**Designing Networked Publics for Communicative Action**

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**Abstract:**

This paper has two purposes, one nested in the other. The first is to show how normative claims from social theory can inspire the technical design of public communications infrastructure. Drawing political values from work on the public sphere by Habermas and Fraser, I argue that some of their concerns about media power and participatory disparity can be articulated with the tools of network science to inform the design of the relevance algorithms of networked publics. For the sake of concreteness, I present @TheTweetserve, an open source Twitter bot I built based on these principles. The second purpose is to point out and fill a structural hole in the academic literature. I extend an invitation to sociologists of technology to join the recursive public, the public Kelty identifies of those engaged in the creation and modification of their own communications infrastructure. I argue that this is a case of disciplinary collapse, a collapse that is inevitable when research is mediated by networked publics. However, discourse aimed at mutual understanding as opposed to strategic gaming of the system requires special effort. To motivate that effort, I appeal again to Habermas for his account of communicative action, the distinction between system and lifeworld, and the role of the steering media.

**Keywords:** networked publics, network science, Jurgen Habermas

On-line social network sites are a major organ of civic life. For many, they are a primary source of news and locus of political discussion. Algorithms mediate the online interactions of millions of participants with potentially vast political implications. In such a world, intellectual silos of social theory, systems theory, and engineering must collapse lest political outcomes be driven by unconscious or illegitimate actors.

This paper has two purposes, one nested in the other. In the first major section, I will show how normative claims from social theory can inspire the technical design of public communications infrastructure. I draw political values from work on the public sphere by Habermas (1962/1991) and Fraser (1990). Their concerns about media power and participatory disparity, respectively, can be articulated with the tools of network science (Watts, 2003) to inform the design of relevance algorithms (Gillespie, forthcoming) for networked publics (boyd, 2010). For the sake of concreteness, I present @TheTweetserve, an open source Twitter bot I built based on these principles.

The second purpose is to point out and fill a structural hole in the academic literature. In the second major section I will argue against Gillespie (forthcoming) for the shared interests of sociologists of technology and technologists. Rather than keeping these fields distinct, I extend an invitation to sociologists of technology to join the recursive public, as identified by Kelty (2008): the public that openly designs, builds and maintains its own communication infrastructure using the Internet. As a community of researchers whose work is itself mediated by networked publics, I present this invitation as a way of managing context collapse between researchers of different disciplines. This paper itself is an attempt at disciplinary collapse modeled on context collusion. (Davis and Jurgenson, 2014)

In the final section of this paper, I conclude with a reflection on the relevance of Habermas’ *Theory of Communicative Action* (1981/1984, 1981/1989) to contemporary networked publics. I review my earlier arguments in light of his distinction between social *system*, where action is coordinated non-linguistically through steering media like money and power, and social *lifeworld* where action is coordinated through linguistic consensus. Through this analysis I hope to show what is at stake in our decisions as researchers of how to manage disciplinary collapse.

**Networked publics: theory and design**

In this paper I will analyze the workings of social network sites such as Twitter and Facebook as networked publics, following boyd (2010). I will not recapitulate vastness of academic literature on publics and the public sphere. I hope not to build on top of that but rather to demonstrate how one can cut across it towards what those in human-computer interaction (HCI) would call “implications for design.” (Dourish, 2006) To this end I will focus on the works of Jürgen Habermas, who originated scholarship on the public sphere in 1962 and has developed his position throughout his career. I anticipate that similar moves from theory to application can be made from others scholarship.

I focus on three aspects of the public sphere raised by Habermas and his critics: the ideal introduced by Habermas of a space of equitable discourse, and ways publics fall short of this ideal: the role of mass-media, and the role of social inequality. Translating these concepts into the domain of networked publics, I argue that our understanding of inequality can be articulated using the tools of network science (Watts, 2003), and particularly through the idea of preferential attachment, a social mechanism through which the well-connected become even more well-connected. That fact combined with the relevance algorithms (Gillespie, forthcoming) that determine what content is displayed as relevant lead some networked publics, such as Twitter, to fall far short of the Habermasian ideal.

The affordances of network publics enable our very specific understanding of this form of inequality. They also allow the construction of actually existing alternatives. I will describe @TheTweetserve, a bot that embeds an alternative algorithmic mechanism within the larger context of Twitter as a public sphere. This intervention is a simple demonstration of how technical interventions and algorithm provision can be motivated by normative social theory and a form of political expression. It also exposes design trade-offs that I argue must be taken into account in critically informed discussion of networked publics.

