Deepfakes, Public Announcements, and Political Mobilization (Forthcoming in *Oxford Studies in Epistemology*)

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1 Introduction

This article describes an underattended to way in which synthetic dynamic media generated using deep learning models, now commonly called *deepfakes*, stand to interrupt the practices by which people mobilize for collective action. At the core of this account is an understanding of how this new medium alters the sociotechnical context for an older medium— that of videography.

The technology of moving images has never been free of manipulations designed to allow it to depict things that haven't actually happened. True videography's emergence in the 1880s was preceded by other forms of dynamic visual media like the magic lantern, and zoetrope which, by spinning or shifting images, had shown the viewer many still illustrations, and later still photographs, in succession. Such moving images were no faithful report on real events. A medium like the zoetrope could present a figure moving through a dynamic sequence which they had never actually moved through; even assuming that the zoetrope included individual still photographs, which required the figure to have assumed each individual pose at some point, they needn't have moved through them in the way suggested by the zoetrope sequence. Indeed, until the 1870s, it wasn't possible to take still photographs of objects in motion without blurring, and so insofar as the zoetrope presented an object in motion it *had* to present a falsification of how its model had really moved. While later videography too consists essentially of multiple still images presented very quickly, it differs with respect to its method of capture—a single machine capturing a scene as it takes place. Video then *could* present moving images that reflected the world more or less as it had really been in the interval of their capture.

But this is not to say video always did so. it didn't take long for various special effects to find their way into film; in 1896, fillmaker and magician Georges Méliès shocked audiences by making a woman "disappear" on screen— simply by cutting frames in which she was present in front of the camera together with frames in which she was not [Kittler, 1999, 115]. Such tactical cuts, alongside

other tricks including reversing or altering the order of frames, and the inclusion of practical effects (e.g. props, prostheses, makeup) were well established in cinematic videography by the end of the first decade of the 20th century [Dixon and Foster, 2008, 13]. There remained though a practical barrier to certain forms of videographic falsification: the quantity of frames involved in even short video samples. While sophisticated methods of photographic manipulation were well established by the time videography appeared [Fineman, 2012], even silent films were typically captured at 16 frames per second [Cook and Sklar, 2023] which meant doctoring 16 separate photographs to present even a second of doctored video, and doing so in a way that was consistent with fluid movement. Naturally, as the frame rate increased, the difficulty of fabricating film did too.

In any case, videography has had another life alongside its cinematic one in which certain forms of falsification have always been regarded as acceptable and indeed as professional achievements: as a tool of documentary. The practice of documentary, conceived of as the attempt to recruit communications technologies to the task of showing one another what the world is really like—is much older than videography. As Charles Musser has put it, "Documentary practices offered a method of communication that incorporated new media forms as they became available. Projected celluloid-based motion pictures was but one of these." [Glick and Musser, 2018]. But strikingly, in videography's role as a tool of documentary, it has often been treated as the most trustworthy and reliable medium we have, so much so that, as Rini [2020] has put it, video (and audio) recording have functioned as an "epistemic backstop" which "acutely corrects" and "passively regulates" our communication of information by other means. The significance of this epistemic role is particularly notable in the period beginning in the 1960s, when video cameras became accessible to consumers, thereby redistributing the currency of epistemic authority that videographic capacity carried. This democratization gathered intensity as video cameras became cheaper, and videos easier to reproduce and distribute. These trends reached a crescendo in the 2000s when the ubiquity of camera phones and the birth of social media unleashed a new era of popular documentary.

We can summarize the unique role of video then as follows: notwithstanding the in-principle manipulability of the medium since its earliest days, the difficulty of producing serious and convincing videographic fakes has meant that we more or less treat video as factive: that is, as a medium which can depict some events just in case those events have, under some description, actually taken place. In this respect, it was obviously unlike hand-drawn art, and even unlike something like the zoetrope. In addition, we knew a video when we saw it; video was *contrastively identifiable*— there was no other medium that could be confused with it. These features remained intact even across major technological advances in videoraphy, including the shift from celluloid film to digital storage.

It was these two features together, factivity and contrastive identifiability, that allowed videography as a medium to play a special role in our epistemic and communicative lives. But deep learning models can now produce partially and wholly synthetic dynamic visual media that are a) non-factive, and b) not contrastively identifiable, because inspection doesn't differentiate them from

video. Since contrastive identifiability is symmetric, while true videography remains factive, it is no longer contrastively identifiable either. This essay is a contribution to the growing literature concerning the foreseeable epistemic disruptions of this flux in the character of videography and other media which, due to new synthetic media, have lost their contrastive identifiability.

