

## Chapter 5

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# Creating proper distance through networked infrastructure

## Examining Google Glass for evidence of moral, journalistic witnessing

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### Introduction

In 1937, radio journalist Herbert Morrison interrupted his own recording of the *Hindenburg's* arrival in Lakehurst, NJ, to report that the ship had exploded into flames. Breaking their long-standing rules against broadcasting recorded material, NBC and CBS aired Morrison's report,<sup>1</sup> marking a turn in the modern history of journalistic witnessing. This history would go on to include the live or near-live reporting of events like the Challenger explosion, the Rodney King beating, O.J. Simpson's slow chase through Los Angeles, U.S. invasions of Iraq, the 9/11 attacks,<sup>2</sup> Kenya's election violence,<sup>3</sup> and the Middle East and North African uprisings.<sup>4</sup> Alongside this history sits a story of innovation as both the tools and techniques of journalistic storytelling reflected broader cultural and technological changes. Reporters now tell stories faster, from farther away, and increasingly alongside audiences who describe feeling immersed in and affected by events that they once had to wait weeks to learn about.

Indeed, journalists are often called upon to be thoughtful avatars: "To be their audience's eyes and ears in situations where individuals less determined to seek out the truth would do well to avoid,"<sup>5</sup> and to "convince publics of [a] distant experience or event in a seemingly unmediated style."<sup>6</sup> Especially in the context of contemporary, networked news work – in which journalists' traditions of professional control encounter increasingly active audiences shaping news independently<sup>7</sup> – journalists occupy multiple spaces at once. Sometimes, they must melt into the background as professional observers (proxies in the service of audiences demanding quality information with which to form opinions), but at other times they must foreground their own interpretations (advocating for why issues *should* matter to audiences who still need journalistic guidance). Studying journalistic witnessing thus means studying the boundaries of news work – analyzing how journalists straddle, shift between, and mix their roles as "individual interpreters" creating compelling narratives and their identities as "professional communicators" equipping audiences with information.<sup>8</sup> But these styles of witnessing are not just personal achievements; they exist within

a field of cultural, organizational, and technological forces that make them possible and signal their acceptability.

This chapter explores how journalistic witnessing means traversing boundaries between observing or reporting, avoiding or assuming risk, getting close or staying distant, live coverage or post hoc analysis. These are complicated, porous boundaries that have both ideological and material dimensions because they touch on normative underpinnings (assumptions about journalistic witnessing as professional and objective) and media conditions (tools and techniques for representing spaces to audiences). As journalists adopt and respond to the immersive possibilities of media technologies they leave clues about what they think moral, journalistic witnessing means in any given era – what “proper distance”<sup>9</sup> is for journalism. Proper distance requires configuring boundaries, thoughtfully encoding separations and dependencies into the information systems and ethical standards that bring events, journalists, and audiences together to create moral witnessing.

This paper examines how one emerging tool, Google Glass, sits at the intersection of multiple journalistic boundaries of witnessing. I ground the analysis in scholarship on the concept of witnessing, describe the idea of journalistic witnessing, propose the concept of “networked witnessing,” and suggest its tracing in Google Glass’s user interface, technical documentation, and early adopter discourse.

### **The idea of witnessing: Three questions**

Although the literature on witnessing is vast and diverse, three interrelated questions continue to be asked: Who qualifies as a witness? What does witnessing demand of media? And what is witnessing meant to accomplish? In Peters’<sup>10</sup> oft-cited formulation, witnessing entails a person performing for others: “the witness (speech-act) of the witness (person) was witnessed (by an audience).” Tracing which speech-acts, which people, and which audiences are implicated in witnessing is a perennial concern for any given era of media technology.