*Ideals and critiques of the public sphere*

Jürgen Habermas' (1962/1991) early work on the public sphere was originally published in German in 1962, then later translated under the title The Structural Transformation of the Public Sphere: An Inquiry into a Category of Bourgeois Society. It described the development of what he named the bourgeois public sphere, where “bourgeois” refers to its origins in the merchant class in the European Renaissance. As this class grew in political power relative to the old aristocracy, it needed spaces and media, such as salons and newspapers, with which it could coordinate business and government interests in the interest of global expansion. Habermas named these spaces and media collectively the public sphere.

Habermas's interest in the public sphere is due partly to his interest in the legitimate foundation of modern democracy. Without a social process where private citizens can discuss their concerns and come to agreement, political or economic power will go unchecked by citizen oversight or support. In Habermas' philosophical work in the 70's (1971/2000,1971a) he theorized the conditions under which consensus arising from discussion is a legitimate synthesis of the interests of the participants: the ideal speech situation. Among the conditions of this ideal are that nobody capable of making a relevant contribution are excluded and that they have an equal voice. (Bohman and Rehg, 2011)

In practice, the ideal speech situation rarely exists in actually existing publics. One reason for this that concerned Habermas is the role of consumer-oriented media in distorting the conversation. Media-driven discussion is not based in interpersonal consensus but rather on factors like who owns channels of mass communication. Another reason publics fail to achieve the ideal speech situation is social inequality. Fraser (1990) famously critiqued Habermas's idealization of the public sphere as “bourgeois masculinist”, to highlight how it was exclusive of both the working class and women. In her analysis, these and other marginalized groups formed counterpublics where they could discuss their concerns among peers before bringing them into the public eye. For Fraser, the public sphere is a nexus of unequal publics rather than a singular space characterized by equity.

*Networked power in networked publics*

Carrying these concepts into the 21st century, we can ask how well contemporary networked publics approximate the ideal speech situation, and to what extent they are beset by the problems of media power and inequality. I argue that the tools of network science (Watts, 2003) give us ways to think rigorously about inequality and power within networked publics. This rigorous understanding can then be used to design politically motivated technical interventions.

boyd (2010) notes that one of the significant features of networked publics is the existence of Friends Lists. She explains that choosing whether or not to 'friend' another user is a social and political choice that can be read as an articulation of the public, a statement of the people with whom the user imagines themselves in association with. In contemporary networked publics like Twitter and Facebook, the friends list also plays a crucial role in determining information flows within the system. On Facebook, ones friendships are an input to the EdgeRank algorithm that determines what is displayed on ones newsfeed (Widman). It is also a means by which users manage who has permission to see their updates at all. In the case of Twitter, a user's timeline consists of updates from all the accounts they follow. To a first order of approximation, the number of followers one has on Twitter is an indication of ones influence. This is an extreme simplification, one that features so widely in public perception that there is a large market for fake Twitter followers. In practice, not only how many followers a user has but who those followers are contributes to a users ability to control public discourse.

Castells (2009) gives the name networked power to the power an agent has because of their place within a network. He names network-making power the power of agents who control the structure mediating the network. These concepts are useful for thinking about networked publics: users with influential followers on Twitter have substantial networked power. The Twitter corporation itself has great network-making power. My own ethnographic research of Twitter (Benthall, 2013) has confirmed the role that highly followed accounts—whether they are professional social media personalities like digital journalists or hobbyist micro-celebrities (Senft, 2008)—have in shaping public discourse, especially around what topics go viral. Both media power and social inequality are reflected in networked publics as disparities in networked power.

The field of network science, which combines mathematical graph theory with social network analysis, has flourished because of the availability of data from social network sites. This data has confirmed robust laws of social network formation. One of these regularities is extreme inequality in number of social connections. In mathematical graph theory, the number of connections a node has with others is called its degree. In many graphs generated by social process such as the friendship graphs from social network sites, node degree is distributed according to a power law distribution. This is the same sort of distribution as the distribution of global wealth—highly unequal, with a few very rich and many very poor. In contrast, the distribution of personal height is normally distributed—roughly bell shaped, with many people around average height and a few extremes in both directions. (Watts, 2003) Networks that have power law degree distribution are called scale-free networks.

