

ALGORITHMIC VISIBILITY: ELEMENTS OF A NEW MEDIA VISIBILITY REGIME¹

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In this theoretical paper, we aim to provide a renewed conceptualization of the relations between visibility and media by contextualizing older debates on “mediated visibility” within ongoing studies of algorithmic systems. While the concept of visibility is explicitly employed (or implied) by a large part of the latter scholarship, it has rarely been systematized theoretically. We set out to do this. Our goal is to specify the central tenets of what we term *algorithmic visibility*. We define it as an emergent form of media visibility regime, in which hybrid forms of media architecture and interaction give rise to the unprecedented entanglement of gatekeeping and surveillance, two historically separated forms of power operations through visibility management. To explore the broader significance of this regime, we also briefly consider how it impacts on the construction of the public domain, focusing on one element: political recognition.

The nature of our argument demands establishing, first, a clear definition of “visibility regime” and, second, describing older regimes of media visibility to pinpoint what exactly can be considered new. This is done in the first part of the paper. We draw on Brighenti (2010) to argue that a visibility regime may be conceptualized as composed of three dimensions: architectonic (related to the visibility diagrams), interactional (which forms of interaction this architecture affords) and political (the power operations which stem from these architected interactions). John Thompson’s (1995, 2005) work is useful to analyze the mass media regime of visibility, marked by the diagram of the broadcast (many-see-few), the emergence of what he calls “mediated quasi-interaction” and preoccupations on who has the control over gatekeeping operations. The writings of leading theorists on the participatory paradigm of Internet studies (such as Benkler, 2006; Castells, 2009; and Jenkins, 2006) provide the basis of our discussion of the network regime of visibility. Architected through the heterarchical network visibility diagram (many-see-many), its richer forms of interaction are said to dilute the

¹ This is a first version of the paper.

very meaning of the gatekeeping metaphor.

Either because they refer to an outmoded regime, or to a utopian one, these theoretical models seem unable to describe the central question of this paper: *how have algorithmic systems altered mediated visibility?*

In the second part of the paper, we try to answer the above question by drawing on what has been called ‘critical algorithms studies’, which has pointed out the relevance of “algorithmic systems” to mediation processes (Seaver, 2013). Focused on social media platforms, our answer is composed of three aspects, all of them indicating that (i) algorithmic systems can be thought of as enacting a visibility regime and (ii) the novelty of this regime lies in how it combines elements of both the broadcast and the network visibilities. First, we demonstrate that the notion of the “heterarchical network” is a chimera – the Internet, and social media platforms, are necessarily bound by external and architectural inequalities, which translates into visibility inequalities as well. So, while the network does allow for dialogical flows of visibility, these flows, as with the broadcast, amount to visibility cones, not mere vectors. Second, we point out that, today, algorithmic systems are, at least on what we term “algorithmic social media”, the driving force behind the constitution of these visibility cones between users. To profit off users’ attention, they attempt to, through procedures of data production and probabilistic analysis, dynamically increase the visibility of any digital content that is deemed as “relevant” to a specific user, making therefore some contents less or more visible. In these highly malleable cones, thanks to algorithmic visibility, “many” users see who/what is automatically classified as “relevant”. This, we argue, is a form of visibility gatekeeping. Enabling this constitutive capacity of algorithmic systems is a less visible but more stable and monological cone of visibility – that through which “few” designers of the platforms can see “many” users, but these users cannot see those designers. If the language of the dialogical cones between nodes is the “relevant” digital content (texts, videos, notifications, profiles), the language of the monological cones between users and designers is the digitalized behavioral data of the formers. These cones are only possible due to the technological nature of the network regime, which allows for a form of power operation mostly absent from the broadcast regime – surveillance, or, more fundamentally, dataveillance. This kind of automated visibility curation has implications for interaction as well, as users are incentivized to have “relevant” interactions. In addition, algorithmic interaction, as we call it, gets into the level of data as well – in the case of relations between designers and users, of course, but also between users. Lastly, we show that algorithmic systems end up

entangling, in an unprecedented way, the two major kinds of power operations involved with visibility – gatekeeping and surveillance. We propose a tentative diagram for this entanglement: the diamond, composed of the visibility cones which represent these two forms of operation.

What we do in the third part of the paper is to explore how algorithmic visibility interferes in other conceptual discussions. More specifically, we explore how algorithmic visibility might help to redraw the boundaries, and redefine the nature, of the public domain by reconfiguring *recognition*, which intervenes in the ways people mutually ‘recognize’ others, affecting the formation of communities, with important consequences for, among many phenomena, social change and solidarity. To do that, we will first put aside the whole debate on algorithms and delve into the work of Arendt and Honneth, among others. From this brief immersion, it seems clear that algorithmic visibility presents some worrisome, but still largely unclear, risks to the possibility of recognition.

PART I

TWO VISIBILITY DIAGRAMS

Visibility regimes

If we are to demonstrate that algorithmic visibility presents a *new* form of mediate visibility, pointing out what counts as *older* forms of mediate visibilities seems compulsory. Given this paper limitations, this is a rather difficult task. For the bridges and gaps between these two continental concepts (“media” and “visibility”) are too extensive and complex to be fully explored here. Instead, we propose a theoretical tool which can provide us with a sufficiently precise definition of different media visibilities – the notion of *visibility regime*, as thought of by Brighenti (2010).