#### ***Who qualifies as a witness?***

Fundamentally, witnessing requires a *person*: someone acting as an “observer or source possessing privileged (raw, authentic) proximity to facts.”<sup>11</sup> Someone’s proximity to an event is roughly proportional to her legitimacy as a witness since the farther from a scene she is, the more likely she is to depend upon the observations of others. A witness’s *physical* presence signals serious commitment and a singular investment. Similarly, witnesses need to be present at the moment an event happens. It is less authentic for a witness to attend after the fact because, like physical distance, temporal distance prevents someone from making the kind of first-hand, real-time observations often seen as the most powerful evidence for influencing future events.<sup>12</sup>

Witnesses also articulate experiences. Often invoked in studies of Holocaust witnessing – to distinguish among people who saw and perished from atrocities, survivors who observed but were rendered mute, and those who saw and recounted their experiences<sup>13</sup> – witnesses are those who are willing and able to translate observations into accounts. They must be *visible*, trusted documentarians who convince others to pay attention – not simply telling compelling stories, but *embodying* the reliability of their testimonies by earning respect in places (e.g., courtrooms, religious institutions, media narratives) that pass moral judgments on events.<sup>14</sup>

Some notions of witnessing go further, expecting witnesses to risk, if not incur, bodily harm.<sup>15</sup> The “*moral witness*,” Margalit<sup>16</sup> (emphasis added) writes, “should himself be at personal risk, whether he is a sufferer or just an observer of the suffering that comes from evil-doing.”<sup>17</sup> The ideal witness is thus not only physically present, articulate, and institutionally validated, but an embodiment of risk and harm – with religious martyrs as the ultimate trusted witnesses because the “body is authenticity’s last refuge in situations of structural doubt.”<sup>18</sup>

### **What does witnessing demand of media?**

To *witness* means to experience a personal point of view and then communicate that experience to an absent audience that is relying on your observations to form opinions. In modern eras, this communication entails creating, circulating, and interpreting media – enabling “mediated witnessing”<sup>19</sup> in which witnesses achieve proximity to an event through first-hand mediated representations of it. Indeed, mediated witnessing is often invoked by first-hand witnesses defending themselves against charges of privacy infringement – they see their incursions as *principled* because they contribute to a *system* of mediated witnessing that would be impossible without their recordings. Rejecting the criterion of bodily investment, they claim that such representations can help audience members be witnesses akin to first-hand observers who were present and risked harm.

Indeed, Ashuri and Pinchevski<sup>20</sup> argue that the kind of witnessing required to manage the large-scale social relationships of contemporary, networked life requires: *eye-witnesses*; *mediators* (who create, edit, and circulate media); and *audiences* (spectators who judge accounts and potentially take action because of them). Witnessing, they argue, is a *field* of forces and agents each with different “abilities, interests, and resources” and “operating according to sets of norms and rules.”<sup>21</sup> The field of mediated witnessing today is so well populated by observers, media and audiences, it is impossible *not* to witness – people cannot claim to be ignorant of events because they did not see them themselves.<sup>22</sup>

Such a claim, though, needs to be critiqued in light of the structural features of contemporary media environments. Although there is a great deal of media, echo chambers can be filled with homogenous content,<sup>23</sup> filter bubbles can prevent new information from surfacing,<sup>24</sup> platforms can limit conversational

styles,<sup>25</sup> and people can purposefully avoid new information<sup>26</sup> or fail to attend to available media.<sup>27</sup> We may not have the chance to be mediated witnesses if search engines, recommendation algorithms, social networks, or personal preferences do not allow media to surface.

For those media that do make it to us, there is the question of whether interpreting media is ethically inferior to first-hand witnessing. Chouliaraki describes a “pessimistic” view of mediated witnessing in which technology is seen to “distort the authenticity of the represented event,” bracketing spectators within “the safety of their own living rooms,” and “rendering the scene of suffering as small as the television screen itself.”<sup>28</sup> The “optimistic” view, though, sees mediated witnessing as a “celebration of communitarianism” in which viewers experience “intimacy at a distance” with far-off sufferers. Such intimacy creates a *potential* “democratization of responsibility” for the conditions that made the suffering possible in the first place.<sup>29</sup> Instead of creating a test for witnessing that depends upon physical proximity and bodily risk, mediated witnessing asks the more pragmatic question of how *seeing* what a witness saw might bring about change: “[C]an we *act* on what we now know?”<sup>30</sup> Mediated witnessing is legitimate if it impacts the events that required witnessing in the first place.