Network scientists Barabási and Albert (1999) have sought to explain the prevalence of scale-free networks through a general mechanism called preferential attachment. If when a network grows new nodes are more likely to connect to nodes with high degree than nodes with low degree, then it will grow into a scale-free network. If users that are new to Twitter are more likely to follow celebrities or other well-known figures than other less famous users then the Twitter social graph, that is preferential attachment. Empirical studies of social network sites have confirmed that their networks are scale free and that their growth shows preferential attachment, specifically through social recommendation to peers (Zhou, Medo, Cimini, Zhang, Zhang, 2011) and content sharing (Tinati, R., Carr, L., Hall, W. and Bentwood, J. , 2012). This scientific result has social implications: preferential attachment on social network sites implies large disparities in networked power.

Another characteristic of social networks, as opposed to biological and technical networks, is assortative mixing, the property that nodes with high degree are more likely to be connected with other nodes with high degree (Newman, 2002). This is a special case of another common property of network formation, homophily, the tendency of people to connect with others similar to them (Watts, 2003). Assuming as we have that node degree is correlated with networked power, this implies that powerful people within a networked public will be clustered together. An assortatively mixed network looks a lot like the public sphere described by Fraser (1990): not just marked by inequality between individuals, but between publics and counterpublics.

Network science paints a bleak picture for equal participation in the public sphere. As social networks grow naturally, they reinforce existing inequality of networked power within them. This process is especially transparent in networked publics because of their explicit representations of the social graph. The implication is that media power and privileged groups will dominate discourse in networked publics, and so these publics will fail to serve their civic function of facilitating legitimate consensus.

*Actually-existing alternatives*

We need not resign ourselves to this bleak picture. By acquiring and exercising network-making power, we can alter the algorithmic structures of networked publics for political purposes. As a demonstration of this, I have developed a Twitter bot, @TheTweetserve, which counteracts preferential attachment.

@TheTweetserve is inspired by The Listserve, a project developed by Josh Begley, Alvin Chang, Yoonjo Choi, Greg Dorsainville, and Zena Koo in 2012. The Listserve is a mailing list that is free to join. Once a day, a subscriber is selected at random and given the opportunity to write everyone else on the list. At the time of this writing, The Listserve has over 20,000 subscribers. In light of the preceding analysis, The Listserve's simple mechanism of random selection avoids many of the shortcomings of networked publics. Members are equal before the algorithm that controls the discourse.

@TheTweetserve works similarly. Twitter users “subscribe” to the bot by following it and then mentioning it. They have the option of following it and not mentioning it if they would rather “lurk”. At regular intervals, @TheTweetserve randomly selects a subscriber and retweets their most recent tweet. All subscribers have an equal probability of being selected.

Normally on Twitter those who post most frequently and have the highest number of followers are most likely to be heard. @TheTweetserve follows a different logic. It is indifferent to the number of followers of its subscribers. Infrequent tweeters are not disadvantaged compared to more frequent tweeters that may have greater access to Twitter, for example through more expensive smart phone data plans.

I have published the source code, a mere 150 lines of Python, on GitHub, a coding hosting and issue tracking site that is itself a networked public (Benthall, 2014a). The code has an open source license and I welcome feature requests, including requests for improved documentation. Dear Reader, this is a backstage pass.

It is possible to build such a technical intervention because Twitter has an open Application Program Interface (API) that makes it possible to build applications against their infrastructure. This API is well-documented on Twitter's developer-facing website.[1] I have also used several existing open source software packages in the construction of this alternative public.

At the time of this writing, @TheTweetserve has not had wild success. Unlike many automated Twitter accounts, it lacks a growth mechanism; it does not, for example, automatically follow other users to get their attention. Chang (2014) notes that @TheTweetserve currently lacks a 'value' mechanism, something that would select for or encourage high quality contributions. This could be another reason for its lack of success. This highlights a concrete design trade-off. Davies (2014) points out the tension between social equality and consumer quality. To filter subscriber's content by algorithmically estimated quality would be to make a political choice that is more distant from the Habermasian ideal.

