in the 1960s by a focus on personal data protection as a reaction to the emergence and spread of digital data (Solove 2002). In recent decades, the constant use of (personal) devices connected to the Internet – devices that increasingly penetrate every sphere of our life – has extrapolated this effect. In the contexts of these technologies, another understanding of privacy emerged and was expressed at the EU level as “the right to be forgotten” (Mayer-Schönberger 2009). What follows from these observations is that, firstly, privacy is a dynamic value, and, secondly, people attribute meaning to privacy in relation to the technologies around them.

The theory of technological mediation (Ihde 1990; Verbeek 2005) suggests that when in use, technologies mediate the perceptions and actions of people in the world. People embody technologies to the point of considering them an inalienable counterpart of self (e.g. a pair of glasses or a blind-man’s cane). The world rarely reveals itself to people directly, but rather with or through technologies (e.g. a thermometer or a screen). Similarly, people interact with technologies to get access to the world (e.g. a cash machine or a smartphone), in which technologies increasingly form a silent background for our existence (e.g. air conditioning or WiFi networks). Overall, the technological mediation

theory suggests that it is through technologies – broadly construed – that people act and realize themselves in the world.

Moreover, in a world that is increasingly technological, people and technologies co-shape each other in a constant interaction: “What the world ‘is’ and what subjects ‘are,’ arises from the interplay between humans and reality” (Verbeek 2008, 13). Such a mediating phenomenon of technologies carries normative connotations: if technologies mediate the experiences and practices of people, then human values that emerge within them are also mediated by these technologies. Verbeek (2011), inspired by Annemarie Mol (2002), considers human values as interactional. According to Mol (2002), human values are necessarily embedded in practices that enable or contradict them. Different practicalities enact different configurations of what a value means. Verbeek (2011) conceptualized the interdependent nature of human values and technologies in the approach to technological mediation of morality highlighting the interactional, dynamic, and co-shaping nature of human values and technologies.

Following the approach to technological mediation of morality, the value of privacy is not divorced from Google Glass and the practices it enables. Moreover, different practices can enable different manifestations of the same value. It seems that to understand what is at stake with privacy and Glass, we need to identify and interpret the ways in which people use Glass and what it means for public space. We will first elaborate on a particular interpretation of public space that we build on, and then provide a brief analysis of Google Glass and the uncertainty in public space it enables.

Glass as performative uncertainty in public

When we talk about the public space, we predominantly take after Arendt, who extensively studied its nature and purpose. Following Arendt (1990, 198–199), public space is not necessarily a designated physical location; instead, any space can turn into a public space. What turns a space public is a political act: for example, when people gather for the public performance of deeds and the speaking of words, and thus manifest their appearance in the public (Arendt 1990). This political function of a public space is also crucial for the process of identity construction and representation: one has to be prepared for constant observation by others. Even though we embrace Arendt’s understanding of the public space as constitutive for the process of identity building and representation, we do not want to limit it to the political context and would like to build on its social value. Therefore, we opt for a broader conception of public space as a locus for socialization, interaction, and identity representation.

When we enter a public space, we implicitly consent to the rules governing it. Increasingly, public authorities consider surveillance an intrinsic feature of the urban landscape. If people want to participate in public spaces, they must

trust the entities behind surveillance to manage their data in accordance with legislative norms. However, it has been argued that the ubiquitous penetration of digital devices into everyday life challenges the fitness of the consent mechanism to address the dynamic nature of data flows, as well as data collection, storage, and processing (Matzner et al. 2016; Van den Hoven and Vermaas 2007).

In this chapter, we will not focus on the legal aspects of privacy or personal data protection in relation to Glass. Instead, we are more interested in how the uses of Glass can change and redefine the public place, and, in parallel, whether and how privacy as a value plays a role in it.

A preliminary look at Glass reveals the device as an individual wearable technology, promoting simultaneous connection with both physical and digital environments. Google promoted Glass on the assumption that modern technologies somehow suppress people and prevent them from fulfilling their goals; hence, it fell to Google to fix this with the help of Glass. According to its website, “Our vision behind Glass is to put you back in control of your technology,” thus emphasizing the values of empowerment, proactiveness, and control that Glass can provide all users, “from moms to mountain climbers” (Wayback Machine 2015).

The main rationale underpinning the security and privacy policies of Glass concerns control of information (Glass 2013). Here the emphasis is on user empowerment because it is the user who makes decisions about the recording and sharing of data. Behind the spotlight is the fact that all recorded data is synchronized and stored in Google Cloud, making it potentially accessible for the owner of Glass from any device at any time. Google did not specify which information about the user it collects, nor the technical details concerning processing the recorded data.