In §2 I review the communicative dimensions of video, and discuss the way that deepfakes stand to disrupt not merely the acquisition of first order knowledge from videographic speech acts, but also the acquisition of higher order knowledge up to and including common knowledge. In §3 I come to the crux of why this matters: common knowledge is implicated, in multiple ways, in the ways that people come to act collectively. So if, in an environment of ubiquitous deepfakes, videographic speed acts can no longer give rise to common knowledge, they can also no longer function as they once did in political mobilization. §4 closes with a consideration of the possible futures that the ascendance of deepfakes suggests for us.

Before proceeding, a note about vocabulary. As is standard, in what follows we will say that a proposition, p, is *mutual knowledge* among some collection of people when every person in that collection knows that p. And it will generally suffice as a working characterization to say that *common knowledge* of p is present in a group of people just in case every person in the group knows that p, and also knows that every other person knows that p, and also knows that every person knows that every other person knows that p, and so on. This characterization of common knowledge as involving an infinite number of recursively characterized knowledge states, has of course been challenged as psychologically implausible. Insofar as we set out to use the term "common knowledge" to refer to the state that plays a distinctive role in communication and the solution to coordination problems, it has been argued that we should actually concede that the phenomenon in question really involves some finite number of epistemic states, or orthogonally that the recursively specified attitude need only be one of belief, or credence above a certain threshold, rather than knowledge. For this paper, I hope that it's possible to set these issues aside; I suspect that the fundamental point that I'm making would survive substituting any of these notions for the version of common knowledge I suggest in my working characterization.

2 Deepfakes and Common Knowledge

Recent years have seen rapid improvement in deep learning models that can produce samples of text and still and moving images as well or better than human beings. Among these developments is the emergence of the deepfake. At the moment, the most common variety of deepfake involves partial local synthetic alteration to a real video, using techniques like face swapping, head puppetry, or lip syncing techniques [Tolosana et al., 2020, Zakharov et al., 2019, Prajwal et al., 2020]. Some basic tools for the creation of totally synthetic video based on a text prompt are now available to the public, but with outputs that are far from convincing. But it is a widespread assumption that tools for

the creation of convincing, totally synthetic audio-visual samples will eventually become accessible to even those with very little financing or technical expertise. The technology for the production of deepfakes is meanwhile in an arms race with the technology via which they might be technologically discerned from real video [Farid, 2022]. It is reasonable to contemplate a scenario in which there really is no way, either with the naked eye or through technical analysis, to tell the two media apart.

What use have humans found for this new technology so far? Broadly speaking, the production of images that producers find pleasurable, interesting or instructive to see or present to others. Some examples are delightful: In February 2023, students at an MIT hackathon used AI graphics tools to create short videos responding to the prompt 'Tell me your dream' [Zhang, 2023]. And some social scientists have explored the capacity of generative AI to help people envision political utopias and dystopias [Rafner et al., 2021, Epstein et al., 2022]. Some uses, while relatively innocent, have raised issues about the use of people's likeness without their consent; for instance, the 2023 UK television program *Deepfake Neighbor Wars*, uses face swapping to create rudimentary deepfakes depicting celebrities like Idris Elba, Jay-Z, Adele, and Greta Thunberg as neighbors engaged in petty squabbles [Byman Shaw, 2023].

Of course other uses of deepfakes range from the seedy to the abominable: as Ohman [2020] and Rini and Cohen [2022] have pointed out, a primary use of deepfakes to date has been to create pornographic materials, which not infrequently function as "revenge porn," that is, as material used to humiliate and discipline the women they depict [see e.g. Ayyub, 2018]. Such uses also extend to the production of synthetic child sexual abuse material, raising new issues for automated content moderation systems designed to keep this content off the internet and for attempts to identify and help real victims [Harwell, 2023].

What the uses enumerated so far have in common though is that they are not exactly, or not necessarily, designed to trick anyone into thinking that the media they're watching is veridical. But, of course, a natural use of a nonfactive medium that is indiscernible from a factive one is to deceive. And indeed, high profile such uses of deepfakes are now familiar. In March 2022, a deepfake of Ukrainian President Volodymyr Zelenskyy appearing to tell Ukrainian troops to stand down [Simonite, 2022] was widely circulated in Ukraine. In Delhi's 2020 elections, Bharatiya Janata Party official Manoj Tiwari released deepfakes that used lipsync techniques to make it appear that he spoke the minority language Haryanvi, in order to woo Haryanvi-speaking voters [Christopher, 2020]. And in May of 2022 a deepfake of Elon Musk promoting a cryptocurrency scam likewise circulated online [Elon Musk [@elonmusk], 2022].

While deception is then a natural use of deepfakes, the epistemology literature on deepfakes to date has however been focused on what happens *after* people are deceived. As Rini [2020, 7] has put it, "the most important risk is not that deepfakes will be believed, but instead that increasingly savvy information consumers will come to reflexively distrust all recordings." The proposal of Rini and others [Fallis, 2021, Matthews, 2023, e.g.] has been that the presence of deepfakes in the environment effectively changes the epistemic role that video

can play.

