

Geeks and Recursive Publics: How the Internet and Free

Software Make Things Public¹

Christopher Kelty

Since about 1997, I have been living with geeks online and off. I have been drawn from Boston to Bangalore to Berlin to Houston to Palo Alto, from conferences and workshops to launch parties, pubs, and Internet Relay Chats (IRCs). Along the way a question has emerged: what binds “geeks” together? Why do they all seem to speak the same language, share the same ideas, and collaborate on building the same kinds of technologies? This chapter presents a theory of “recursive publics” as a way to answer these questions.ⁱ

A recursive public is a public that is constituted by a shared concern for maintaining the means of association through which they come together as a public. Geeks find affinity with one another because they share an abiding moral imagination of the technical infrastructure, the Internet, that has allowed them to develop and maintain this affinity in the first place. In this chapter, I elaborate the concept of recursive public (which is not a term used by geeks) in relation to theories of ideology, publics, and public spheres and social imaginaries. Much of this theory was developed through ethnographic participant observation including among other sites, a Boston-based healthcare technology start-up, between 1997 and 2003, participation with new media academics and activists in Berlin in 1999–2001, and with a group of largely Bangalore-based information technology (IT) professionals on and offline.

I use the phrase “moral and technical order” to signal both technology—principally software, hardware, networks, and protocols—an imagination of the proper order of collective political and commercial action, that is, of how economy and society should be ordered collectively. Recursive publics are just as concerned with the moral order of markets as they are with that of commons; they are not

¹ This paper is a shortened version of Chapter 1 of *Two Bits: The Cultural Significance of Free Software*, originally prepared for a volume on new theories of the public sphere, which never came to fruition.

Kelty: Recursive Publics. 2008.

anticommercial or antigovernment. They exist independent of, and as a check on, constituted forms of power, which include markets and corporations. Unlike other concepts of a public or of a public sphere, “recursive public” captures the fact that geeks’ principal mode of associating and acting is through the medium of the Internet, and it is through this medium that a recursive public can come into being in the first place. The Internet is not itself a public sphere, a public, or a recursive public, but a complex, heterogeneous infrastructure that constitutes and constrains geeks’ everyday practical commitments, their ability to “become public” or to compose a common world. As such, their participation qua recursive publics structures their identity as creative and autonomous individuals. The fact that the geeks described here have been brought together by mailing lists and e-mail, bulletin-board services and Web sites, books and modems, air travel and academia, and cross-talking and cross-posting in ways that were not possible before the Internet is at the core of their own reasoning about why they associate with each other. They are the builders and imaginers of this space, and the space is what allows them to build and imagine it.

Recursion

Recursion (or “recursive”) is a mathematical concept, one which is a standard feature of any education in computer programming. The definition from the *Oxford English Dictionary* reads: “2. a. Involving or being a repeated procedure such that the required result at each step except the last is given in terms of the result(s) of the next step, until after a finite number of steps a terminus is reached with an outright evaluation of the result.” It should be distinguished from simple iteration or repetition. Recursion is always subject to a limit and is more like a process of repeated deferral, until the last step in the process, at which point all the deferred steps are calculated and the result given.

Recursion is powerful in programming because it allows for the definition of procedures in terms of themselves—something that seems at first counterintuitive. So, for example,

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(defun (factorial n) ; This is the name of the function and its input n.
  (if (=n 1) ; This is the final limit, or recursive depth
      1 ; if n=1, then return 1
      (* n (factorial (- n 1))))) ; otherwise return n times factorial of n-1;
                                ; call the procedure from within itself, and
                                ; calculate the next step of the result before
                                ; giving an answer.1
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In *Two Bits* a recursive public is one whose existence (which consists solely in address through discourse) is only possible through discursive and technical reference to the means of creating this public. Recursiveness is always contingent on a limit which determines the depth of a recursive procedure. So, for instance, a Free Software project may depend on some other kind of software or operating system, which may in turn depend on particular open protocols or a particular process, which in turn depend on certain kinds of hardware that implement them. The “depth” of recursion is determined by the openness necessary for the project itself.

James Boyle has also noted the recursive nature, in particular, of Free Software: “What’s more, and this is a truly fascinating twist, when the production process does need more centralized coordination, some governance that guides how the sticky modular bits are put together, it is at least theoretically possible that we can come up with the control system *in exactly the same way*. In this sense, distributed production is potentially recursive.”²

Notes

1. Abelson and Sussman, *The Structure and Interpretation of Computer Programs*, 30.
2. Boyle, “The Second Enclosure Movement and the Construction of the Public Domain,” 46.