At the same time, Google did not forget about the people around Glass wearers and noted that it had built in “explicit signals” to notify when Glass is recording, such as: illuminating the screen, providing voice commands, and a built-in LED red light. However, these signals were deemed insufficient and unsatisfactory both by people in the proximity of Glass users (Koelle, Kranz, and Möller 2015); and data protection authorities worldwide (Office of the Privacy Commissioner of Canada 2013). Commenting on the Glass feature to record with the wink of an eye, the company recommended Glass wearers to “use [their] best judgment” (Glass 2015) when capturing their surroundings, thereby trusting users to navigate wisely the social etiquette concerning Glass.

Glass introduces an unparalleled element of uncertainty into the public space, which stems from the fact that there are no clear signals to communicate to the public whether the device is recording at any particular moment. While other personal gadgets can record in public, they require a certain chain of procedures, such as: holding the device, positioning it in a way suitable for recording, and touching buttons to activate or stop the recording. Glass does not require

any of these noticeable actions: one can activate the recording with the blink of an eye or by issuing a suitable voice command.¹

Another significant difference of Glass from the existing devices, such as smartphones, is that it is located in the direct field of sight of the user (above the right eye). When in use, Glass requires close attention to the signals (e.g. navigational aural cues or notifications requiring action); interaction (via voice commands or by tapping the touchpad behind the ear); and concentration (visual cues require a close focus on a screen). Such a technological setup was carefully designed “to cater to *microinteractions*, allowing the wearer to utilize technology while not being taken out of the moment” (Firstenberg and Salas 2014, 11). In practice, however, it required Glass wearers to often look at the screen and to verbally interact with the device, all of which complicated their interaction with the people nearby (Honan 2013; Koelle, Kranz and Möller 2015).

Moreover, owing to its design (imitating a pair of ordinary glasses), Glass invites the public to view it as an ordinary object. However, a qualitative study conducted by Koelle, Kranz, and Möller (2015) indicates that, in fact, its ambiguous design makes bystanders insecure and suspicious of the device because it is difficult to deduce what activity the Glass wearer is engaged in. The study also shows that people in the proximity of a Glass wearer by default assumed the device was recording or taking pictures of them (*ibid.*, 366). Therefore, the design factor makes Glass subject to public suspicion, as neither the form nor designated signals can communicate the specific action and/or intent of the wearer.

The Glass users themselves gave the public a reason to be suspicious. In its short existence, Glass fostered a creation of a new term, “Glasshole,” condemning a socially inappropriate behavior of Glass users, often related to secretly taking pictures and videos of people. Shortly after its introduction in 2013, multiple Google Glass etiquettes surfaced in media to teach Glass wearers how to properly use the device in a “polite society” (Sintumuang 2013; Mashable 2013). Certain business owners defined their premises a “Glass-free zone,” concerned with the privacy of their visitors (Dickey 2014). Oliver (2014), inspired by a slogan “Privacy is the power to selectively reveal oneself to the world” (Hughes 1993), created a program that identifies the entry of a Glass wearer in a public area (e.g., a restaurant) and cuts off the Wi-Fi connectivity of the device. Most of these activities were preoccupied with privacy in public places and perceived the proximity of a Glass user as a threat to privacy, or, as Greenberg (2014) describes it, “Google Glass’s ability to turn ordinary humans into invisibly recording surveillance cyborgs.”²

If we perceive public space as a place for socialization, interaction, and representation of one’s identity, then the introduction of uncertainty in the shape of Glass could have profound restructuring effects on the nature of public space. The renowned analysis on the power of uncertainty in public space to which we turn belongs to Foucault (1977). In a popular interpretation of

Bentham’s idea of the Panopticon (Bentham 1791), Foucault considered the uncertainty and unequal conditions it creates to enable the power of one-way surveillance. The single direction of surveillance is constituted by the architectural structure of a panoptic prison: the guards are in a centrally located tower, able to observe the prisoners at any time without being seen by the prisoners. The idea behind the Panopticon is that, even though it is unknown whether the guards are watching the prisoners, the prisoners assume they are always visible and thus model their behavior to the expected standards. The power of uncertainty thus internalizes the surveilling eye within the prisoners themselves and subjugates them.