While many of these writers note that the democratization of deepfakes' production, and their resulting ubiquity, is not yet a technical reality, nor are their worries without existing empirical encouragement. In a much-discussed case from late 2018, the President of Gabon, Ali Bongo, had not been seen publicly in several months, leading to suspicions that he had died or was, in any case, unable to govern. Responding to these pressures, his staff released what they claimed was a video of him addressing the nation. However, Bongo's appearance in the clip was strangely altered; his face was oddly immobile in places, and his eyes seemingly unfocused. Technical analysts have since suggested that the video is very likely real, and that the President's altered appearance may have been the result of a stroke, perhaps alongside cosmetic procedures. However, some Gabonese media claimed that the video was a deepfake, no doubt a cover for the President's death. The result was an attempted coup [Cahlan, 2020].

Without any alteration to the intrinsic features of video as a medium, the birth of this new technology, dynamic synthetic media, threatens to oust video from our epistemic regard. This has far reaching effects for us as would-be knowers. But while the existing literature has emphasized the worry that we will fail to acquire first-order knowledge on the basis of video, I want to draw our attention to a disruptive epistemic effect that goes beyond this. To bring into focus this further disruption, we'll start by considering a toy case:

> **Corruptionville 1:** In the small town of Corruptionville, no one has ever been exposed to a deepfake, nor are they aware of their possibility. In this town, residents all trust their mayor, but otherwise do not like or trust anyone else in town, and this distribution of trust is moreover common knowledge. The houses in Corruptionville all face onto a central square from the same direction in such a way that everyone can see the square but no one can see in anyone else's window. And the town has an unusual approach to the storage of their public funds: they keep them in a set of public coffers in the middle of the square. Now, late one night, the mayor sneaks out and steals some money from these coffers. As it happens, everyone in town was experiencing insomnia that night and saw the mayor's misdeed through their windows. However, none of them realizes that anyone else has seen it. But one resident, Betty, had the presence of mind to record the mayor's theft on her phone. And the next day, at a town meeting, she plays the video for all of her neighbors.

When Betty plays this video for her neighbors, she is embedding a piece of technology, a video, in her communicative act— she is, we will say, making a *videographic public announcement* (VPA). The question that should interest us first is what effects her announcement might be expected to have: do the neighbors come to learn anything new, in the course of being shown the video? One might at first think no: each of them already knew that the mayor had stolen the money, so they learn nothing when they see the recording of this fact.

But this is too quick. A curious thing about public announcements, appreciated since the early days of speech act theory and, since the late 80s, given rigorous formal treatment by work in dynamic epistemic logic [see e.g. Plaza, 2007, van Benthem, 2006] is that they can give rise to further knowledge even in those who already know their content— in this case, even in those who already know that the events in the video took place. Specifically, they can give rise to higher order knowledge, i.e. knowledge about what the speaker and other members of the audience know: when we are in the presence of a public announcement that p we come to know that everyone else in the audience now also knows (or at least has justification for the belief) that p, and we come to know that they know that we know that they have this justification for the belief that p and so on.

What is significant about a public announcement being videographic? In other words why, in Corruptionville, might Betty bother showing her neighbors a video rather than just telling them what she saw? Clearly, it has something to do with the kind of justification or warrant that she thinks a video, as opposed to mere verbal testimony, can offer. A robust literature contends that photography offers perceptual, rather than merely testimonial justification [see e.g. Walton, 1984, Cavedon-Taylor, 2013, Rini, 2020], and accordingly points out that whereas testimonial justification is vulnerable to defeat based on trust of the testifier[1], perceptual justification is not. Because Corruptionville is a low-trust environment, it makes sense that Betty would prefer to provide her audience with a variety of justification that wasn't vulnerable to their lack of trust in her. And what is clear is that, in the pre-deepfake world of Corruptionville 1, announcements that embed video bypass barriers to belief that concern a lack of trust in the announcer. So while all public announcements that p have the capacity to bring about common knowledge that each person has justification for the belief that p, videographic public announcements couple that with common knowledge of the fact that this justification will generally be taken as sufficient for belief that p. And this entails common knowledge that p.

Prior to Betty's videographic public announcement, the residents of Corruptionville had *mutual knowledge* that the mayor stole the money—that is, they each knew this— but after her announcement, they come to have *common knowledge* that the mayor stole the money. This effect was dependent on the publicity of Betty's announcement, and upon its videographic character.

Now, let's consider a variant on our case:

> **Corruptionville 2:** Hold fixed all details of the prior case, except that now the mayor of Corruptionville has (anonymously) been deliberately circulating deepfakes to the residents of Corruptionville for

[1]Precisely how to spell out the role trust plays in testimonial justification and its defeat is a matter of some disagreement in the epistemology of testimony: for some theorists, the justification we have for testimonial belief always includes the trustworthyness of the speaker; for others, testimony has a default justification and the (un-)trustworthyness of the speaker becomes relevant only as a possible defeater; for yet others, testimony doesn't rely for its warrant on evidence that the speaker is trustworthy, but instead functions as an invitation to treat the speaker as trustworthy, which confers a kind of non-evidential epistemic warrant.