### **What is witnessing meant to accomplish?**

Mediated witnessing must create *meaningful* change. Chouliaraki<sup>31</sup> suggests differentiating between “representations of suffering that may simply bring a tear to a spectator’s eye and those that may actually make a difference in the sufferers’ lives.” In this model, witnessing is storytelling with a purpose: it helps people separate mundane from important events; it helps people create memories that anchor them in time; and it distinguishes among types of suffering.

First, witnesses and mediators must decide which events to record and which media to circulate – to help audiences distinguish “mundane” events<sup>32</sup> from those that are meaningfully unusual, morally outrageous, and deserving focused attention. The contemporary proliferation of media makes it possible for “the monstrous and the mundane [to] occupy the same space” – and for the mundane to dominate.<sup>33</sup> Witnessing makes distinctions – it helps the *field* of moral witnessing pass a pragmatic test<sup>34</sup> by showing how the world would be *meaningfully* different if an event was seen as significant and worthy of attention, not simply mundane and ignored. This is how witnessing exercises “moral and cultural force.”<sup>35</sup> But asking for too many events to be witnessed can create “compassion fatigue”<sup>36</sup> – an “apathetic spectator [can become] reconciled with the presence of evil,” seeing “the injustice of suffering as an inevitable condition of life.”<sup>37</sup> To avoid witnessing that is mundane or fatiguing, it needs to be edited, curated, moderated.

Second, mediated witnessing can create what Tenenboim-Weinblatt<sup>38</sup> calls retrospective and prospective memories. Attending to media events commonly

seen as significant can help place people in timelines longer than their own lifespan: they can imagine being part of the historical events that shaped their present circumstances and they can envision how their actions relate to future conditions. Mediated witnessing thus serves a *public* function as people imagine themselves part of constituencies larger than what they are personally able to experience.

Finally, witnessing can distinguish among types of sufferers, construing some as “worthy of our pity and others as unworthy of it,”<sup>39</sup> helping people determine “why *this* suffering is important and what we can do about it.”<sup>40</sup> Though harsh, such selectivity can create the kind of conceptual, “proper distance” that Silverstone<sup>41</sup> says ethical uses of media create and sustain. Such distance, he argues, helps people see their own privilege so they might alleviate suffering – a perspective that too much intimacy or perceived similarity makes impossible. Proper distance can also help people see the value of sustaining differences, making them pause before intervening to question whether they truly have the moral standing to change another person’s life.

### **Journalistic witnessing and proper distance**

Mediated witnessing is not about reporting events as closely as possible, about immersing audiences as deeply as possible, or about creating change as quickly as possible. It is instead about understanding how boundaries within a field of actors – first-hand witnesses, media technologies, storytellers, audiences, victims – influence how people understand their responsibilities to others and respect their differences from them. Instead of simply using new technologies to immerse observers in distant, real-time events – collapsing spatial and temporal separations between audiences and victims – journalists might actually *create* boundaries that give the *field* of witnessing the time and space it needs to create the proper distance that moral witnessing demands.

But when journalists *create* boundaries they act as advocates. When they enact boundaries they implicitly acknowledge a distinction between witnessing (reporting for a distant audience that would be there if it could) and *moral* witnessing (advocating for an outcome to audiences through their reporting). The moral journalist *justifiably* intrudes upon “the suffering of others with the aim of changing the witnessed reality.”<sup>42</sup> Instead of intruding to guarantee a public right to know, the moral journalist intrudes in order to bear responsibility for witnessed events.<sup>43</sup> Her goal is not simply to inform audiences but to *compel* them: testifying “to what it *feels like* to see, and to what seeing means and requires of the witness.”<sup>44</sup> This type of journalism requires not just observation – “seeing does not necessarily compel responsibility”<sup>45</sup> – but involvement, justifying infringements upon privacy in order to create and circulate media that impact events.