In relation to Glass, however, we argue that another side of the panoptic coin is also relevant: not so much the internalization of the surveilling gaze, but rather the centralization of it. We argue that the centralizing aspect of observation, collection, and narration of Glass is implicitly at the center stage of the privacy debate around it. Glass allows for an all-encompassing interpretation of the accumulated public narratives from a one-person perspective, taking as a given that these public narratives are detailed recordings, permanently stored and easily accessible. Control of information is the only privacy lens that Glass has. However, people around the Glass wearer may expect privacy on different levels, where the logic of control is but one (Patton 2000). The contextual and dynamic nature of privacy enables a variety of practices and narratives to thrive in public space (Hildebrandt 2006). By highlighting the aspect of control of information in privacy, Glass suppresses the expression of other values, embedded in the fluid and multidimensional concept that privacy is. As such, Glass complicates representation of the multiplicity of captured identities and individual stories that call on privacy in a way different from control of information, essentially restructuring the nature of a public space.

To understand why the reduction of multiple positions in public space challenges its nature and structure, we will seek answers from Arendt as an author who extensively investigated the concept and value of public space.

Glass as a mask collector and narrator: an Arendtian perspective

Following Charles Taylor (2003), the Western political tradition is largely imbued with ideas of classical liberalism. One of the guiding principles of liberal democracy concerns the prevalence of the atomistic individual and his interests, goals, and conceptions of a good life. The society that emerges from the liberal tradition is merely a sum of its component members. The will of a person thus impinges on society with individual moral frameworks and life plans, levelling society to the perspective of one. Taylor argues that the “basic principles [of a liberal society] concern how society should respond to and arbitrate the competing demands of individuals” (ibid., 4).

One of the thinkers who opposed such a liberal atomistic conception of society and outlined its dangers was Hannah Arendt. She argued for an alternative societal layout that brought to the fore the aspect of plurality in human life. According to Arendt, “[t]he hope for man in his singularity lay in the fact that not man but men inhabit the earth and form a world between them” (1990, 174). It was of the utmost importance to Arendt to never single out humans as individuals. Genuine human life was, for her, the one shared with others. Only through these others can we perceive the world in the entirety of its many perspectives.

Plurality is thus the basis for society. An individual’s values and motivations take shape through his or her interaction with others in the public space. If a prevalence is attributed to one individual perspective or if plurality of representations is downgraded, society may lose its versatility and end in a totalitarian state (Arendt 1990). Thus, the principles of the democratic society, according to Arendt, should foster the plurality of identities, voices, and perspectives represented in their multiplicity in the public arena.

To facilitate the implementation of the democratic condition for plurality, Arendt turned to the Greek concept of a mask to investigate how unique human identities and voices penetrate the public space. We also turn to the concept of a mask to investigate how varying conceptions of privacy emerged in relation to Glass. Owing to its nature, one can interpret Glass as an additional layer of information consisting of aural and visual cues in the physical environment. Combining this insight with the aesthetic form of Glass, one can think of Glass as a mask that presents the outside environment to the user and the user to the environment in a specific way. In the following sections, we consider the mask metaphor, not so much concerning its fitness for a visual description, but rather pondering its philosophical value in terms of Arendt.

The nature and value of an Arendtian concept of a mask

Arendt used the concept of a mask to distinguish the intricate relationship between the appearance of a persona in public and the construction of identity. For Arendt, the essence of a mask stems from discerning the original meanings of the Latin words *persona* and *personare*. *Persona* translates to a theatrical mask that an actor wears in tragic plays in ancient Greece; *personare* adds to this a provision for allowing the actor to speak and be heard. Following Arendt, “The mask as such obviously had two functions: it had to hide, or rather to replace, the actor’s own face and countenance, but in a way that would make it possible for the voice to sound through” (Arendt 1990, 106). Thus, wearing a mask enables a person to appear in public embodying a certain identity, a contextually defined role, a crafted position.

According to Arendt, every time we enter the public space, we perform a persona, a public self, constitutive of who we are or who we wish to be seen as. While in the public space, our private self hides behind a mask and we become a political actor. In the eyes of Arendt, humans constitute who they

are by entering the public space while acting and speaking in it. In her prominent work, *The Human Condition*, Arendt argues (2013, 50): “For us, appearance – something that is being seen and heard by others as well as by ourselves – constitutes reality.” This “appearing in front of others” is the key for genuine identity building. Whereas private space allows us to be true to ourselves – in terms of taking care of our physical needs and contemplating who we are – the public space is the only place where we can act on that “who”, that mask, that persona we want to establish. In other words, entering a public space is the only way we can shape who we are in all its multiplicity.