> quite some time before his theft of money from the public coffers. The good people of Corruptionville have been tricked by deepfakes that they took to be veridical videos before, have subsequently realized they'd been tricked, and are now wary of videos. This wariness is now common knowledge.

In Corruptionville 2, what happens when Betty plays her video for the assembled neighbors? The existing literature on deepfakes suggests that in an environment like Corruptionville 2, video can perhaps offer only the more easily defeated testimonial justification for a belief, where before it offered perceptual justification [Rini, 2020]; that video can now provide less information [Fallis, 2021] than it did before; and that beliefs based on video are lucky in a way that interferes with their status as knowledge [Matthews, 2023]. All of these suggest in effect raise the worry that, in Corruptionville 2, Betty's VPA wouldn't be able to bring about the first order knowledge that the mayor stole the money.

However, this doesn't quite describe what we should imagine to take place in Corruptionville 2; the presence of deepfakes doesn't here endanger first order knowledge of the video's contents, because that is already secure— all the residents of Corruptionville already know that the mayor stole the money, and will know that Betty's video is veridical upon seeing it. But the presence of deepfakes does still make a difference: it prevents Betty's videographic public announcement from giving rise to *common* knowledge of the mayor's theft.

Let's walk through the steps to that conclusion: We know that the residents of Corruptionville know that all their neighbors will treat video as a trust-vulnerable medium (i.e. as one the justificatory force of which is susceptible to defeat by mistrust of the announcer). They also don't trust Betty, and they do trust the mayor, and we also know that they know this about each other. So every resident knows that all her fellow residents possess defeaters for the justificatory force of a video. While each resident knows that all their neighbors have seen the video, they have no reason to believe that this brought about belief in the video's contents (so no second order knowledge). They also realize that their neighbors will be reasoning similarly about them, and so have no reason to believe that their neighbors believe that they believe the video's content (so no third order knowledge), and so on. So unlike in Corruptionville 1, here Betty's PVA doesn't bring it about that the neighbors commonly know that the mayor stole the money.

To the existing literature on how the presence of deepfakes might change the communicative dynamics of speech acts in which video is embedded [Pierini [2023], Roberts [2023], [redacted for blind review]], I then contribute the following observation: the presence of deepfakes in the environment alters the character of videographic public announcements.

While Corruptionville features many stipulated simplifications, I think this conclusion holds even for real communities, with all their greater complexity. One reason a person might push back on the relevance of the predicament in Corruptionville 2 to real cases is that Corruptionville was marred by an almost universal lack of trust; this feature was essential in explaining why, in Corrup-

tionville 1, VPAs had a capacity to bring about common knowledge in a way that mere verbal testimony did not. It is also why, in the second, deepfake-rich world, it wasn't possible for Betty to compensate for the downgraded communicative power of video merely though the assertoric force with which she presented it. While it is perfectly realistic to imagine a community in which people do not universally trust one another to provide accurate information— this describes the United States, and most other mass societies—it is surely fairly unusual is that the residents of Corruptionville trust almost *no one*.

And in an environment where some people do trust one another, perhaps it turns out that the presence of deepfakes in an environment shouldn't be expected to make such a radical difference to the capacity of videographic public announcements to give rise to common knowledge. As Harris [2021, 13380] has put it, even in a deepfake rich envrionment, "insofar as one can be confident that a given source would not share deepfake videos, video footage shared by that source will retain its evidential power." Habgood-Coote [2023] moreover points out that our trust that sources won't deploy deepfakes needn't even be based upon a faith that they have some personal dedication to honesty— it can also arise because we are aware of socially imposed norms that will severely punish punish them for using this technology.

But we should notice that even these deflationary critics are acknowledging that, in a deepfake rich environment, video's justificatory force comes to be dependent on relations of trust. This is already a significant effect[2]; it changes videography from a trust-indifferent medium to a trust-vulnerable one, which means that first-order knowledge as a result of videographic public announcements will be confined to within networks of trust. And these consequences are even more significant when we consider the production of higher order knowledge. For your public announcement that p to bring about common knowledge that p between me and you, it doesn't suffice that we trust each other; we also have to know that we each trust the other, and know that the other knows this, and so on. In other words, for a public announcement using a trust-vulnerable medium to bring about common knowledge that p within some collection of agents, it already has to be common knowledge among these agents *that they universally trust one another*. When we consider the way that VPAs may be addressed to mass audiences, whose members may not even know one another, the presence of such trust is often far from obvious. The results, I think, are that in an environment of ubiquitous deepfakes, public videographic announcements bring about a smaller and more unevenly textured terrain of common knowledge, circumscribed by existing explicit patterns of political or personal affiliation. Having stripped away one of the simplifications present in Corruptionville, we don't discover that deepfakes after all pose no threat to the capacity of public videographic announcements to bring about common knowledge; we

[2]Habgood-Coote [2023] does draw our attention to the way that, in the case of the long forgeable medium of photography, the justificatory force of the medium has in fact been dependent on relations of trust for a very long time. But although he wants to allege that something like this goes for video too, this claim is less than fully persuasive. For more extensive critical engagement with this position see [redacted for blind review].

merely see the nature of this threat in slightly higher resolution.