Journalistic witnessing is frequently defined as *live* reporting. Often seen as the epitome of connecting audiences and events,<sup>46</sup> live reports have an

authenticity that comes from reporters' real-time proximity to events; the unpredictability of broadcasting events outside of newsrooms; and the reporter's enforced humility as she is forced to make sense of events alongside audiences.<sup>47</sup> Live reporting is also perceived by audiences as logistically challenging, letting news organizations demonstrate their technological sophistication.<sup>48</sup>

But journalistic witnessing premised on live reporting is widely criticized as unnecessary and contrary to the profession's mission of explaining what events *mean*. Indeed, too much live journalism makes it difficult to distinguish between the mundane and the significant, creating compassion fatigue. Katz describes CNN's abundant use of live, on-site reporting as adding up to "nonstop information without interpretation, and nonstop interpretation without information."<sup>49</sup> Wang, Lee and Wang<sup>50</sup> empirically confirm Katz's complaint: Television journalists required to make live reports after the 2011 Japanese earthquake had far less professional autonomy than their print counterparts who had the freedom to behave more like moral journalists, describing "not only the experiences of the Japanese victims but also their *own* experiences of suffering." And live reporting does not necessarily make "everyday" people more visible: Livingston and Bennett<sup>51</sup> find that even when journalists use mobile video technologies to create live coverage of "unpredicted, nonscripted, spontaneous" events, they still rely heavily on official sources to frame and interpret events.

Recalling Silverstone's<sup>52</sup> concept of "proper distance," we might ask how *journalistic* witnessing not only disseminates information about events, but also distributes responsibility for them among the boundaries of networked journalism.<sup>53</sup> As the contemporary, networked press becomes distributed among various people, locations, and technologies,<sup>54</sup> traditional journalistic actors lose their hold on the norms and dynamics of witnessing. As the press becomes a boundary-spanning phenomenon, so too does journalistic witnessing.<sup>55</sup>

### ***Materiality, infrastructure and the borders of networked witnessing***

What exactly do these boundaries of journalism look like? How do they afford and constrain witnessing? And what do we need to know about them in order to make normative interventions into the kind of contemporary, journalistic witnessing so intertwined with digital materiality? These are precisely the kind of questions that scholars of science and technology studies (STS) grapple with as they trace the political meanings of information infrastructures – the materiality of seemingly neutral design decisions that make certain people and ideas more visible than others. Following Leonardi,<sup>56</sup> I mean "material" as both instantiation and significance; some ideas take *form* and some ideas *matter*. By examining the "platforms, technological innovations, and reflective procedures" of witnessing across institutional environments, as Givoni<sup>57</sup> suggests, we can trace how well theorists' *ideals* of witnessing appear in *systems* for witnessing.

These mentions of platforms, innovations, and reflections echo how STS traces phenomena across boundaries and human-object divisions. Latour's actor-network theory boldly positions non-human artifacts as "full-fledged social actors"<sup>58</sup> that, in concert with other actants, make relationships among people and ideas visible, that are usually hidden and assumed.<sup>59</sup> Understanding the contemporary "field of witnessing" that Ashuri and Pinchevski<sup>60</sup> describe means accounting for the networks of socio-materiality that constitute contemporary witnessing. Indeed, such witnessing might be called *networked* witnessing because the normative dynamics of concern to theorists of witnessing live in systems that surface,<sup>61</sup> associate,<sup>62</sup> attend to,<sup>63</sup> and make publicly relevant<sup>64</sup> the events, people, and ideas rendered in media.

How do networks afford witnessing? More specifically: how do different configurations of human/non-human actor-networks create the conditions under which events are instantiated in media *and* judged to be significant – that is, become *material*? And, within the narrower context of journalism: how well does the mix of "institutional platforms, technological innovations, and reflective procedures"<sup>65</sup> meet the normative demands of *moral* witnessing that helps people be both responsible to and respectful of each other?