Why recursive? I call such publics *recursive* for two reasons: first, in order to signal that this kind of public includes the activities of making, maintaining, and modifying software and networks, as well as the more conventional discourse that is thereby enabled; and second, in order to suggest the recursive “depth” of the public, the series of technical and legal layers—from applications to protocols to the physical infrastructures of waves and wires—that are the subject of this making, maintaining, and modifying. The first of these characteristics is evident in the fact that geeks use technology as a kind of argument, for a specific kind of order: they argue *about* technology, but they also argue *through* it. They express ideas, but they also express *infrastructures* through which ideals can be expressed (and circulated) in new ways. The second of these characteristics—regarding layers—is reflected in the ability of geeks to immediately see connections between, for example, Napster (a user application) and TCP/IP (a network protocol) and to draw out implications for both of them. By connecting these layers, Napster comes to represent the Internet in miniature. The question of where these layers stop (hardware? laws and regulations? physical constants? etc.) circumscribes the limits of the imagination of technical and moral order shared by geeks.

Above all, “recursive public” is a concept—not a thing. It is intended to make distinctions, allow comparison, highlight salient features, and relate two diverse kinds of things (the Internet and Free

Kelty: Recursive Publics. 2008.

Software) in a particular historical context of changing relations of power and knowledge.

Geeks and Their Internets

What distinguishes geeks?. Some are entrepreneurs and some are idealists, and some are a paradoxical combination. They are certainly obsessed with technology, but especially with the Internet, and they clearly distinguish themselves from others who are obsessed with technology of just any sort. Not all geeks are the same, but they all seem to have a certain affinity. Where do their sympathies lie? Who are they *with*? Who do they recognize as being like them? What might draw them together with other geeks if not a corporation, a nation, a language, or a cause? What binds these two geeks to any others? The term *geek* is meant to be inclusive and to index the problematic of a recursive public. Other terms may be equally useful, but perhaps semantically overdetermined, most notably *hacker*, which regardless of its definitional range, tends to connote someone subversive and/or criminal and to exclude geek-sympathetic entrepreneurs and lawyers and activists.ⁱⁱ *Geek* is meant to signal, like the *public* in “recursive public,” that geeks stand outside power, at least in some aspects, and that they are not capitalists or technocrats, even if they start businesses or work in government or industry. *Geek* is meant to signal a mode of thinking and working, not an identity; it is a mode or quality that allows people to find each other, for reasons other than the fact that they share an office, a degree, a language, or a nation.

Until the mid 1990s, *hacker*, *geek*, and *computer nerd* designated a very specific type: programmers and lurkers on relatively underground networks, usually college students, computer scientists, and “amateurs” or “hobbyists.” A classic mock self-diagnostic called the Geek Code, by Robert Hayden, accurately and humorously detailed the various ways in which one could be a geek in 1996—UNIX/Linux skills, love/hate of *Star Trek*, particular eating and clothing habits—but as Hayden himself points out, the geeks of the early 1990s exist no longer. The elite subcultural, relatively homogenous group it once was has been overrun: “The Internet of 1996 was still a wild untamed virgin paradise of geeks and eggheads unpopulated by script kiddies, and the denizens of AOL. When things changed, I seriously lost my way. I mean, all the ‘geek’ that was the Internet was gone and replaced by Xfiles buzzwords and politicians passing laws about a technology they refused to comprehend.”ⁱⁱⁱ

For the purists like Hayden, geeks were there first, and they understood something, lived in a way, that

Kelty: Recursive Publics. 2008.

simply cannot be comprehended by “script kiddies” (i.e., teenagers who perform the hacking equivalent of spray painting or cow tipping), crackers, or AOL users, all of whom are despised by Hayden-style geeks as unskilled users who parade around the Internet as if they own it. While certainly elitist, Hayden captures the distinction between those who are legitimately allowed to call themselves geeks (or hackers) and those who aren’t, a distinction that is often formulated recursively, of course: “You are a hacker when another hacker calls you a hacker.”