It is important to emphasize that, although we carefully choose the mask to represent us in public, it is for others to interpret. The act of appearance in public becomes meaningful only when others acknowledge and narrate it, relying on what they previously saw or heard. Moreover, according to Arendt, the mask is not only a product of individual thinking; rather, it is also co-shaped by “the exigencies of the play” that the mask has to address. Considering the creation of a legal personality, Arendt said:

The distinction between a private individual in Rome and a Roman citizen was that the latter had a persona [...]; it was as though the law had affixed to him the part he was expected to play on the public scene, with the provision, however, that his own voice would be able to sound through.

(Arendt 1990, 107)

Thus, public space serves as a stage that gives durability to human life and the world people create through actions. People appear in front of others to be recognized. Acting in public – by becoming visible to others – reveals and exposes the identity of a subject. This disclosure *makes* the subject: becoming visible to others through action not only means revealing, but also performing, an identity. Public space is thus essential for the construction and performance of an identity.

For Arendt, we can remain in our private domain and contemplate which mask we will wear before entering the public space, but we can never control what others perceive of us. She continues:

It [the mask] can be hidden only in complete silence and perfect passivity, but its disclosure can almost never be achieved as a wilful purpose, as though one possessed and could dispose of this “who” in the same manner he has and can dispose of his qualities. On the contrary, it is more than likely that the “who”, which appears so clearly and unmistakably to others, remains hidden from the person himself.

(Arendt 2013, 179)

It is because of this revealing one’s “who”-ness in front of others that we can never purposefully control who we are. It will always be left to the discretion

of someone else, who “in lieu of acting or appearing in his or her own right, watches, remembers and later narrates” (Barbour and Zolkos 2011, 1).

The mask thus shapes our appearance and identity. Although the public persona is, as such, never at our disposal, it is also not at the disposal of any other individual. The plurality of masks in the public space is the safeguard against the monopolizing power to define an individual. It is precisely this opportunity for representation in public that a mask provides, which also helps us to enable and safeguard a democratic condition of plurality.

Applying the concept of a mask to Google Glass

If we were to interpret Glass as the previously described two-fold mask, this would break down into two mutually informing components. The first component would be the image Google wished to project on the Glass user, which would have at least a partial performative power on the way the outside public would interpret the wearer of Google Glass. The second component would be the capacity for self-expression that the user gained by using this device. We will examine these constitutive elements of a persona in the case of Glass.

Looking at Glass through the prism of a mask helps us discern its two-fold function as providing an ability to construct and express distinct identities. However, taking into account the control-based rationale Google ascribed to the persona of a Glass user, combined with the recording functions of the device, allows us to extend the original two-fold concept of a mask to a third dimension. Glass allows its users not only to present a certain mask in public, but also to collect the masks of those around them. Moreover, the opportunity to store the detailed captured information in Google Cloud and to retrieve it at anytime from anywhere gives the Glass user an unprecedented ability to define collective and individual narratives from a single-person perspective, thus controlling the information of other people.

The control-based mode of thinking that Google envisions for the users of its services mirrors an atomistic understanding of society, in which the individual’s logic prevails. The control model, as promoted by Google for its reasoning about the privacy of the Glass user, assumes that privacy is a domain pertaining to an individual, the domain that the user can control if desired. It is this model of reasoning about privacy that Glass invites its users to bring into the public space. Moreover, the logic of control is also performative in how Glass users consider themselves, those around them, and the information captured by the device about such individuals. The third dimension of a mask – that of a mask collector and narrator – could thus seemingly challenge the plurality of representation as one of the pillars of identity construction and democratic society that a mask should help constitute in the first place.

In the following section, we thus want to examine the general applicability of the privacy-as-control-of-information model in the public space of which Google Glass is a part. In this, we were inspired by the technological mediation

theory and a mix of methodologies to explore Glass as a technology on the brink of innovation.

How to study the technological mediation of privacy: a note on methodology

In this chapter, we want to understand the privacy implications of Glass for the public space and to understand better the way people make sense of privacy in relation to this technology. Following the technologically mediated, interactional take on values of the mediation theory, values manifest themselves in human practices, real or envisioned. In order to understand the various dimensions of privacy, mediated by Google Glass, we intend to follow Glass in the practices it enables. However, Glass is a “borderline technology”, a technology at the brink of introduction: although its earlier versions already entered the market and some people experienced Glass first-hand, the device is currently under redesign for general use and the final version is subject to anticipation. The question then is how to trace and examine the practices of a technology that is not fully present. This section presents a description of the explorative empirical philosophy, with attention to methodology, which we used to study the case of Google Glass and privacy.