In the spirit of actor-network methodologies that ascribe agency to non-human actors<sup>66</sup> and infrastructure studies that trace how knowledge work spans cultural, professional and material boundaries,<sup>67</sup> I trace the construction of "proper distance" through a close reading of Google Glass's user interface, technical documentation, and early-adopter discourse. What clues do such materials give about how journalistic witnessing spans the physical, technological, and rhetorical boundaries that Glass creates? And how does Glass's infrastructure complicate and challenge traditional norms of journalistic witnessing? How might the dynamics of "proper distance" in contemporary, journalistic witnessing be different because of the new borders and boundaries that Glass creates?

### **Analyzing an infrastructure for networked journalistic witnessing: Google Glass**

First made available to selected people in the U.S. in April 2012 – "Glass Explorers" who paid approximately \$1,500<sup>68</sup> – Google Glass is essentially a computational display mounted on an eyeglass frame and connected through a digital tether to a mobile phone's Internet service. Through a combination of touch, voice, and gestural commands, Glass users can capture images, record video, access websites, compose text messages, and perform a variety of other computational tasks common on smart phones. Although the default duration of video recording is approximately 10 seconds (due to limited battery life, Google claims), Explorers report recording for as long as 45 minutes. To take a picture or record video, Glass users must say a command – "OK Glass, record a video" – or touch the Glass frame, illuminating the Glass display and

making “it clear to those around the device what the user is doing.”<sup>69</sup> After agreeing to terms of service and obtaining a unique access key, Explorers can create Glass applications – called “glassware” – using Google’s Glass Development Kit (GDK) and the Mirror Application Programming Interface (MAPI), with help from the Glass developer community, sample code, design guidelines, and discussion forums.

There is a burgeoning journalistic Glass development community. *The New York Times* developed a Google Glass application linked to its website;<sup>70</sup> Poynter offered a course on journalism and wearable technology in 2013,<sup>71</sup> and the University of Southern California offered a course on Glass journalism in the fall of 2014.<sup>72</sup> There is a Glass journalism Tumblr account,<sup>73</sup> Twitter feed,<sup>74</sup> and a resource website run by journalism professors;<sup>75</sup> and NBC producer Frank Thorp reported a day on Capitol Hill using only Google Glass.<sup>76</sup>

Glass is often described as a tool for journalistic storytelling or news-gathering, but little has been written about Glass and journalistic *witnessing* – examining its infrastructure for evidence of witnessing ideals. An extensive analysis of Glass in light of the entire literature on witnessing is beyond the scope of this chapter; I focus here on reading Glass for evidence of three aspects of witnessing:

- Proximity: recalling that ideal moral, journalistic witnesses are physically located in places, how does Glass infrastructure both require and reflect place-based witnessing?
- Risk: recalling that ideal moral, journalistic witnessing entails risking or suffering harm, how does Glass infrastructure require or entail risk-taking?
- Outcome: recalling that ideal moral, journalistic witnessing results in actions that alleviate suffering, how does Glass infrastructure encourage impact on – not simply recording of – witnessed events?

To trace these ideals across Glass, I conducted close readings of the following: approximately 75 popular press articles and Google promotional media selected for their descriptions of the Glass interface and user experience; Google’s<sup>77</sup> technical documentation on the “Glass Development Kit” and “Mirror API” (including guides on how to design user interfaces, how to authorize access to the camera, how to sense location, etc.); online forums populated by early-stage Glass innovators, called “Explorers,” as well as software programmers creating applications for Google Glass.<sup>78</sup>

The aim in studying these materials is three-fold. First, to understand Glass as a material object, a technology that enables media capture critical for mediated witnessing. Second, for insight into the kind of functions and uses that the software development environment officially supports: the design principles, best practices and code samples known to play a role in how software engineers design and execute projects.<sup>79</sup> Finally, for insight into the aspirations and