The notion’s main objective is to go beyond the intuitive, but simplistic, idea that visibility entails only how the sense of sight is exercised (what one sees or fails to see) and to position visibility as a social category, i.e., a “phenomenon that is inherently ambiguous, highly dependent upon contexts and complex social, technical and political arrangements” (ibid: 3). For Brighenti, visibility regimes are the “systematic and routinary (i.e., invisible)

set-up of visibilities in contemporary social-technological complexes” (ibid: 39). Unpacking the concept, it is possible to differentiate between three components. First, there is the very notion of *regime*, “a repeated, agreed upon and more or less settled pattern of interactions” (ibid: 45). Second, these patterns of interactions stem from the specific configurations of what can be termed *visibility diagrams*. Certain diagrams are designed to assign certain positions for certain social agents, which in turn allows these agents to see and be seen in specific ways. Brighenti (ibid: 45) employs two visual metaphors to make sense of these configurations – “cones” (few-to-many or many-to-few) and “vectors” (one-to-one or many-to-many) of visibility. Third, both the design of a diagram and the interactions it makes possible end up settling “a series of normative questions”, centrally who/what *should* see who/what. (ibid: 45) This involves prohibiting and allowing, incentivizing and de-incentivizing *possibilities* of visibility (*what* can or cannot see or be seen) and *representations* (*how* something or someone can or cannot see or be seen) (ibid: 45). Therefore, any visibility regime establishes a regime of power. To sum up, a visibility regime seems to be constituted thus by interrelated (i) interactional, (ii) architectural and (iii) political components. The formats of these components are not, of course, fixed or irresistible, since “corresponding to every definition of a field of visibility are *demands and tensions* which endeavor to establish a connection between the possible and the proper, between what can be seen and what should or should not be seen, between who can and who cannot see whom” (ibid: 45, emphasis added). Following a central tenet of the broader Foucauldian framework from which Brighenti draws inspiration, resistance is inherent to any visibility regime.

His model still leaves many questions answered (as any other model, for that matter). Critically for a paper concerned with novel visibility regimes, it is unclear, for instance, how a regime comes into being – who, and how consciously, design it, for instance, or how it changes over time or comes to an end. This limitation reflects on the scope of our analysis. Whereas it seems possible to empirically track down the birth, the evolution or the demise of a certain visibility regime, we shall not focus on the process whereby algorithmic visibility has come into existence, but on how it may be defined, noticing the links between it and previous media visibilities, but not trying to problematize the origins or the directions of these relations.

We argue that this can be made by using as a point of departure architectonic component of regimes of visibility. Two of these previous media visibilities, constituted through distinct visibility diagrams, are widely said to

constitute dominant mediated visibility regimes: the *broadcast* and the *network*. In the rest of this section we will revisit some formulations on these two diagrams. This analysis might sound somewhat repetitive for those familiarized with recent developments in the scholarship on media. It is however an essential step for our purposes. By re-organizing well-known ideas around Brighenti's categories, we pave the way for discussing, in concrete terms, the specificity of algorithmic visibility in the second part of this paper.

The broadcast as a visibility diagram

The *broadcast* is the visibility diagram of what was once called "mass media" (most prominently, the press, TVs and radios). This diagram's core architecture, Brighenti argues, may be described as a "cone" with a very wide base, whereby the many (the audiences) see the few (media professionals, and their messages), but the few are unable to see the many who see them. The cone is marked not only by this mostly monological flow of visibility, but also by "external" links between the audiences which compose its base. By this, we mean that mass media's messages do prompt interaction among its audiences, but this interaction have no immediate impact on what media professionals produce. So, individuals' negotiation of mass media messages has no determinate effect on these messages production. As any kind of mediated visibility regime, this many-see-few architectonic configuration is produced by technological and economics conditions of media production and distribution. Were mass media markets less hostile to new entrants due to its high economic and social costs, there would probably exist many more centers; were mass media products resistant to be industrialized and commodified in durable and distributable units, the multiplicity of peripheries would not be constituted as such.

John Thompson (1995, 2005) details how such architecture gives rise a "mediated quasi-interaction", in which one side (audiences) can see the other (media professionals, and their messages), but not interact directly with it (thus, the "quasi"). Media professionals' work is therefore oriented towards an indefinite public, resembling a form of monologue at a distance, it is said. The emergence of this form of interaction represents a historical shift – and a crucial vehicle for the rise and establishment of modernity, he points out. As opposed to the face-to-face and one-to-one interactions which dominated much of human communication, this form of "quasi-interaction" does not require the agents of interaction to coexist in the same space to "quasi-interact" instantaneously, enabling what he calls "de-spatialized simultaneity" (Thompson, 2005: 37). Apart from

stretching out space, it may also stretch out time, by desynchronizing the production and the reception of the messages.

This specific form of interaction produces ambivalent political results. On the one hand, when taking part in “mediated quasi-interactions”, politicians can use that desynchronization of production and reception to elaborate propaganda personas, tailored to seduce their publics and media professional. That is, they can try to control both *whether* and *how* they will be seen. On the other, this attempt is at best relatively efficient, Thompson points out. “Since the media had the capacity to make visible arenas of action that were previously hidden from view, and since they created a complex field of images and information flows that were very difficult to control, they could also give rise to new kinds of mediated events which had the potential to disrupt and undermine the carefully calculated self-presentations of political leaders and others” (2005: 39). In his analysis, Thompson seems to favor the latter effect of mediated visibility on political power – that is, by somehow democratizing possibilities of seeing and of representing the powerful, broadcast empowers the ordinary citizen, he posits. This is of course at odds with the long and multifaceted tradition of critical approach to mass media, which has underscored how the concentration of power enabled by the unequal architecture of this regime gives rise to symbolic forms of domination through the invisibilization and the misrepresentation of certain groups and ideas in favor of certain elites and their world-views. It is unnecessary, for our purposes here, to detail these criticisms or to pit them against Thompson’s view. What is important is to notice that, either by visibilizing the misdeeds of the powerful or invisibilizing the needs of the less powerful, the politics of the broadcast diagram revolves around operations which make visible to, or conceal from, the publics certain messages in certain ways. Let us term these power operations as *visibility gatekeeping*. This expression is applied here in a looser sense, and should not be mistaken for specific theoretical definitions – e.g. Shoemaker and Vos (2009). Here, it points to the myriad procedures which lead to the definition of what counts as a legitimate topic of collective concern and public debate – whose voices are heard and how? Making visible the interests behind operations of visibility gatekeeping would be the pivotal task of critical research.