We suggest the study of interaction in online communities as one way to study practices with emerging technologies, such as Glass. Even though the first version of Glass was available for a limited period of time (2013–2015), it was widely discussed online. In this chapter, we will examine the textual interaction – in comments – of an online community on YouTube in reaction to a video depicting a social etiquette for Google Glass. YouTube, as a social network website based on user-generated video content, invites an open discussion not only of the content but also of any topic provoked by the video that is relevant to the commenter (Chenail 2011). One of the limitations of the YouTube comment study is that videos are, in a sense, staged interactions to which commenters react. However, free choice of language style and expression in comments under videos allow participants to engage with what they have seen on their own terms (Veen et al. 2011), which presents great value for this study.

We shall analyze a Google Glass etiquette interpretation of Mashable, an online technology-review platform. In a 1 min. 46 sec. YouTube video, the company depicted in a satirical way why some Glass users are referred to as “Glassholes and how to avoid being one” (Mashable 2013). A series of provocative scenarios depict socially inappropriate behaviours with Glass, such as secretly taking videos and pictures on a date or in a toilet, cheating in games by consulting the search engine, etc. The etiquette guide of Mashable engages the viewers, reviewing certain Glass-fostered practices, and asks for feedback, thus presenting an interest for the research. It was also the first video-etiquette concerning Glass to generate considerable attention, collecting 1,415,003 views and 2,064 comments (as of June 2014)³, all processed for this work.

The data collection and analysis proceeded manually. A close reading of the comments allowed us to select the final empirical base, consisting of 96 comments, which describe or react to a certain practice with Google Glass. The open nature of YouTube did not require registration to access the comments, all of which were publicly available. To ensure the respect for the autonomy and dignity of the commenters, we anonymized their names and aliases, as well as removed any identifying information, such as date, time and location, from which the comment was made (Markham and Buchanan 2012; Hewson and Buchanan 2013). We preserve the original spelling.

In the analysis of the data, we used coding and thematic analysis to approach the data systematically. We also used elements of Discursive Psychology and Conversational Analysis (DP and CA) method (Potter 1996; Edwards and Potter 1992) to understand in which context the commenters invoked privacy. With this mix of methodology in mind and inspired by the theory of technological mediation, we approach the way people appropriate Glass in online conversations on YouTube.

Approaching the privacy puzzle of Google Glass: an empirical investigation

The prior conceptions of privacy that we carry into our investigation include both the legal and corporate – privacy as a right, privacy as control of information (see, e.g., Glass 2013; Data Protection Directive 1995; Solove 2002); and the social understanding of privacy as a value, dedicated to enabling identity formation and representation, as well as interaction with others (see, e.g., Regan 2002; Steeves 2009; Roessler and Mokrosinska 2013). In combination of the two, we see an intrinsic importance of privacy for public space. We investigate a wide range of practices with Google Glass that could manifest the privacy attributes mentioned above. We thus invite a reading of the excerpts from YouTube comments below in the context of privacy, even though the commenters might not discuss privacy explicitly.

To examine how privacy (as a theme) springs up in the YouTube comments, we will present the findings, organized thematically, to show how privacy discussions differ according to context. Our analysis identified a rich and complex narrative about privacy as a value. Particularly, the commenters discussed privacy as a limited access to the self (“Addressing the GlassHole onslaught”); privacy of personhood; privacy of communication; privacy as civil inattention (“You should be on guard!”); privacy in relation to experience and memories; identity building; activity; and control of information (“The end of privacy as we know it”). Below, for matters of space limitation, we present three of these privacy conceptions, accompanied by an analysis guided by technological mediation theory. We will examine the nature of practice the commenters describe or the tension arising from the use of Glass, followed by an inquiry into whether and why privacy is important for the particular practice. Finally,

at the end of each section, we will discuss how Glass as a technology relates to the plurality of identity representations and perspectives on privacy in a public space.

We suggest treating the comments below as exemplifying instances of people enacting multiple understandings of privacy when considering Google Glass. They provide a snapshot of privacy discussions on YouTube in relation to Glass, indicating certain trends in privacy formulations “at one place in time” (Potts 2014). As such, we invite the reader to treat the following analysis not as generalizable but explorative, highlighting the aspects of privacy that are important to people in relation to Glass and how people try to make sense of new technologies such as Glass.

Privacy as control of information: “The end of privacy as we know it”

Excerpt 1

Commenter 1: Am I the only one who thinks anyone wearing these might as well be a government cyborg? these are going to destroy any sense of privacy, send it directly to google (aka the government.)

Commenter 2: You must be stupid to buy this. Putting your whole life and privacy in the hands of a personal data-hungry company like Google.

Commenter 3: Get used to it, Facebook, and even YouTube has your private information (Google is YouTube). If you're really that paranoid then don't do a half job, abandon the internet completely.