Table 5.1 Google Glass

	Infrastructural element		
	User interface	Technical documentation	Early adopter discourse
Witnessing ideal: Proximity	Glass is designed to be worn on the face, making it extremely difficult to use <i>without</i> being close to it; the form factor tightly couples the user and device. Data overlays can be placed over the users' views, letting them be <i>virtually</i> connected to other locations. Voice commands, gestures, and small lights that initiate and indicate audio-visual media capture are perceived close-up, making it difficult for those further away to know they are being recorded.	Glass users can be tracked with GPS signals, cell towers, WiFi routers, and near-field methods using Bluetooth and gravity, acceleration, and gyroscope sensors. Location sensing taxes the battery so documentation advises limited use. Augmented navigation gives turn-by-turn directions to indexed locations or latitude/longitude coordinates; "geofencing" lets users receive updates about locations when they enter particular places; and, with authorization, users' last known locations can be retrieved.	Discussion of proximity focuses on: 1) how those unfamiliar with Glass misunderstand location sensing and recording signals; 2) how most people are too boring to record; 3) Glass's similarity to existing, mainstream technologies like mobile phones that track locations and record people; 4) places they were asked to remove Glass, or were ejected from them for wearing Glass.
Witnessing ideal: Risk	Although like traditional glasses, Glass's identifiable form can make wearers targets of those who want to avoid being recorded, do not understand how Glass records, or who know Glass's ability to privately display real-time information about people, locations, and events. The interface makes sensory demands, overlaying data on a wearer's field of vision and transmitting sound through bone-conducting speakers.	Requiring voice commands or gestures to start audio-video recording (and displaying lights while recording) makes recording visible. In contrast to standard data overlays designed to keep wearers aware of their surroundings, specialized Glass experiences called 'immersions' take over Glass's display and demand sustained focus.	Discussion of risk focuses on: 1) negative reactions and threats of violence from non-wearers, who wearers see as naïve; 2) customizing Glass for particular contexts (e.g., a "driving mode" to limit information overload). Except discussion of an incident in which a Glass wearer recorded an arrest and the social risks of being ostracized for wearing Glass publicly, there is little discussion of risks.

Table 5.1 (continued)

<i>Infrastructural element</i>			
	<i>User interface</i>	<i>Technical documentation</i>	<i>Early adopter discourse</i>
Witnessing ideal: Outcome	The interface affords three types of outcomes: 1) Glass can provide access to relevant information during a crisis situation; 2) Glass's form factor lets others know who is wearing Glass; 3) Glass recordings are from first-person, eye-level points of view that mimic an audience member's perspective.	Designers are encouraged to create glassware for "increased engagement" in physical settings. A "fire-and-forget" model encourages users to "start actions quickly and continue with what they're doing." Google's sample Glass applications (compass, stopwatch, timer) mention no contexts or outcomes.	The sub-discussion 'Usage Scenarios' describes helpful or enjoyable data overlays. Much discussion focuses on alleviating negative outcomes of wearing Glass, how to avoid being banned or socially ostracized for wearing Glass, and how to reform laws and social norms discouraging Glass.

beliefs of early adopters defining Glass norms: how they propose, critique, and champion features while supporting each other in the face of critics (who often call Explorers “Glassholes” and “Glasstards”). While certainly not describing the entire Glass infrastructure – much would be gained from interviewing Glass designers and Google program managers and analyzing Glassware – these three types of materials offer insights into how the Glass infrastructure affords and constrains ideals of witnessing. The chart below summarizes the analysis of materials (user interface, technical documentation, early adopter discourse) for evidence of the ideals of witnessing (proximity, risk, outcome).

### **Glass’s governance of proximity, risk, outcome**

A close reading of Glass’s infrastructure elements reveals patterns in how its sociotechnical boundaries structure the proximity, risk, and outcomes that theorists argue are key for moral, journalistic witnessing.

#### **Proximity**

Glass governs proximity in three principal ways. First, it *forces closeness* by collapsing boundaries between witnesses and recording devices, tightly coupling them. Remote recording is practically impossible and the gestures and signals that start and indicate Glass recording can only be observed at a relatively close distance. Only those close to Glass and literate with its gestural controls can be fully aware of recording. Second, Glass data overlays create *private, hybrid proximities* that span virtual/physical boundaries; Glass wearers can be simultaneously present in other, virtual locations. Although they share the same physical space as others and have the same information access as observers with mobile phones, the Glass’s data-augmented views *situate* Glass wearers in space differently.