The network as a visibility diagram

The network, it is widely said, is the foundational visibility diagram of the Internet, and of the digital media it

supports (most notably, news media websites, blogs and early social media platforms). If the broadcast's most apt visual metaphor is the "cone", the network's allegedly decentralized architecture might be represented by a web of nodes connected through what Brighenti calls "vectors", straight lines with dialogical flows of visibility through which all nodes are in principle capable of seeing one another. Once again, the technological and economic conditions of media production and distribution structure such "many-see-many" architectonic configuration. Were the Internet not designed to exist as independent from one single center, the very idea of vector would never materialize; were the web and personal computers not "generative" (Zittrain, 2014), there would never exist such multiplicity of nodes.

Due to its horizontal, dialogical and digital architecture, it is said, the network allows audiences to have their messages seen by masses – hence the emergence of the category of the "produser", the explosion of self-mass mediation practices and the relative decline of mass media professionals. In the diagram, nodes can either produce "mass messages", with no specific audience, and establish dialogues with other nodes on equal footing. Therefore, interactivity and interactional cues is said to be massively expanded by this other diagram, giving rise to what we might call a form of "networked interaction". By it, we mean that one node can establish dialogical links (thus interact) with many other nodes within its network, according to its own actions. Since audiences are now also producers, the interactions between them might be called "internal", that is, they may immediately affect the production of their messages.

As with "mediated quasi-interaction", networked interaction stretches out time and space – but it also reinvents these dimensions. This is so because the network might be thought of as constituting a kind of space itself. We define digital space here not as a single medium – which of course also shape the conditions of communication – but as a bundle of mediums (computational code, hardware, devices and interfaces) where individuals' informational selves coexist, possible in accordance with distinct flows of time. As it has been argued since the inception of the Internet, one physical individual might have numerous selves occupying different digital spaces of coexistence within the broader cyberspace. This resembles, we want to argue, a form of "re-spatialized simultaneity", which rather add a layer to than replace "de-spatialized simultaneity". That is, interactions still are occurring simultaneously and at a physical distance, of course. But they are now also bound by the computerized design of the digital spaces in which they take place – they have become "re-spatialized". We can

argue that these digital spaces are “interactional nodes”, that is, larger nodes in which “individual nodes” (i.e., individual, companies or institutions) interact.

Networked interaction is widely regarded as having produced turbulent political repercussions. While conceding that the broadcast diagram still plays a pivotal (but parallel) role in the management of visibilities, proponents of the participatory paradigm in Internet studies argued extensively that the network hugely increases the possibilities of visibility of previously invisible actors and their capacity of self-representation. As a result, states, markets and institutions have been utterly “disrupted”, it has been said. Regulatory difficulties (such as those related to the blurring of jurisdictions), economic conflicts (such as those involving copyrights breaches), collective cultural initiatives (such as the Wikipedia), and alleged “autonomous” political movements (such as the Arab Spring) are repeatedly wielded as examples of the democratization of visibility gatekeeping by this diagram. The public sphere (and the media markets) could finally be opened to new, more diverse voices, Benkler (2006) said; for Castells (2009), social movements would be able to semi-autonomously mobilize by circumventing mainstream media power; consumers would be able to become active producers, posited Jenkins (2006). These points amount to a central tenet of theories on the network diagram: more people are now more able to take part in the operations which make visible or conceal certain messages in certain ways (see Dayan, 2013, for an extended explanation of this point). In the end, such fragmentation of power seems to even undermine the very idea of gatekeeping. For if everyone can have a say on whether and how a message will become visible, the metaphor of the “gate” ceases being useful. Therefore, critical research should be chiefly concerned with making visible the corporate and governmental attempts to distort the original network diagram by reinstalling gates and reasserting operations of visibility gatekeeping. Hence the continuous calls to “save the Internet” – e.g. Zittrain, 2006. However, this is of course only part of the story.

PART II

ALGORITHMIC VISIBILITY

Complicating the dichotomous narrative

If we are to move forward, it is necessary to complicate the narrative invoked above. This exercise will establish the conceptual foundations of our definition of “algorithmic visibility”.

By dividing our analysis so far into two insulated diagrams, we might have given the wrong impression that one has entirely replaced the other in a momentous and complete transition. This assumption, common in the literature on the disruptive potential of networked interaction, is misleading (van Dijck and Poell, 2013). Elements of both diagrams of course coexist and influence one another in complex ways – and not only because the broadcast keeps existing in parallel to the network. Let us explore the terms of this continuity.

It is by now a consensus among critical media scholars, the private and computational nature of digital spaces inscribe visibility inequalities into the abstract notion of the network. Some visibility inequalities seem to have been caused by the colonization of the network by broadcast actors and non-digital variables, leading to a differentiation between nodes (Castells, 2007). Boosted by economic, cultural and social capital, some nodes become much more connected, and therefore much more visible, than others. Thus, while, in the abstract, the social media profiles of an ordinary citizen and of a major media outlet have roughly the same functionalities, the latter is much better positioned to get its message seen. But there is an anterior form of visibility inequality, native to the digital environment and the network diagram, which enables the very possibility of asymmetries between nodes: the one created by the dominance of the architectural layer of digital spaces of coexistence by new monopolistic corporations. Since companies like Google or Facebook own virtually all major such spaces, they can single-handedly define the rules of their architectures and, consequently, the interactions they allow, instantly conferring less or more visibility to certain actors and practices, with little or no accountability except that of its shareholders and clients (van Dijck, 2013). Different digital spaces enable different networked interactions.