3 Deepfakes and Collective Action

We've established that the presence of deepfakes in the environment modifies the potential of public videographic announcements to give rise to common knowledge. And this matters because of the ways that common knowledge enables people to do things together. This section will discuss this connection in detail. All of this is however in the service of making explicit the mechanisms of political mobilization that we then stand to lose because of the way that deepfakes modify our reception of video.

Common knowledge and collective action are entangled in a number of ways, but we might first consider the effects of commonly knowing some *premise of action*— that is, commonly knowing the facts on the basis of which it putatively makes sense for people to act. In Corruptionville, the premise for collective action was the mayor's theft of public funds.

A vast amount of research supports the intuitive point that people will forgo actions if they think they can only be successful in concert with others' actions but are unsure others will act; under such conditions we might say tat agents' choices to act are *quorum sensitive*. So consider first a resident of Corruptionville who wants to see the mayor held accountable for his actions (+1), but who believes that any action to bring this about will be unsuccessful unless both she and others act. Let's say she also believes that others will act to censure the mayor if and only if they know that he stole the money. To make things stark, we'll assume that, in an environment where you were the only one who knew the mayor stole the money, it would be socially costly to take any action to censure the mayor (-1)[3]

	Others know	Others don't know
Act	2	-2
Don't act	0	0

Table 1: Pro-accountability Resident

For such a resident, it is obviously the right thing to act to hold the mayor accountable if you believe that others too know about the mayor's theft, and obviously the wrong thing to do if others don't know. Where this agent doesn't believe that others know that the mayor stole the money, she will make her choice with the second column of the table in mind, and so not act. Common knowledge, which includes knowledge that others know, however, is sufficient to get this resident to make her choice with column 1 of the table in mind, and so to act. This then is one way in which common knowledge of a premise of action can make a difference: it overcomes quorum-sensitivity as a barrier to action.

[3]Note though that you can get a utility table that bears out the basis point here even without this addition.

Consider a different resident of Corruptionville who in fact is not interested in seeing the mayor held accountable; he is happy to see his friend the mayor get away with skimming a bit off the top (+1). However, in an environment where others know that he knows that the mayor stole the money, the mayor won't benefit because he'll certainly be held accountable by others, and if the resident himself doesn't act he will pay the social cost of being seen as a crony of a corrupt official (-1).

	Others know he knows	Others don't know he knows
Act	0	0
Don't act	-2	2

Table 2: Anti-accountability Resident

Where this resident doesn't believe that others know that he knows what the mayor did, he will act with column 2 of the table in mind and so not act to hold the mayor accountable. But where he comes to believe that others know that he knows, he will make a decision with the first column of the table in mind and so act.

For the pro-accountability resident, it is second order knowledge (i.e. knowing that others know the mayor stole the money) that renders acting to hold the mayor accountable the clearly rational choice. And for the anti-accountability resident it is third order knowledge (i.e. knowing that others know that he knows that the mayor stole the money) which renders action the rational choice. Although I do not sketch all such cases here, I leave it as an exercise for the reader to imagine hypothetical residents such that fourth and higher orders of knowledge about the premise of action are what would be required in order to mobilize them—such cases are eminently constructable. The achievement of common knowledge of some premise of action, in encompassing knowledge at all these orders, then has something to contribute to the mobilization of a wide variety of agents that mere mutual knowledge does not.

So much for hypothetical analyses of how videographic public announcements and their capacity to bring about common knowledge of a premise of action might be mobilizing. But there are many very real examples in which videographic public announcements have, by bringing about common knowledge of a premise of action, mobilized large numbers of people. Vivid among recent such examples are videos of police brutality.

It has long been a powerful idea that videographic monitoring of the police would regulate their conduct. This idea undergirded, for instance, the popularity of police body cam policies, a mainstay of police reform proposals through the 2010s and still kicking around today. It's notable though that these policies have largely been failures; one of the largest studies to date of police "body-worn camera" (BWCs) concluded that they were,

> ...unable to reject the null hypotheses that BWCs have no effect on police use of force, citizen complaints, policing activity, or judicial

> outcomes. Because our study has a large enough sample size to detect small effect sizes, these failures to reject the null are unlikely to be due to insufficient statistical power, at least for uses of force and complaints. [Yokum et al., 2017, 18]

The failure of police body cam footage to directly discipline police conduct is explained by a complicated history of the police's political and legal power in the United States. It is notable that body cams also quite rarely yield videos that results in significant public mobilization. This is at least in part because these cameras often do not result in footage at all (officers leave their cameras behind or switch them off) and existing footage is often unavailable to the public. As Aschoff [2020] reminds us, there is "no body-camera footage, for example, from March 13 [2020], when Louisville police used a battering ram to bust into Breonna Taylor's apartment in the middle of the night, spraying her apartment with bullets, killing her in her bed" even though the Lousiville police performing the no-knock raid on her house had been issued body cameras [Bella, 2021]. One way of putting this point is that police body cam policies do not translate neatly into more reliable public videographic announcement of instances of police violence.