I present @TheTweetserve as an actually existing alternative to networked publics governed by commerically motivated relevance algorithms (Gillespie, forthcoming). I do so with some measure of irony. It is common knowledge that people use social network sites largely to connect with people that matter to them, not with anybody with a relevant opinion. Beyond the technological options, do these motivations preclude these sites from serving as ideal Habermasian public spheres? When people choose to use social network sites organized around the logic of the site providers speaks, does that not speak to the success of that logic's design? The choice to use Facebook or Twitter is a choice of complicity in a sites' political logic, which rewards users with 'relevant' information, though alternatives exist.

My invitation and challenge to the scholarly community is to produce a concrete design of something better. @TheTweetserve is a naïve prototype. An example of a more advanced would be one that takes positioning within the social network into account. Rather than select subscribers from a uniform distribution, a networked public that was more sensitive to Fraser's critique could first select a cluster of users—one of many unequal publics and counterpublics—and then retweet a representative selected from within it. This is just one of a vast array of possibilities.

Of course, not all political goals can be articulated using network science and implemented into technical architecture. For example, other conditions of Habermas' ideal speech situation include the lack of coercion and the participant's ability to express their authentic interests free of deception and self-deception. I do not see how these can be addressed directly with social network site design. I have left these considerations to one side not because they are unimportant but because of the scope of this paper. A more complete science of networked publics, one that I think is well worth aspiring to, would combine both a deep technical understanding of the dynamics of the digital network and a nuanced account of its social context. The following section of this paper reflects on the conditions presenting such a science and proposes a way forward.

**Expanding the recursive public through disciplinary collapse**

In the preceding sections, I have provided a concrete example of how historically informed normative social theory can be articulated using network science, then translated into design criteria and implemented as an actually existing networked public. This research takes inspiration from the Values In Design approach (Nissenbaum, 1998, Flanagan, Howe, and Nissenbaum, 2008), which combines philosophical inquiry, technical implementation, and empirical study into a unified, pragmatic activity. In addition to its value as research in its own right, I intend this work as demonstration against a scholarly attitude that critical political study of networked publics and their technical implementation should be separate intellectual disciplines. In the remainder of this paper, I will argue that achieving normative goals in actually existing networked publics requires disciplinary collapse.

*Addressing Gillespie*

As an example of the scholarly attitude I am arguing against, I will engage with Tartleton Gillespie's “The Relevance of Algorithms” (forthcoming). The article is an exquisite representation of its type; I have chosen it as a target not out of animosity but because even before its official publication it is a noted intellectual accomplishment that has inspired many. It is an important article; it is also, I will argue, in some respects wrong.

Gillespie argues for a detachment of sociological inquiry from technical considerations. His focus in that essay is on public relevance algorithms, the algorithms used by network publics and search engines to determine what information should be seen by users. Despite the technical nature of his subject matter, he repeatedly distances himself from these details. “In attempting to say something of substance about the way algorithms are shifting our public discourse,” he writes, “we must firmly resist putting technology in the explanatory driver's seat.... A sociological analysis must not conceive of algorithms as abstract, technical achievements, but must unpack the warm human and institutional choices that lie behind these cold mechanisms.” He goes on to point out many examples of how various features of the user interfaces of social network sites have political implications or reify socially constructed categories.

Gillespie argues colorfully for the invalidity of computational methods as social scientific tools. He blends his critique of algorithmic operationalization of social concepts like “relevance” and “trends” with a critique of computational methods in the social sciences, noting that the latter methods are “seductive” to social scientists. He writes, somewhat cryptically, “Computational research techniques are not barometers of the social. They produce hieroglyphs: shaped by the tool by which they are carved, requiring of priestly interpretation, they tell powerful but often mythological stories—usually in service of the gods.”

In the first half of this paper, I showed how theories and critiques from Habermas and Fraser can be operationalized productively using network science, one of many sciences that comprise computational research techniques. I this demonstration has demystified these techniques for the skeptical audience. These computational concepts are not, contra Gillespie, hieroglyphic. They are an alphabet with concrete social interpretation, legible to those with sufficient training or an open mind. My own ethnographic work on social media use (Benthall, 2013) has confirmed and deepened my understanding of the usefulness of these techniques. I present my work not as a priest but as a colleague, in service to the interests of the public. I have to say that Gillespie's rhetoric here is at best confusing and at worst falsely representing the state of the art.