While the first inequality may be tackled by a purist, “save the Internet” kind of critical research, preoccupied with preserving an imagined utopian original network, the second points to a more fundamental issue. For no digital space may exist without an architectural layer, and no architectural layer can be free of biases. In other words, there have always been (and will always be) visibility gates to be guarded, and fought over. The network diagram may alter the mechanisms of visibility gatekeeping, but it cannot truly democratize it, as Couldry (2015)

clarifies. The scope of who/what can be seen may have been enlarged, but this enlargement is unequally limited by unequally positioned actors.

There is more. The network diagram not only did not annul visibility gatekeeping – in fact, its dialogical flows of visibility and internal links between audiences also brought about a form of power operation through the management of media visibility which was largely inexistent in the broadcast diagram: surveillance. As Thompson noted, the broadcast enabled procedures of exposing few to many, but not the exposure of the many to the few, what provides, he pointed out, a counterargument to Foucault's (2012) theory on the centrality of modern visibility as a disciplinary power through surveillance (Thompson, 2005). The advent of the network changes this. Whereas it entails forms of manual and "horizontal" surveillance (i.e., between similar nodes, such as two ordinary social media users – see Trottier, 2011), the technologic and economic characteristics of digital media, which can produce, store, circulate and analyze large amounts of personalized data cheaply, at a distance and in real-time, also enable automatized and highly "hierarchical" forms of surveillance. It has been called dataveillance "the disciplinary and control practice of monitoring, aggregating, and sorting data" (Raley, 2013: 285; see also Clarke, 1988). If previous forms of in situ monitoring, as were the ones explored by Foucault, aimed at disciplining bodies according to a scientific-driven notion of "normalcy", the monitoring of users' digital behavior was initially developed to discipline a much more specific element – consumption behavior. Companies use consumers' behavioral data to customize ads visibility, trying to incentivize people to see (and eventually buy) more often certain products (Turow, 2011). It does not take much to understand that, by changing user behavior, these practices also alter the behavioral data they produce and analyze in the first place.

This is key point of this paper, and we come back to it below. But before exploring its ramifications, there is one last conceptual point to be made. Due to the compulsory existence of visibility inequalities, it can be said that, in the network diagram, all apparently horizontal dialogical "vectors" between nodes are in fact part of "cones" of visibility. When nodes *see* other nodes, they are part of the basis of a cone; when they *are seen* by other nodes, they are at the vortex of other cones. However, differently from the cones enacted by the broadcast diagram, network cones have (i) a dialogical flux of visibility between vertexes and basis and (ii) are not as fixed. Since they are structured by computational code, their exact configuration may be altered – primarily by the owners of the digital spaces, but also by its users, and their actions within a certain digital space. Technically,

there is nothing that prevents Facebook from enacting a pure form of broadcast media, in which all nodes can only see what one specific node (say, Mark Zuckerberg's personal profile) posts and does. In contrast, they could also change the platform to make all actions and posts, in principle, equally visible to everyone, and differentiated simply by an objective measure (such as time).

Algorithmic visibility as a visibility regime: architectural, interactional and political components

Before proceeding, let us further narrow down our object of analysis. First, it is important to concede that surveillance is by no means only corporative. Governments' growing efforts to monitor individuals, for instance, hardly have any effect on citizen's consumption behavior. Therefore, while it is certainly impossible to disassociate governmental and corporative practices of surveillances (Van Dijck, 2014), this paper will focus on the latter. Second, it would be, in our opinion, foolish to try to come up with a broad, catch-all conceptualization of "algorithmic visibility". Algorithms are now used to help in the regulation of a plethora of different fields, and some of them have little to do with our discussion above (for instance, automated policing). We are concerned here with the visibility regime enacted by digital social media platforms which employ algorithms to curate content according to "relevance" – hereinafter *algorithmic social media*. Our choice is justified by the centrality of these platforms in billions of people's everyday lives (Facebook, alone, nears 1.7 billion of daily users).

Further unpacking the notion of "algorithmic social media" provides us with an entry point into our definition of algorithmic visibility. "Algorithmic" has become a trendy term. Academics have identified "algorithmic imaginaries" (Bucher, 2016), "algorithmic cultures" (Striphas, 2015), "algorithmic accountability" (Diakopolous, 2015) and "algorithmic black boxes" (Pasquale, 2015), to name only a few. In these cases, the expression is employed to signal a transformation of certain social subjects by Big Data smart computational algorithms. These transformations are said to have unique significance due to how they automatize and objectivize previously human, subjective decisions (such as what counts as relevant, who is trustful, what is dangerous) through the probabilistic analysis of massive and multifarious troves of digital data (Amoore, 2014). In this paper, the word "algorithmic" does signal a similar transformative process, but, for the sake of terminological rigor, it also works as a metonym. For, if an "algorithm" is a mathematical formula to convert input into output according to a limited number of steps, other "algorithmic" dimensions of these same transformations must be

acknowledged. After all, even the most basic computer is, by definition, an algorithmic machine. So, when we talk about algorithms we are also pointing to the whole of basic algorithmic procedures which make those sophisticate algorithmic decisions possible. By “social media”, we mean, first, digital platforms, that is, “sites and services that host public expression, store it on and serve it up from the cloud” (Gillespie, forthcoming: 1) which are *social* inasmuch as they afford the creation of personal profiles, through which users are able to produce/circulate various forms of digital content² and see/interact with various forms of digital content produced/circulated by their connections within the platform (Ellison and boyd, 2013). These platforms become “algorithmic” when the possibilities of seeing (and largely interacting) with the content produced/circulated by others are mediated (but not determined) by “algorithmic systems” (Seaver, 2013: 9). Informed by a STS (Science and Technology Studies) perspective, this definition understands these systems not as agential elements, but as institutionally situated, mostly opaque, semi-autonomous, malleable and networked sets of computational algorithms, designed, tweaked and tuned by people, according to socially grounded interests and norms, to produce and analyze digital data (Ananny, 2015; Gillespie, 2014a).