But civilian videography of police misconduct is a different matter. These videos are not totally novel to the era in which most people carry around a cell phone with videographic capacities— George Holliday's video of Rodney King being beaten by Los Angeles Police was taken on a Sony camcorder in 1991— but there is no doubt that there are now many more of these videos because of the citizen journalism enabled by camera phones [Richardson, 2020, Lawrence, 2022]. And the virality-enabling diffusion capacities of social media have made the posting of these videos function as videographic public announcements with very large publics indeed. Moreover, it is pretty clear that these VPAs have had a massive capacity to mobilize. In summer 2020, George Floyd's murder by Minneapolis Police is estimated to have brought between 15 and 26 million Americans into the streets in protest, vastly more than any other protest movement in US history, and in the middle of a pandemic to boot [Buchanan et al., 2020]. Even if we are skeptical of the capacity of such videographic "sousveillance" (i.e. citizens' surveillance-from-below of the state's activities) to directly incentivize better policing or immediately trigger legal remedy for bad policing, "there's one thing images of police brutality seem to have the power to do: shock, outrage, and mobilize people to demand systemic change. That alone is the reason to keep filming" [Zuckerman, 2020].

While it is impossible to really ascertain the degree to which it was the widely distributed video of, say, George Floyd's murder, as opposed to the mere reporting of it, that brought about the summer 2020 uprising, there is good reason to think that the video was pretty important. That these videos have significant mobilizing potential is suggested by the mere fact that police have often tried to confiscate the cellphones of those who've recorded them [see e.g. Antony and Thomas, 2010, regarding the 2009 shooting of Oscar Grant]. Lawrence [2022] offers an analysis on which the steady increase in videos enabled

by cell phones and social media had, in the decade prior to the 2020 uprisings, been used by Black activists to construct counterpublics that could effectively challenge the erasure of Black victims of police violence in the mainstream media. On this account, by the time 2020 came around, the mainstream media had been disciplined into covering police violence, and covering it as a systemic problem linked to race.

Each video of a human being being killed or maimed by the police is on the one hand documentation of a singular event: of a particular human being struggling to breathe, to protect their one, unique body from taser, baton, or gunfire; to return to their lives peopled with particular friends and families. But even as practices of witnessing these videos have acknowledged this wrenching, too-intimate singularity [see Richardson, 2020, for extensive discussion of what she calls "Black Witnessing"], it is crucial to how these videos have worked upon the American consciousness that each personal tragedy is also treated as a data point to be collated with others. As Richardson [2020] has put it, while no one video of police brutality instantaneously mobilized a massive multiracial swath of American society, their accumulation has over time cast police killings "not as isolated incidents captured serendipitously on camera, but as episodic proof of a pattern of abuse that is decades old" (139).

If, alongside the body of documentation that precedes them and the savvy work of movement communicators, these videos do mobilize, it is of course a further question how they do this. One answer emphasizes their ability simply to bring about first order knowledge. As one writer put it in a reflection on the saga following Rodney King's beating, "when George Holliday's video surfaced, it signaled to a lot of citizens just how bad police violence visited upon marginalized communities actually was. People either didn't know what was happening or were willfully ignorant of it. They needed to wake up" [Smith, 2015].

But implicitly acknowledged even here is that, while some part of the American public may view any given video of police brutality with the shock of learning, for the first time, that the police sometimes visit unjustifiable violence on the citizens they're sworn to protect, this doesn't describe everyone's experience with these videos. There are also the "marginalized communities" who, as the longtime victims of this violence, have always been aware of it. While a new video may bring about new first order knowledge that a particular person was abused thus-and-so, when it comes to the more general mobilizing proposition of police abuse, for these communities "the only thing new is the cameras" [Campbell and Valera, 2020]. Because police brutality videos mobilize these populations as well—indeed, the Black communities who experience disproportionate levels of police violence have been at the forefront of major anti-police-brutality mobilizations—we then need an explanation of how videos of police brutality mobilize that doesn't lean on fresh acquisition of first-order knowledge about the premise of action.