Understanding a Glass witness’s presence means noting not only their physical proximity to events, but knowing how that proximity is influenced by data-augmented views that only they have. Although live-streaming of Glass video (not technologically feasible with the current version of Glass) makes it possible for *mediated* witnesses to access the Glass wearer’s personal, eye-level camera, non-Glass witnesses in the same physical space have little insight into this other, Glass-mediated environment. Finally, Glass *indexes* the space of witnessing. Its GPS directions make it easy to navigate to, observe at, and geocode media within locations indexed by Google Maps – and difficult to do all of these things at locations *not* visible to Google Maps. Although Glass’s technical architecture makes it easy to find places, track observations, and geocode recordings, Glass wearers report strong social pressures that prevent them from accessing locations when wearing Glass. Glass’s *technological* power to navigate and index space is tempered by *cultural* forces that eject Glass wearers from those very spaces.

### **Risk**

Glass may both ameliorate and exacerbate risk of harm that scholars describe as integral to moral witnessing. First, Glass may *insulate* wearers from risk, erecting a protective boundary between a wearer and her environment. People who recognize Glass's power to record media – or who mistakenly ascribe technical features beyond its capabilities like indefinite, live-streamed video recording – may be less likely to harm Glass wearers and those around them because of the surveillance. Glass wearers are also able to access virtual information and navigate using heads-up, turn-by-turn GPS directions, maintaining a heads-up physical presence with different knowledge than those without Glass. Glass, though, may heighten the risk of harm. Glass users may find themselves unprepared to interpret a scene, represent an audience, record media, or navigate a space if they lose their cellular internet connection and are left without Glass's augmentations. Glass wearers may also be targeted *because* of Glass's ability to record media, with harassers focusing on Glass wearers either because they fear its recording capabilities or imagine features beyond its functionality. If data overlays and immersions demand too much attention or are insensitive to particular contexts, Glass witnesses may lack the situational awareness needed to perceive and avoid harm. Similarly, unlike hidden audio recorders or surreptitiously aimed mobile phone cameras, Google's requirement that wearers gesture to start recording and illuminate the display while recording makes it difficult for Glass mediated witnessing to go unnoticed.

As a boundary object, Glass spans instrumental and symbolic forms of risk. Instrumentally, Glass wearers can capture and disseminate recordings of wrongdoing, acquire web-based knowledge about locations while maintaining heads-up awareness, and navigate quickly to safer locations. But Glass may also represent the very *idea* of surveillance and audience oversight in high-risk situations, setting expectations or inviting judgment because of the oversight and accountability Glass and their wearers may represent.

### **Outcome**

Glass's infrastructure is largely silent on how and why to impact surrounding places and events – when to break the boundaries between observation and intervention, a key feature of moral witnessing. The technical documentation cautions against interfering with a wearer's activities, telling designers to avoid "immersions" that require the wearer's complete attention. It advocates a "fire-and-forget" design principle that aims *not* to affect wearers' behaviors, and offers only generic Glassware examples designed without awareness of the wearer's physical environment. Most of the discourse about outcomes among early adopters focuses on Glass itself – primarily how to minimize the social stigmas associated with wearing it – not what outcomes might be achieved *with* Glass. Curiously, the discussion of Glass's limited battery life, relatively

small memory capacity and often unreliable internet connection, is reminiscent of Ellis's<sup>80</sup> requirement that moral witnesses distinguish between "mundane" and important events: many forum comments encourage Explorers to be selective and thoughtful in their recording, recording only things "that count."

Though speculative and requiring further empirical study, Glass may help facilitate interventions of the kind that witnessing theorists call for. A wearer with access to heads-up information about events may be able to more knowledgeably or confidently influence events they observe; bystanders who notice Glass wearers in the area may change *their* behavior as they (rightly or mistakenly) assume that their presence is being monitored and recorded; audiences seeing video of events recorded through Glass's first-person, eye-level camera may empathize with events differently than they do through other media recordings; and Glass wearers themselves may feel a different kind of responsibility to influence events or record for audiences because of the device's unique technological features and the significance others ascribe to it.