In other words, social media platforms’ algorithmic systems curate which “many” other nodes a given node of a network will be able to see based on whether those other nodes’ content is defined as “relevant” to this given node. In this sense, the algorithmic decision to visibilize a certain content to a certain user is enacted as a personalized and insulated event, a “vector” between two nodes: the user-audience and the user-producer. However, each of these insulated events are part of bundle of “vectors” which, when taken together, constitute a collective cone of visibility. A digital content that is deemed by a certain algorithmic system as more relevant to more users is more likely to be positioned at the vertexes of these cones. As such, they (and their creators/circulators) are more likely to be seen by those users which populate the cone’s basis. By mediating possibilities of seeing and interacting, algorithms play an essential role in configuring social media’s cones of visibility – they constitute publics (Ananny, 2015).

These cones’ forms seem to be increasingly defined according to what an algorithmic system is programmed to define as “personally relevant” (Gillespie, 2014). Today, personalized relevance guides not only the definition of

² By “digital content” we mean mainly texts and images, but actions (like, retweets, shares, comments) and profiles.

advertisements' visibility, but the visibility of all forms of contents produced and circulated within social media platforms. It becomes thus patently crucial thus to understand how "relevance" is defined and coded into an algorithmic system. The concept is certainly not fixed, as the constant changes of algorithmic systems' rules indicate. As of today, Facebook, for instance, seems to define relevance according to a mix of six factors: popularity (measured according to metrics of engagement, such as likes and shares), similarity between users, ties between users, paid sponsorship of content, subscription to content, and newness (Ochigame and Holston, 2016). But how precisely these factors are coded and balanced against each other is unknown. For our purposes, solving this puzzle (if any solution if possible) is a lateral issue. Of importance here is pointing out what these companies have systematically recognized: for them, relevant is what users' behavior have suggested being relevant. Their algorithmic systems' have then to (i) continuously analyze data to continuously update what counts as "relevant" to a specific user and (ii) based on this analysis, probabilistically predict which existing content a user would deem as a more relevant, and make this content visible to the user before the user decide on whether she wants to see it or not. This general principle of relevance definition processes by these algorithmic systems might be termed as *data-driven homophilic preemption*. "Data-driven" points to the fact these processes are underpinned by the production and probabilistic analysis of users' behavioral digital data. Also, such analysis is guided by an "homophilic" criterion. It seeks to rank the relevance of a given content by comparing it with contents that were previously classified as relevant. "Preemption" is used here to indicate that, based on this ranking of content homophily, an algorithmic social media's system does not merely predict an action from a user. It automatically decides on whether and how to make the content visible to a certain user on the assumption that this would be the decision the user herself would *probably* make.

The dominance, on algorithmic social media, of "personalized relevance" as the most important guideline to build visibility cones may be explained by markets – one of Lessig's (1999) four modes of code regulation. Social media platform's main source of income is advertisement, and thus attention. In principle, the more relevant a user's experience on a platform is, the more likely it will be that this user will stay and keep acting within this platform. As a result, the platform may be able to not only exploit the user's attention for a longer time, but also to construct more accurate data profiles. These benefits, in turn, entail the promise of a more efficient exploitation of that user attention and of a general enhancement of the platform's probabilistic models which underpin their preemptive decisions on what to show and conceal. While there are scarce data on these issues

(due to obvious legal hurdles), it seems reasonable to suppose that this is what has led companies like Facebook and Google to invest in defining and applying “relevance” on their social platforms.

Interactions within algorithmic social media do share some key principles with “networked interaction”. One node can certainly dialogically interact, using a vast but still growing array of digital cues, with many other nodes; also, such simultaneous interaction occurs within digital spaces, but on distinct physical locales. Nevertheless, algorithmic cones of visibility, once personalized according to “relevance”, shape the possibilities of interactions between nodes. First, algorithmic systems are designed to steer users toward interactions which are, once again, defined as “relevant”. Second, these “algorithmically curated interactions” are partly constituted invisibly by data interactions. A user may interact with another (say, engage in a brief conversation) not because they were previously connected on the platform, but because a certain content (say, a post by a third-party) was deemed relevant enough by an algorithmic system to be made visible to them both. Also, dataveillance is fully based on data interaction (between designers and users). The combination of these possibilities of interactions is termed here “algorithmic interaction”.

Therefore, thanks to the algorithmically curated network diagram, the two major power operations associated with visibility management (gatekeeping, i.e. how an user see, and surveillance, how an user is seen) have become dynamically entangled. The data about how one is seen structures how one can see; what one sees structures the data about how one can be seen. Importantly, the mechanisms operationalizing this entanglement are said to be invisible to users and increasingly inscrutable to their own operators (Burrell, 2016). As the Internet’s technological and economic shape starts to solidify, we believe that such hybridity, and not some form of fragmentation of power (as thought before), may be recognized as the most important political innovation created by the emergence of the network (in this case, a distorted one) as a dominant visibility diagram. Such hybridity may be idealized through a diamond-shaped diagram. As we imagine it, it is composed of two horizontally connected cones (see image 1 below). The first one represents the gatekeeping operations, according to which users can see only a basis of algorithmically-selected “relevant” users, and their content. The second one refers to the inequality created by dataveillance, in which few designers can see (or monitor) the data of many users.