Commenter 4: These will end up being abused by the police and government so damn much, the end of privacy as we know it. Plus everything you do and say will be recorded in public places now, its scary to even think about.

Commenter 5: I'm sorry, those who pull these kinds of stunts would more than likely get their snotbox busted by someone who isnt cool with it. Google glass with caution I'm just sayin'.

The excerpt above depicts the conflict between wanting to control the information about the self and seemingly not being able to do so because of the ambiguous role of the company behind Glass. Margulis (2003) referred to this as a loss of psychological control over privacy and warned of its detrimental effects to mental well-being. The commenters suggest that as soon as people start using digital devices with Internet connectivity, they should accept losing control over their privacy and submitting their lives to the control of corporations. The obscured corporate practices of data collection and management, along with the uncertainty over the use of Glass by government entities and private individuals, beget an environment of distrust.

This complicates the control of information for people around Glass wearers because they cannot determine what information is shared and with whom, and cannot ensure that only designated pieces of information are transferred to other parties. The ambition for privacy control closely relates to the values of

autonomous construction of the self (Hildebrandt 2006). However, the situations discussed in Excerpt 1 are characterized by the lack of control and the many strategies people develop to maintain it, ranging from limiting the use of Internet services (*Commenter 3*) to acts of physical aggression towards Glass users (*Commenter 5*).

In this instance, both the technology (Glass) and the company behind it (Google) mediate the way the commenters reason about privacy. In the eyes of the commenters above, by choosing to wear Glass, its user takes along the baggage of public perception and distrust of the corporate practices behind Glass. This positions the Glass wearer as an adversary in the eyes of a wider public, capable of active measures to sustain the idea of control over their information. In Excerpt 1, we witness an understanding of privacy that most closely relates to the suggested rationale of Google and accords with the corporate and legal definitions: privacy as control of information. At the same time, there is a significant difference: whereas the corporate and legal bodies position the understanding of privacy as control of information proportionate to the current state of affairs, people around Glass users perceive it as a desirable, but currently an unattainable, safeguard.

Privacy as civil inattention: “You should be on guard”

Excerpt 2

Commenter 6: Lack of privacy comes in many flavors ... now we have people who can take your picture while non-surreptitiously (you should be on ... guard when addressing someone you don't know who is wearing Glass) facing you.

Commenter 7: What the not so distant future holds, more know it all perverts ...?

Commenter 6 and 7 both talked about how the nature of public space changes with the introduction of Glass, owing to the suspicion it brings and the inevitable hampering effects on interaction and sociality in the public space. Goffman (1978) conducted a seminal sociological analysis of interaction and communication, and, just as Arendt, relied on the concept of a mask. He drew our attention to the vital importance for the socialization process of the ability to switch between different social roles, “the expressive mask[s] ... in face-to-face interactions” (ibid., 73), relative to varying contexts.

Roessler and Mokrosinska (2013) drew on Goffman's work and investigated the social dimension of privacy with an emphasis on sociality. They determined that attending to the norm of privacy as civil inattention enables the process of switching between social masks, which underpins sociality in public. They refer to the work of Nagel to define privacy as civil inattention as “when one's own private affairs are kept private, as well as when respect and reserve are displayed towards others” (Roessler and Mokrosinska 2013, 782). The authors ultimately

suggest that only by displaying indifference and civil disregard of strangers can one maintain an expectation of privacy in public.

In a similar vein, Tonkiss (2003) presents an ethics of indifference as a necessary condition for coexisting in the public space. Inspired by the ideas of White on “the gift of loneliness and the gift of privacy” (White 2011, 19) in a city, Tonkiss devises the foundation of the ethics of indifference “as an ethical relation between subjects – one premised less on the ‘face-to-face’ relations of community than on the ‘side-by-side’ relations of anonymity” (2003, 298). An absence of excessive curiosity from the surrounding people is thus a foundation for an ethics of indifference. Such an ethics of “look[ing] past a face” (ibid., 301) translates into respect for people and essentially enables the multitude of identities to inhabit the public space simultaneously.

Following *Commenter 6*, the ethics of indifference no longer permeates the public space: one cannot blindly trust strangers to regard you with civil inattention in the age of personal gadgets and Internet connectivity. Personal gadgets invite people to peek into the lives of others and even take photos or make video recordings of them. *Commenter 7*, on the other hand, assumes that covert observation and monitoring will become a part of the future everyday life, accompanied by Glass users’ frequent engagement with the search engine for purposes of information search and verification. No face, no mask can go unnoticed in these grim anticipations of society with Google Glass, where this technology monitors, inspects and singles out.