It is possible that Gillespie's reluctance to engage a technical audience or take computational methods seriously is due to his perception of the social landscape of research. He notes the difficulty researchers have in understanding the specifics of relevance algorithms due to lack of “backstage access”. In the case of major commercial sites, these algorithms are not shared with the public for practical reasons of maintaining profitability and preventing spammers from gaming them. Those that are given a behind-the-scenes look witness a “performed backstage” that serves primarily the purpose of public relations. Elsewhere he states baldly that his sociological inquiry does not interest “algorithm providers”. He concludes that “there may be something, in the end, impenetrable about algorithms,” and that social reliance on them must involve a leap of faith.

It does not have to be this way. There are technologists who are both committed to transparency of their algorithms and invested in the social impact of their work. Many of these belong to the Free Software movement, part of what Kelty (2008) identifies as the recursive public.

*An invitation to the recursive public*

Kelty defines recursive publics as “publics concerned with the ability to build, control, modify, and maintain the infrastructure that allows them to come into being in the first place.” He applies this concept to the communities that build the infrastructure of the Internet, such as Usenet, email, the World Wide Web, UNIX, and free and open source software, and web standards. His work shows how these communities are engaged in political activity not primarily as vocal ideologues but in the creation, modification, and maintenance of software, networks, and law. In ways normally unrecognized by political theory, these actions can express ideas about the moral order of society. They can also challenge political and economic power through the creation of actually existing alternatives.

The recursive public builds foundational infrastructure for the Internet and participates in the production of application layer functionality such as social network sites. Facebook and Twitter both employ developers who work on open source software. Wordpress.com, a commercial social blog host that is built on the open source Wordpress software, and GitHub, which open sources almost all of its code (Preston-Werner, 2011) are two examples of networked publics that have deep roots in recursive public. As a matter of best practice, successful open source communities deliberately put as much of their communication as possible into public and archived fora (Fogel, 2005), alleviating Gillespie's concern about limited backstage access. I have developed and presented @TheTweetserve as a demonstration of these practices and their relevance to networked publics.

I invite those involved in the critical study of networked publics to participate in the recursive public and include it in their imagined audience. While there is important and substantial scholarship on open source communities, rarely is work on normative social theory directed to them as an audience. This is due partly because of the natively technical disciplinary orientation of the recursive public and the perception that it is not receptive to other forms of inquiry. If scholars like Gillespie accept the invitation to the recursive public, perhaps one day our participation in the networked publics will not be based on ignorance and unfairness, but rather on legitimate consensus on norms and infrastructure. This cannot be accomplished while maintaining clean distinctions between academic disciplines.

*Disciplinary collapse*

Thinking reflexively about the process of the research I present here, I recall that it began with a conversation on Twitter involving myself and two other Iresearchers, Nathan Matias and Brian Keegan (Benthall, 2014b). Matias introduced me to Fraser's work; Keegan introduced me to assortative mixing in social networks. Later, while developing @TheTweetserve as an aspiring relevance algorithm provider, I followed a link to where a preprint draft of Gillespie (forthcoming) was posted on-line. I was clearly not in its intended audience.

This paper is a case of context collapse. Davis and Jurgenson (2014) review how the collapse of social contexts is a noted characteristic of interactions in networked publics, and distinguish between context collision, or accidental collapse, and context collusion, intentional collapse. As more of academic discussion moves to open access journals and more researchers encounter each other online, the mechanism of context collapse plays a role in the encounters between normally contextually separated academic disciplines. These collapses may be disciplinary collisions or disciplinary collusions.

I maintain that these collapses are productive both for scholarly understanding of networked publics and for the pragmatic goal of improving our technical options. We (speaking now to the recursive public, inclusive of researchers studying social theory, networked publics, and values in design) stand to gain more if we are, by default, open to each others ideas. While this process of collapse will not always be easy, it can bear fruit in the form of new technical and political options. (c.f. Kane, 2014)

Moreover, the predominance of networked publics in coordinating the interactions between those that research them suggests that these collapses will an inevitable result of our own communication infrastructure. It will be a less difficult process if we engage this process intentionally with the aim of mutual understanding and discovery of shared interests across academic orientations. How can we ensure that our own academic discourse, mediated by networked publics, coordinates our own work in ways that legitimately speak to our interests as researchers? For an answer, I will look once again to Habermas.

**Communicative action in networked publics**

This line of inquiry has come full circle. The study of networked publics and the legitimacy of discourse mediated by them implicates us, the researchers conducting the study. Those that accept the invitation to the recursive public also take responsibility for the networking infrastructure itself. We cannot escape the normative question: what politics should be embodied in our networked publics? How can they be designed to fulfill our own intellectual function, let alone their broader civic function, in the face of unequal power dynamics and context collapse?