This novelty, while not specified in terms of visibility, has been noted before, in distinct ways. Lash's (2007) attempt to conceptualize a form of power "from within", a priori resistant to resistance, and Cheney-Lippold's (2001) view on how algorithms enact data-subjects, for instance, seem to point to an unprecedented decline of human agency. Other, less concerned with abstract conceptualizations, have pinpointed and argued against the unfair empirical results brought about by the proliferation of systemically prejudiced algorithmic systems and data (cf. Pasquale, 2015). From these two perspectives, the main role of critical researchers vis-à-vis algorithmic systems would be to visibilize the logics behind procedures of data creation and analysis to demonstrate how they reflect certain interests and biases and, ideally, make the owners of these systems accountable for the harm they may impose to users. For this, making algorithms visible is urgently needed, they claim. These authors have a strong point, that resemble to a large extent the forms of criticism raised against the broadband diagram. However, an emerging strand in the literature seeks to underscore that individuals do critically understand algorithmic regime of visibility (cf. Bucher, 2016), and their actions of ordinary resistance, once datafied, have constitutive properties in the shaping of these regimes (we mention this view again in the conclusion).

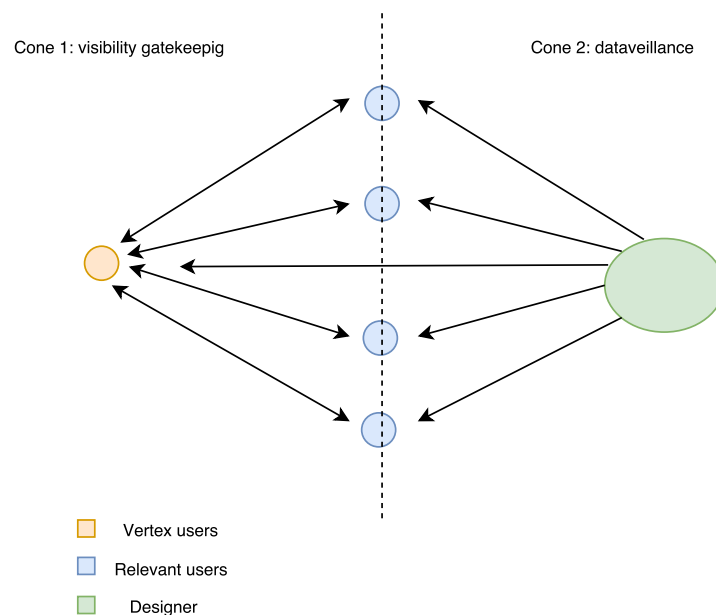
This other emphasis, on users' perceptions, points to a distinct facet of discussions on visibility and, naturally, on algorithmic visibility: its relationship with users' cognition. If algorithmic systems change what users can see, it must have some form of impact on what they can know. Yet it does not make much sense, in our view, to assume that algorithmic visibility automatically create knowledge by altering possibilities of visibility and representation. It *structures* these possibilities. The verb "structure" means here the establishment of sets of cognitive boundaries, which, albeit measurable, cannot itself determine the nature of the knowledge built within these boundaries.

In the what follows, we want to briefly explore one aspect of this cognitive facet, namely how algorithmic visibility structures mutual recognition. As we will claim, this is crucial topic if we are to make sense of the broader political repercussions of algorithmic visibility.

Table 1: Comparison between three conceptual models of media visibility. Sources: works cited above, authors

VISIBILITY REGIME	Mass media visibility	Network visibility	Algorithmic visibility
DOMINANT MEDIA	TV, radio, press	Blogs, news media websites, early social media platforms	Algorithmic social media
ARCHITECTURE	<p>Diagram: broadcast (many-see-few)</p> <p>Visual metaphor: Fixed cones, composed of unequal nodes linked by monological vectors</p>	<p>Diagram: heterarchical network (many-see-many)</p> <p>Visual metaphor: Web of similar nodes, linked by dialogical vectors</p>	<p>Diagram: hierarchical network (few-see-data of many + many-see-relevant)</p> <p>Visual metaphor: Diamond, composed of two cones (one of users; the other of users and designers)</p>
INTERACTION	Mediated quasi-interaction / De-spatialized simultaneity + desynchronization	Networked interaction / Re-spatialized simultaneity + de-spatialized simultaneity + desynchronization	Algorithmic interaction / Re-spatialized simultaneity + de-spatialized simultaneity + desynchronization
POLITICS	<p>Main power operation: Visibility gatekeeping</p> <p>Role of criticism: Unveiling logics of visibility gatekeeping</p>	<p>Main power operation: Democratization of visibility gatekeeping</p> <p>Role of criticism: Unveiling distortions of the network diagram</p>	<p>Main power operation: Entanglement of visibility gatekeeping and dataveillance</p> <p>Role of criticism: Unveiling logics of data production and analysis</p>

Image 1: A visibility diamond. Source: authors



Part III

ALGORITHMIC VISIBILITY AND RECOGNITION

Considering public domain and recognition

In this final part, we explore how the sociotechnical logic of cognition structuring interferes in other conceptual discussions. Considering the power operations of new *algorithmic visibility*, we discuss elements of how this *visibility* redraws the boundaries and redefines the nature of the public domain. More specifically, we are interested in understanding how algorithmic visibility impacts on *recognition*. Where ‘the visible’ is constituted (albeit not determined) by the sociotechnical logic of algorithm, we argue that this environmental condition affects people’s capability to mutually recognize each other *as a moral agent*, who has a standing in society (Honneth, 2007; Sennett, 2012). Since we consider recognition as an integral element for community development with important consequences for, among many phenomena, social change and solidarity, our aim here is to clarify a key political implication of algorithmic visibility.