The comments in Excerpt 2 thus concern the perceived lack of control over information about oneself, conceived here in the form of pictures or videos that a Glass user can (secretly) take of a person. Mirroring the argument we have made above, the uncertainty over the use of Glass in public and the default assumption that users utilize the device for recording (Koelle, Kranz, and Möller 2015), mediates the understanding of privacy in public. Here the commenters invoke privacy as the one called to protect the valuable practices of switching between the identity masks and interacting without suspicion in the public space.

On one hand, Glass mediates the ethics of indifference in a disabling way. On the other hand, by allowing people around Glass wearers to identify what is important to them, the device enables the meaning of privacy as civil inattention, where the (assumed) excessive curiosity of Glass wearers is not desirable. The idea of privacy as civil inattention that the commenters put forth thus does not fit the conception of privacy as control of information. As such, the mask of suspicion arises on the faces of people around Glass wearers that calls for identifying new ways of safeguarding the ethics of indifference and privacy as civil inattention.

Privacy of activity and identity construction: “[Don’t] look over my shoulder”*Excerpt 3*

Commenter 8: Yes, I would use Google Glass A LOT, mainly considering the fact that it offers tremendous privacy, whereas when I use my phone or iPod Touch, people tend to get nosy and look over my shoulder to see what I’m doing, and I find that more annoying tha[n] most other things.

Commenter 8 introduced the issue of maintaining privacy in public when using personal gadgets and how the curiosity of bystanders interferes in his/her activities. *Commenter 8* highlighted the importance of maintaining privacy as civil inattention, as manifested by the condemnation of the way bystanders look over our shoulders in public. However, the presentation of this perspective profoundly differs from the findings above: whereas the people around a Glass wearer devise privacy as civil inattention and address Glass as the technology threatening it, actually or potentially, (potential) Glass users turn to the mediating ability of the device to sustain the ethics of indifference.

Commenter 8 viewed Glass as a technical solution to bring the ethics of indifference back, to repair the situation when people around you can furtively observe your behavior and activities. From the user perspective, Glass invites the ethics of indifference by providing a physical barrier to prevent overlooking how a user interacts with it. A bystander would see a person interacting with his or her device, but would be unable to trace the details of such an interaction. *Commenter 8* emphasized the value of being left to engage with the device without the monitoring eyes of strangers.

Closely related to this argument is another dimension of privacy this excerpt discloses: privacy of identity construction, where “privacy [...] protects the individual’s interest in becoming, being, and remaining a person” (Reiman 1976, 44). In the comment above, lamenting about people’s excessive interest in the affairs of others is the implicit call for the values of identity and self-expression that privacy is called upon to protect. *Commenter 8* is glad that Glass grants a necessary solitude for private activities, to shape varying masks and to perform those in public. The limited access to the self that Glass provides enables privacy to emerge here also concerning identity building. The design of the device provides a user with a necessary space to shape a persona for public appearance without a gaze of a bystander. In this sense, privacy of activity also closely relates to privacy of identity because Glass mediates both the emergence of the masks the user can assume and the specific meaning of privacy that helps enable the emergence of these masks.

Privacy as civil inattention and the ethics of indifference appear differently from the vantage point of Glass users than from the perspective of people around them. Whereas for people around Glass users the device debilitates the

realization of civil inattention in public, the same device facilitates the constitution of the mediating norm of indifference where Glass users are concerned. This instance demonstrates the importance of considering multiple perspectives and contexts when discussing the value of privacy.

Toward increased responsibility by Google Glass users

In this chapter we have analyzed the impact of mixed reality technologies, such as Glass, on the nature of the public space. Equipped with the concept of a mask as interpreted by Arendt, we investigated the nature of Glass: first, considering the intended two-fold functionality of a mask – to promote diverse identities while allowing distinct voices to sound through them; and second, by extending the function of Glass as a mask to that of mask collector and narrator. Following Foucault’s investigation of the Panopticon, we positioned Glass as a centralizing locus of surveilling gaze. This seemed to shadow the plurality of representations enacted in the multiple contexts enabled by Glass by defining them through the prism of privacy as control of information. Moreover, the introduction of Glass challenged the conception of the public space as a stage for identity construction and realization, for which a plurality of perspectives is a constitutive condition. We identified the promotion of Glass as granting the users control over their information, while generating uncertainty and lack of control for the people around Glass users to be at the core of suppressing the multiplicity of representations in public.