And I think the explanations that movement scholars have offered to fill this gap implicitly invoke a role for something like common knowledge. Keeanga-Yamhtta Taylor tells us that publicized police brutality functions as an "'event

that captures people's experiences and draws them out from their isolation into a collective force with the power to transform social conditions" [2016, 153]. It does this because its publicity consists precisely in everyone coming to know that others know of what's just happened, just as they themselves do—in other words, because it gives rise to common knowledge of the event. In this way, it is unlike an abuse suffered personally, news of which is never widely circulated. Where one's willingness to take a particular action is quorum sensitive, as in the toy case of the pro-accountability resident above, it makes sense that common knowledge will be mobilizing where mutual knowledge was not.

As in the toy case of the anti-accountability resident, we can also make sense of why videos of police brutality and its fallout might be mobilizing even for people who are indifferent to the existing regime of police abuse. It is one thing to demonstrate this indifference when you can claim not to know about anything that could be a premise for acting otherwise, but it is another, riskier thing entirely to demonstrate this indifference when you know that everyone around you knows that you know what the police have done. Indeed, it is one function of mass protest to remind the comfortable of these stakes; as Martin Luther King Jr put it in 1969, "...Today's dissenters tell the complacent majority that the time has come when further evasion of social responsibility in a turbulent world will court disaster and death" [King and Melvin, 1986].

So far we have discussed how PVAs depicting police brutality have given rise to common knowledge of a premise for political action, and how this might have played a key role in the uprisings these PVAs preceded. But the role of PVAs in political mobilization do not, I think, end there. Consider the proliferation, during mass protest movements like those in summer 2020, of video documentation *of the protests themselves*. How, we might ask, do these function to feed and maintain the mobilization?

In some cases, videos of protest contribute yet more evidence for the premise of action; in summer 2020, videos showing police pepper-spraying, ramming their SUVs into, and firing rubber bullets at peaceful protestors [Kim, 2020]. These public videographic announcements were then a further source of common knowledge about police brutality.

Documentation of protests themselves also functions to further eliminate quorum sensitivity as a barrier to action. Whereas in the toy case of the pro-accountability resident I simplified by stipulating that this resident believed that other residents would act if and only if they knew that the mayor stole the money, thus collapsing the space between second order knowledge and a confidence that quorum had been reached, in reality we may often doubt that others' knowledge ensures their action. But credible evidence that others are already acting decisively eliminates this barrier.

Finally though, PVAs of protests affect political mobilization not merely by inciting the erstwhile inactive to act, but also by shaping *how* we act. Our foregoing discussion of how, in general, common knowledge is entangled with collective action hasn't yet noted the ways in which common knowledge might be relevant not just to the decision that one will, individually, take action, but to *how* one will act, and relatedly, to an action's being genuinely collective.

Mass political action, including street protest, represents an attempt by very large and often only loosely organized groups of people to function as a unit. One thing this often requires is the selection of a common plan of direct action, where multiple plans might be equally good, but where none can be effective if a critical mass of people don't select the same one. Which corporations will we boycott? When and where do we show up to engage in civil disobedience? A key feature of the situations animated by these questions is that there are two or more possible combinations of agents' actions such that no one of the protesters would be better off if only a single agent had acted differently. In other words, these represent *coordination problems*. And the suggestion familiar since Lewis but tracing its roots back as far as Hume [2000] is that the solution of these problems requires that a certain plan of action come to be common knowledge, whether through explicit communication or the establishment of a convention. Indeed, common knowledge of a shared plan is taken not to be merely helpful for but constitutive of collective action, in many of the most influential accounts [e.g. Bratman, 1993, Gilbert, 2009].

Another important feature of mass political action is often a shared set of symbolic resources. A characteristic feature of protest movements is the use of "unity displays" [Tilly et al., 2020] involving matching chants, ribbons, t-shirt colors, or physical movements. The function of a unity display is entangled with the movement's claims to moral righteousness and to strength: it says that their cause is compelling enough to forge them into one unit, and that they are capable of coordinated effort. The resources deployed in a display of unity may be to some extent arbitrary—- everyone wearing a blue shirt might be just as good as everyone wearing a red shirt—- but what is crucial is that a critical mass select the same one. This too requires coordination, and thus can make use of the kind of common knowledge that can be established by a VPA of other protesters. In protest movements that span multiple cities and indeed countries, it is often video of protestors elsewhere in the world that perpetuates the adoption of these symbolic resources, and so the reach of the unity display. Medina [2013, 225] also draws our attention to the way in which actions that appear to be taken individually can become coined as symbols which allow others, in repeating them, to invoke or evoke their initial context. An act of such evocation can perhaps function, on some level, even if its symbolic significance is known only to its enactor. But for these acts to take on their full social meaning as, in Medina's words, "echoing" or "chained" to others', and therefore read to the world as part of a larger protest movement, their symbolic significance must be common knowledge. And VPAs of protests and other political actions are what can allow this to occur.