These questions are not unlike the ones that inspired Habermas' later work. Almost 20 years after his early work on the bourgeois public sphere, Habermas published The Theory of Communicative Action in two volumes. (1981/1984,1981/1987) In these works he leaves behind the concept of the ideal speech situation, developing several other concepts in its stead. He outlines in great details the conditions of communicative action, action that is intended towards mutual understanding and norms. This is as opposed to action taken to achieve subjective ends, which he calls strategic action.

In this work, Habermas is interested in the way society is coordinated. He draws a distinction between the lifeworld, those social backgroudns and contexts where it is possible to coordinate action through linguistic consensus, and system, where action is coordinated non-linguistically through other media such as money and power—or 'steering media', in Habermas' terminology. Habermasian systems ease the burden of deep consensus, allowing forms of action besides communicative action to dominate. Examples of systems include the market and bureaucracies. (Bohman and Rehg, 2011) He elaborates on the relationship between the steering media and lifeworld-coordinated action in this passage from The Theory of Communicative Action, volume 2:

“The transfer of action coordination from language over to steering media means an uncoupling of interaction from lifeworld contexts. Media such as money and power attach to empirical ties; they encode a purposive-rational attitude toward calculable amounts of value and make it possible to exert generalized, strategic influence on the decisions of other participants while bypassing processes of consensus-oriented communication. Inasmuch as they do not merely simplify linguistic communication, but replace it with a symbolic generalization of rewards and punishments, the lifeworld contexts in which processes of reaching understanding are always devalued in favor of media-steered interactions; the lifeworld is no longer needed for the coordination of action.

Societal subsystems differentiated out via media of this kind can make themselves independent out of the lifeworld, which gets shunted aside into the system environment. Hence the transfer of action over to steering media appears from the lifeworld perspective both as reducing costs and risks of communication and as conditioning decisions in expanded spheres of contingency—and thus, in this sense, as a *technicizing of the lifeworld*.” (Habermas, 1981/1987)

Networked publics in particular are the site of intense interplay between system and lifeworld. Their software and networking infrastructure an example of non-linguistic system. These systems make communication feel easier while reducing the need to depend on the consensual lifeworld for action coordination. Our actions are coordinated instead by relevance algorithms, as Gillespie (forthcoming) tells us.

Moreover, in networked publics our linguistic interactions are also sometimes permeated by steering media. Linguistic interactions on networked publics are tied to “calculable amounts of value” like number of “likes” and number of “followers.” Many networked publics are designed to deter crass exploitation of these affordances. Automated spam detection is an automated means of preventing unauthorized persons from gaming the system. But many networked public participants do so in service of a commercial organization or brand, and engage others in a purposive-rational effort to amass networked power. This networked power, reified as a position in a digitally represented social graph that is an input to others' relevance algorithms, is itself a new form of steering media that deeply infects the digital lifeworld itself. In such an environment, it can be difficult to tell what is genuine consensus and what has been steered by money and power. For example, in public perception the popularity of memes like the Harlem Shake may appear to be consensual when its virality is actually engineered by corporations. (Ashton, 2013)

The recursive public has a history of an alternative logic. Froomkin (2003) has studied the practices of the Internet Engineering Task Force (IETF), a committee originally comprised of graduate students that determines the protocols and standards of the Internet. He claims that this group and perhaps others involved in the Internet standards process fulfill Habermas' notoriously demanding standards of consensus legitimizing discourse. Froomkin explores the possibility that new technology may further catalyze good discourse—what Habermas calls communicative action. Many open software projects are governed in a similar way. We can aspire to having our own academic, intellectual consensus be so legitimate.

Amidst our collapsing disciplines as we study networked publics, we have a choice. We may choose to act strategically to amass steering media—money, bureaucratic power, networked power, even network-making power. We can participate in and expand system. Or we can choose to join the recursive public in the spirit of communicative action, minds open to mutual understanding, with a shared interest in our expanding lifeworld. If we are oriented this way, we can share the task of designing the algorithms, architecture, and norms of the networked public we would like to live and work in. If we can harmoniously collude in that way, perhaps we can steer towards a juster world.

[1] https://dev.twitter.com/docs

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