## Conclusion

In their recent essay "Media Witnessing and the Ripeness of Time," Frosh and Pinchevski<sup>81</sup> argue that we have entered a new era of witnessing in which recorded events are available for immediate and widespread interpretation; ad-hoc communities of attention arise quickly and without formal organization to assess the significance of events; and "cosmopolitan risk publics ... perceive their commonality through representations of shared vulnerability." Contemporary witnessing depends upon how speed, presence, interpretation, community, and vulnerability are encoded by "hybrid assemblages of human and technological agents with shifting boundaries that defy traditional models of mass communication."<sup>82</sup>

Glass journalists may separate themselves from what they see differently than other journalists – seeming to be present and personally invested because they have no overtly visible media tools, but behaving more like embodied avatars as their observations are shaped by and for invisible audiences visible only through Glass. Glass may also become a boundary object for news technology design as app designers and early adopters embed their own assumptions about what journalistic witnessing *should* be as they create Glass apps that govern proximity, risk, and outcomes. As journalists take up, respond to and adapt such boundary objects in practice, they may reveal new types of hybrid techno-journalistic *practice*, reinterpreting the meanings of long-standing journalistic concepts like objectivity, storytelling, and embeddedness as they report with Glass. Indeed, Glass's augmented reality data overlays may blur boundaries between what it means to observe "naturally" occurring scenes. As Glass journalists use the technology to navigate spaces, research events, surveil sources, and link to real-time audiences, it becomes difficult to see them as traditional reporters – they may change the very thing

being witnessed, observing from a privileged, data-infused position fundamentally different from others in the space or journalists working without Glass. Glass's novelty may make journalists *less* able to stay in background, observational roles if Glass-literate bystanders lobby them to influence real-time events by linking to and immersing real-time witnessing audiences. Indeed, this may further erode the *temporal* boundaries that have traditionally separated reporters and audiences – letting distant witnesses not only *see* events in real-time, but allowing journalists to *influence* events as the embodied representations of distant, witnessing audiences who wish they had a physical presence.

Finally, if wearable technologies like Glass become more commonplace among journalists, it may spur a public debate about what kind of boundaries journalists *should* preserve. As audiences understand Glass better, will they expect Glass journalists to be more cognizant and thoughtful about how wearable technologies blur traditional distinctions – e.g., affording sources anonymity, eschewing real-time audience feedback, taking Glass off at key moments, labeling reporting as Glass reliant, demanding Google's policies that directly address *journalistic* meanings of confidentiality, avoiding excessive immersion that may lead to audience compassion fatigue? And as a tool that both citizens and reporters alike might use for witnessing, infrastructures like Glass may become not just boundary objects, but boundary *infrastructures*<sup>83</sup> – spaces for normative contestation, to debate what mobile, wearable, real-time journalism *should* look like.

As Glass evolves and eventually becomes obsolete, it is crucial to understand how systems like it act as sociotechnical infrastructures through which audiences and journalists alike negotiate the meaning of “proper distance.” Witnessing means traversing boundaries: discovering how you are like or unlike, responsible to or detached from, other people and events. The moral value of such boundary work to witnessing depends not upon simply immersing audiences in far-off places or transmitting news to them as quickly as possible, but upon helping them see the power they have to intervene and the responsibilities they have to doing so thoughtfully. Moral, mediated, contemporary witnessing of the kind that Glass affords might better be described as *networked witnessing*. It emerges from intertwined social, technological, and normative forces that bring audiences close to events, show them why events matter, and help them decide what, if anything, to do about them. It is thus the same type of boundary work that continually makes and remakes journalistic witnessing in any given era.

## Notes

- 1 Edward Bliss, *Now the News* (New York, NY: Columbia University Press, 1991).
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