Let us begin by what we understand by the “public domain”. There is no unanimous definition for the term. Many scholars have appropriated the term in different manners, and often used interchangeably with other terms, such as public space, public realm, and the public sphere. For instance, scholars such as Habermas (1989[1962]) referred to the public domain primarily in terms of the public sphere’, whose original German term is *Öffentlichkeit*, by which he pointed to the features of openness and visibility of public spaces. In a more general and popular usage, the term public domain often denoted the state of being available to the public by being visible and accessible to anyone in public spaces. Suffice to say, visibility is one key aspect that political scientists and philosophers have long associated with the nature of the public domain.

In conceptualizing the public domain, we are indebted to theories of Hannah Arendt, one the most influential political thinkers of publicness and visibility. Arendt theorized the public domain as a *public realm*, a ‘space of appearance’ (Arendt, 1958) for acting and speaking human beings. It is a space in which things said and done can be seen and heard by other fellow members of a society and, as such, where a plurality of views and actions

are visible to others. Wherever people gather together, and are capable of seeing and listening to others, the public domain comes into existence. But according to Arendt, this is not a space that exists for good; it must be continually re-created by human actions, and actualized through the performance of deeds and the utterance of words. By the same token, the existence of public domain is secured only if actors gather together with the purpose to discuss public, common concerns. Therefore, the public domain 'disappears not only with the dispersal of men . . . but with the disappearance or arrest of the activities [e.g. communication between publics] themselves' (Arendt, 1958: 199). From Arendt's perspective, both capacity and willingness of individuals to act together in concert for a public-political purpose is what contributes to the making of a (political) community. We argue that conceptualizing the public domain in this way offers a productive notion of publicness as a regime articulated by visibility, and also as a changing territory defined and re-defined by visibility, accessibility, and resistance.

Before we proceed further, we admit and acknowledge that what Arendt considered to be a 'public matter' may cause a controversy. For one thing, Arendt's conceptual distinction between the 'public' and the 'private' has long been criticized for focusing exclusively on concerns that are only considered as 'common' to a society, at the expense of the issues which would still have affected people's everyday mundane lives (Benhabib, 1996).

However, our intention in this paper is not so much about adding further complexity to this long-standing discussion of public-private dichotomy, as about giving spotlight on Arendt's intellectual legacy, implicated in the concept of 'space of appearance'. Arendt emphasized that in the public domain – as a space of appearance –, people must embrace, or be ready to embrace, the inevitable plurality of others' opinions, views, and actions, so as to transcend their own interest-driven self (Arendt, 1978). It is through this process that people can be led to act together in concert (Arendt, 1958). Indeed, the making of a (political) community springs up only 'when [people] act together, and vanishes the moment they disperse' (Arendt, 1958: 200). What underlies such argument, in our view, is a consideration of individuals as a moral agent who are entitled to their own opinions and voices, regardless of their social status or prestige.

This is in line with Arendt's understanding of politics, which she saw neither as a simple means to achieve an 'end' to satisfy individuals, nor as a banner to integrate people around a shared notion of common good. The

real value and significance of politics for Arendt lied in what it enables: *the idea of active citizenship*, that is grounded in such notions as civic engagement, collective deliberation, as well as civic agency and critical political identity. Generally speaking, this view falls in the tradition of 'civic republicanism', in which individuals' activities are valued precisely because they allow people to exercise their powers of civic agency, and develop capacities for making critical judgement. As such, individuals nurture into citizens that are the basic unit of a political community, and thereby attain some measures of political efficacy.

With her stress on the state of 'being-with-others-in-the-world', Arendt emphasizes visibility as one crucial 'human condition' required to participate in public actions, communicate with others, and thereby laying a foundation for mutual recognition of people. Therefore, visibility in Arendt's terms, in fact, is not just about physically or actually seeing others, but also about holding others as valid and moral agents who are worthy of esteem and freedom, and giving them your full attention to what they speak, in order to recognize (or be ready to recognize) their views and actions, even if they are different from yours. By the same token, the process of communication, and particularly the act of listening, gains prominence, because 'to listen' is to show respect to others, regardless of who they are, as a person with the right to speak (Sennett, 2012).

Here, we find a deep resonance and linkage between Arendt's view and the concept of recognition proposed by German philosopher Axel Honneth. Honneth consistently argued that all humans must be recognized as social agents who are capable of making positive contributions to society (Honneth, 1996, 2007). For this reason, the act of recognition necessarily involves the understanding of others, considering the values that appear significant for engaging in shared actions. Simply, recognition concerns neither 'how many goods a person has', nor 'whether this person is the likes of myself', but rather, 'what kind of 'standing' vis-à-vis others she deserves', and whether she is one to have a good life together. Therefore, in this paper, an act of recognition is understood as inspiring a genuine concern for the other person, rather than merely exercising a passive tolerance (Honneth, 1996: 129). Recognition stems from actually seeing and knowing about others, but goes beyond that, normatively.

In light of this discussion, we argue that to see others, and to be seen by them, do not suffice *per se*, unless such visibility leads to the possibility of oneself 'being recognizable', as a unique being who deserve respect. The issue

at stake is that there are several potential threats to the realization of ‘undistorted forms of recognition’ (Honneth 1996: 170). One of the major instantiations of such threats is what Sennett (2006) earlier called new ‘short-sighted culture of capitalism’, aimed at promoting superficial social relations while undermining dialogical communication. By this, Sennett wanted to show how a misinforming structural condition would seriously impair the possibility of community development, even with the best will in the world. We agree with this view. Being visible and, by extension, being recognizable, are *not* just the matter of rational, ethical choices contingent upon personal characters. It must be performed and negotiated in ways that engages external conditions of social structure. With this kept in mind, we want to raise an important theoretical question on how *algorithmic visibility* would be responsible for providing the condition, under which visibility can transfer to what we term ‘recognizability’, without begetting ‘misrecognition’ (Fraser, 2000) amid individuals. We believe this is theoretically not only important, but also urgent, given that the discussion of the impact of *algorithmic visibility* on recognition is largely omitted from the extant literature on political participation and civic culture. This is striking. We argue that this gap should be filled soon through deeper questions about how *algorithmic visibility* curates our (social) reality.