With the help of the theory of technological mediation, we questioned the fitness of a generalizing legal and corporate privacy conception for the various contexts Glass enabled in the public space. The mediation theory helped us to bring back to the fore the plurality of context-dependent privacy representations and privacy-entangled values, such as sociality, identity construction, autonomy, limited access to the self, civil inattention and respect. The identified privacy formulations only rarely fit into the dominant discourse on privacy as control of information. Rather, the identified technological practices indicated a lack of control and demonstrated how Glass users and people around them tried to deal with it.

Relating our findings to the nature of the public space, we argue that the introduction of Glass is bound to mediate the way we interact, socialize, and represent ourselves in public. We have identified several mediating effects of Glass that could play a role in reconfiguring the public space: elements of suspicion, uncertainty, ambiguity, and, consequently, a desire to control information about the self. Despite the immediate considerations as to the possible detrimental effects to identity construction, representation, and communication, we argue that Glass also fosters new ways to define and represent oneself. Utilizing the analytical force of the theory of technological mediation helped us to uncover the multiplicity of the technology-fostered practices, social masks, and formulations of privacy that remain hidden when employing the narrow

conception of privacy as control of information. This plurality allowed the users to identify themselves relative to the new contexts enabled by Glass and to discern what is important for them in relation to it. The public space emerges amidst all of the identified negotiations concerning the masks of identity and reasoning about privacy.

Applying the all-encompassing conception of privacy as control of information to the multiplicity of practices and contexts that Google Glass enables in public places would impoverish the nature of public space and monopolize it by looking at it strictly through the mask of control. We argue that the plurality of identities, values, and representations that the theory of technological mediation and the thought of Hannah Arendt helped to uncover, necessarily enriches the public space, fostering new ways and strategies for interaction and appearance in public.

Privacy as a value in relation to Google Glass appears as multiple, porous and contingent upon the practices where it is enacted. We identified that reasoning about privacy in relation to Glass is not limited to the understanding of privacy as control of information, but also includes the conceptions of privacy as civil inattention, privacy of activity and identity construction. If we consider privacy strictly in terms suggested by Google's narrative – as control of information – then Glass is indeed “the end of privacy as we know it.” However, the theory of technological mediation has helped us to reveal the plurality of other available narratives that Glass enables. This marks a different starting point in understanding and reasoning about privacy in public space.

Following Arendt, a multiplicity of perspectives and representations is essential for effective functioning of a public place. In our analysis, we showed how a one-sided interpretation of privacy as control of information can suppress other manifestations of privacy, related to the values of civil inattention and identity construction. In correspondence with the spirit of technological mediation, people have to take responsibility for the way technologies mediate the space around them, their values and life in general (Verbeek 2011). Based on the presented discussions of how technologies co-shape human lives, Glass designers and users should assume the “moral responsibility to actively shape th [e] lives in accompaniment with [...] technologies” (Kiran, Oudshoorn, and Verbeek 2015, 5). It is in relation to Glass that particular user practices, contexts, values and identities are shaped and performed. The theory of technological mediation could thus offer one possible answer as to what to do with the intensive flow of emerging virtual, augmented, and mixed reality gadgets in the face of continuing concerns over privacy. Rather than completely disengaging with such devices or regulating them to the point of suffocation, when designing and using these technologies, particular attention has to be paid to the way human-technology ensembles are enacted. As such, both the designers and users of Google Glass must take responsibility for the practices and actions they produce together with this technology.

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Notes

- 1 One can, however, also start the recording by touching the designated buttons or trackpad.
- 2 It is interesting to note how the behavior of early Glass adopters contradicts the idea of Steve Mann, involved in the development of augmented reality goggles since 1970s. According to Mann (2004), it is precisely the ability for a lifelong continuous capture that presents a value of the device, because this enables “sousveillance,” an inverse form of surveillance. As such, this technology is highly democratic and presents a balancing power to government and corporate surveillance: “It is this contextual integrity of the evidence, combined with a personal right and responsibility of individuals to preserve evidence, that sets forth an equilibrium between surveillance and sousveillance” (ibid., 2). People around Glass users, however, perceived Glass as a source of surveillance and attempted to counterbalance it with creative appropriations.
- 3 In April to June 2014, when we conducted the empirical stage for this study, the number of comments available below the video was 2,064. However, during the review of this study in 2017, the number of comments below the same video significantly decreased, to 524. A possible explanation of this could be a filtering policy of YouTube, where administrators remove the content (video and comments) containing spam, hate speech, etc. (YouTube 2017). A lot of the original 2,064 comments indeed contained spam, which we filtered out manually before selecting comments for analysis. However, the 96 comments taken for a close analysis for this study remain intact as of March 29, 2017.

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