What I've argued is that various attempts to function as a political collective— to coordinate political action, specify the scheme for a unity display or come to share a set of social meanings —-makes use of common knowledge. It is no part of my argument that video functions as the only way to coordinate with one another. Mass political action existed well before the birth of videography and of the internet as a means to make videographic announcements reach a wide public. But they are firmly established in the idiom in which many of us

today reach for such collectivity. As Rini [2020] puts it,

> For better or worse, we have devel oped a web of epistemic norms assuming reliance upon recordings. In the developed world, there is no one living today who remembers an epistemic environment preceding that reliance. Video and audio recordings, in existence longer than any of us, have always structured our lives. (13)

The observation of this section has been that common knowledge plays an important role, above and beyond mutual knowledge, in moving people into political action and allowing them to function collectively. If, as the previous section contends, deepfakes disrupt the capacity of PVAs to give rise to common knowledge, we then see that this disruption challenges the gestures by which we are interpellated, and interpellate ourselves, into political collectives.

4 Conclusion

Videos and deepfakes are two different kinds of media in the truest sense: they involve technology used to mediate our relationship with the world in fundamentally different ways. But phenomenologically, they form a single category: a moving image that presents the world to us in an idiom that is a minor dialectical deviation from that of our own sensory apparatus. But where this realism and immediacy is divorced from an assumption of factivity, how will we experience the sorts of images that would once have functioned to mobilize us?

Among the most mobilizing videographic media has always been documentation of injustice. It has long been observed though, that photos and videos of violence and suffering are not infallibly linked to remedial political action. Famous critic of such media, Susan Sontag [2003] notes that photo- or videographic documentation of violence and injustic "may give rise to opposing responses. A call for peace. A cry for revenge. Or simply the bemused awareness, continually restocked by photographic information, that terrible things happen" (13). Richardson [2020] further notes the immense burden that having to continually watch police brutality videos is for Black Americans. Summarizing this perspective is the Black artist and activist Dread Scott who, in an interview with Richardson, notes that videos of police brutality

> have helped increasing numbers of people see the depth of the problem, but left to its own it's just going to be sort of like lynching photos, where those were used by white people to celebrate a job well done and towards black people to terrorize us [Richardson, 2020, 65].

For all that this essay has emphasized the positive potentials of videographic documentation of injustice then, it is true that such videos have always held a political ambivalence. The prospect we must contemplate is of dynamic images of suffering circulating in an atmosphere where they aren't regarded as trustworthy and so have no capacity to mobilize.

Images of suffering can function to distress and discipline even when one is not sure they're true; Sontag [2003, 34] notes that it is difficult to look at Titian's *The Flaying of Marsyas*, though it is just a painting, and depicts the excruciating, but of course fictional, death of a disobedient satyr. And certainly images retain this capacity when they bring about first order knowledge but not the higher order knowledge that would enable collective action. I worry then that the effects of deepfakes will be such that we should expect videos of suffering to retain many of their negative potentials, while losing their positive ones.

This sketch of what I take to be an impending sociotechnical predicament is not however intended to suggest that this predicament has no solutions, or that the technology that gives rise to it has no implications that might redound to the benefit of those who would like to engage in collective political action.

A natural solution to the problem would be to, in Rini's expression, find a new backstop that could correct and regulate fake videography, putting the lie to deepfakes that misrepresented the world. And there are a number of suggestions out there for how blockchain technology might serve as this backstop. Blockchain might for instance be used to connect images to their metadata so that their provenance can be tracked across platforms [Koren, 2020], which would at least help determine whether a putative video came from a trusted source. Others have suggested that the blockchain could be used to record people's locations and produce a sort of infallible alibi, were deepfakes produced that depicted them doing something in another location Chesney and Citron [2018, 1814]. It's clear that these ideas wouldn't solve all the problems that I've suggested deepfakes might cause, but they certainly gesture at the fact that such problems are not in principle unsolveable.

As for the politically positive potentials of deepfakes, I have discussed elsewhere the way in which generative AI might be used to help us communicate to one another about the political alternatives that we envision [citation redacted for blind review]. It is also worth mentioning that generative AI, like deepfakes, suggest new possibilities for the strategy of political resistance that Brunton and Nissenbaum [2015] call *obfuscation*: "the deliberate addition of ambiguous, confusing, or misleading information to interfere with surveillance and data collection" (1). Videographic surveillance by states and corporations of course has a chilling effect on protest. The capacity to create ersatz videographic data via deepfakes presents the resources for protestors to defend themselves from this surveillance via obfuscation. There is already precedent for using machine learning to produce large quantities of ersatz data in order to mount an obfuscatory defense against would-be IP thieves [Chakraborty et al., 2021].

What I hope in any case to have shown is that the epistemic implications of deepfake technology are only fully appreciated if we attend to the epistemic lives of collectives, rather than individual would-be knowers. The challenge that such technology poses is not most significantly one for the individual quest to maximize true beliefs, but for our efforts to discern and act upon the world in concert.

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