Two questions on how algorithmic visibility affects recognition

The first question we raise concerns ‘algorithmic gatekeeping’ as discussed in the previous section. It is related to *what and how people see*. Certainly, the concerns about media constructing our social worlds by filtering, excluding (and including), modifying or distorting information, and changing representations, are hardly new, as the broadband diagram indicates. Selection of what to (and not to) deliver was already possible in the pre-digital era, such as in journalism and commercial media, where particular contents could have been censored or removed through the decisions made at both editorial and individual report’s level (e.g. Herman and Chomsky, 1988, among many others). Both journalism and commercial media thus remained subject to the wider institutional contexts and the profitability of the organization, as well as issues of power behind decision-making. But while the exclusion, inclusion, and management of information in specific ways still bear significant relation to the discussion of what shapes civic discourses today, a more serious threat of this algorithmic gatekeeping is that we often only have a mythical understanding of how technologies operate, and carry out their operations as if they were part of natural law – despite the fact they have become an essential constituent of our daily lives

today. Indeed, in contrast to cases of journalism or commercial media, algorithms are often ‘touted as automatic,’ and ‘[w]hatever choices are made are presented both as distant from the intervention of human hands, and as submerged inside of the cold workings of the machine’ (Gillespie, 2014: 172, 181), even though human and institutional choices always lie behind the cold mechanisms of capitalism (Mager, 2012).

There is a prevailing hype that reinforces our mythical understanding. It is extensively claimed that the automated curation of digital footprints, from our profiles, contents, and metadata, are classified in accordance with their potential relevance to our interest, and that the *alleged* goal of these classifications, namely ‘personalization’, is to satisfy the exact needs and wants of an individual. Indeed, the processes of classifying our digital footprints are based on insight from the individual’s attributes, behaviors and history, and therefore, personalization results in the provision of contents which the platforms predict to be what individuals want. But for one thing, this relevance is calculated by a ‘fluid and loaded judgment . . . [that is] open to interpretation’ (Gillespie, 2014: 395), and is in line with the strategies of those media and data institutions to maximize their profit by connecting individuals directly to the advert agencies (Turow, 2011). Put together, we are concerned about algorithms tweaking ‘what is visible’, and about that it is concealed under the general puff and language of personalization.

This leads to the second worries of ours, which are shared by those who put forward discussions of ‘echo chambers’, more recently in the form of algorithmically created ‘filter bubbles’ (Pariser, 2011) that are expected to block people’s exposure to different views, while accelerating the polarization of opinions. By grouping once disparate sets of personal data based on algorithmic logics of calculation, the providers of the platforms and other actors of data industry can control the nature of what is visible on the platforms: *what and how users can see*. But this inevitably changes *how users are seen*, because what is *seemingly* less pertinent to an individual user will be filtered out from her (news)feed. This, thereby, likely contributes to the reinforcement of one’s own values by creating a digital version of echo chamber that increasingly permeates into our offline lives. To be clear, we do not propose that the strengthening of belief or the polarization of views are inevitably bad. As Sunstein (2007) pointed out, those echo chambers may act as an ‘enclave’ that allows time for minority views to nurture against the dominant paradigm of a society. However, taking into account that ‘visibility’ we discuss does not just concern an actual act of seeing, but also the concept of recognition that prioritizes acts of

tolerance, negotiation, understanding, and acceptance of different virtues and values of others, the validity of such enclave by deep personalization has to be called into question. As with Couldry and Turow, one of our primary concerns about algorithmic gatekeeping consists in *both* the elimination of particular kinds of information in the public space, and how this concomitantly entails a potential loss of ‘mutual acknowledgement that orients us at least to recognize each other . . . as “consulting” members of a common social and political space’ (Couldry and Turow, 2014: 1711).

The public domain as a ‘space of appearance’, where people are visible (and recognizable) to each other, is increasingly, and incrementally, owned by commercial forces (Couldry, 2015: 620). Increased visibility of individuals and greater availability of information in this space may rather likely encourage a systematized production of knowledge and creation of centralized information database society (Bowker and Star, 1999), run by the providers of algorithms, where the normalization of particular likes of knowledge against others is left at the hand of those corporations, yet disguised under the ballyhoo of personalization. In a hypothetical situation, certain ‘values, opinions, and rhetoric . . . frozen into [algorithmic] code’ (Bowker and Star, 1999: 35) may serve as a hidden assault on recognition and, by extension, civic conviviality and solidarity; or at least, may work in ways that are not particularly helpful for those values. We believe that this is a crucial question that requires further research.

Conclusion

In this paper, we intended to provide a new conceptualization of media visibility and explore, in tentative ways, its impact on a central political aspect – the possibility of recognition. Algorithmic visibility seems to intervene in how some of our most basic social and political processes are enacted.

However, as hinted in the last bit of the second part, it is important to bear in mind that that both cones of algorithmic visibility are reproduced through individuals’ everyday practices. In line with theories on media power (Couldry, 2012), this opens up possibilities of not only manipulation, but also active resistance on users’ part, while also highlighting new kinds of inequalities in the data age: which kinds of actors are more, or less, able to reproduce, resist, and manipulate this visibility? Who can have greater visibility, or achieve the right kind

of visibility? What are the consequences of this visibility for public domain and acting citizens? For it seems certain that the struggle for visibility has gained different contours under this new regime. Hopefully, the model put forward here may help to guide investigations of these contours.

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