However, since the explosive growth of the Internet, *geek* has become more common a designation, and my use of the term thus suggests a role that is larger than programmer/hacker, but not as large as “all Internet users.” Despite Hayden’s frustration, geeks are still bound together as an elite and can be easily distinguished from “AOL users.” Some of the people I discuss would not call themselves geeks, and some would. Not all are engineers or programmers: I have met businessmen, lawyers, activists, bloggers, gastroenterologists, anthropologists, lesbians, schizophrenics, scientists, poets, people suffering from malaria, sea captains, drug dealers, and people who keep lemurs, many of whom refer to themselves as geeks, some of the time.^{iv} There are also lawyers, politicians, sociologists, and economists who may not refer to themselves as geeks, but who care about the Internet just as other geeks do. By contrast “users” of the Internet, even those who use it eighteen out of twenty-four hours in a day to ship goods and play games, are not necessarily geeks by this characterization.

Operating Systems and Social Systems

In 1999, I moved to Berlin Germany, where I very quickly met up with a community of geeks. Quite often, upon arriving, I found myself having conversations (in halting German that quickly converted to English) about the GNU General Public License, the Debian Linux Distribution, open standards in net radio, and a variety of things that, despite my lame German, still seemed extremely familiar: Internet standards and open systems and licensing issues and namespaces and patent law and so on. These were not businesspeople, not a start-up company in Boston, where I had been until then. Before long, I had met Volker Grassmuck, founding member of Mikro (an occasional and hybrid media/activist/art organization) and organizer of the successful “Wizards of OS” conference, held earlier in the year, which had the very intriguing subtitle “Operating Systems and Social Systems.” In the following months I met a huge number of people who seem, uncharacteristically for artists and activists, strangely

Kelty: Recursive Publics. 2008.

obsessed with configuring their Linux distributions or hacking the http protocol or attending German Parliament hearings on copyright reform. The political lives of these folks have indeed mixed up operating systems and social systems in ways that are more than metaphorical.

If intuition can lead one from geek to geek, from start-up in Boston to nightclub in Berlin, and across countries, languages, and professional orientations, it can only be due to a shared set of ideas of how things fit together in the world. These ideas might be “cultural” in the traditional sense of finding expression among a community of people who share backgrounds, homes, nations, languages, idioms, ethnos, norms, or other designators of belonging and co-presence. But because the Internet—like colonialism, satellite broadcasting, and air travel, among other things—crosses all these lines with abandon, that shared idea of order is better understood as part of a public, or public sphere, a vast republic of letters and media and ideas circulating in and through our thoughts and papers and letters and conversations, at a planetary scope and scale.

“Public sphere” is an odd kind of thing, however. It is at once a concept—intended to make sense of a space that is not the here and now, but one made up of writings, ideas, and discussions—and a set of ideas that people have about themselves and their own participation in such a space. I must be able to imagine myself speaking and being spoken to in such a space and to imagine a great number of other people also doing so according to unwritten rules we share. I don’t need a complete theory, and I don’t need to call it a public sphere, but I must somehow share an idea of order with all those other people who also imagine themselves participating in and subjecting themselves to that order. In fact, if the public sphere exists as more than just a theory, then it has no other basis than just such a shared imagination of order, an imagination which provides a guide against which to make judgments and a map for changing or achieving that order. Without such a shared imagination, a public sphere is otherwise nothing more than a cacophony of voices and information, nothing more than a stream of data, structured and formatted by and for machines, whether paper or electronic.

Charles Taylor, building on the work of Jürgen Habermas and Michael Warner, suggests that the public sphere (both idea and thing) that emerged in the eighteenth century was created through practices of communication and association that reflected a moral order in which the public stands outside power and guides or checks its operation through shared discourse and enlightened discussion. Contrary to the experience of bodies coming together into a common space (Taylor calls them “topical spaces,” such as conversation, ritual, assembly), the crucial component is that the public sphere “transcends such topical

Kelty: Recursive Publics. 2008.

spaces. We might say that it knits a plurality of spaces into one larger space of non-assembly. The same public discussion is deemed to pass through our debate today, and someone else's earnest conversation tomorrow, and the newspaper interview Thursday and so on. . . . The public sphere that emerges in the eighteenth century is a meta-topical common space.”^v

Because of this, Taylor refers to his version of a public as a “social imaginary,” a way of capturing a phenomena that wavers between having concrete existence “out there” and imagined rational existence “in here.” There are a handful of other such imagined spaces—the economy, the self-governing people, civil society—and in Taylor's philosophical history they are related to each through the “ideas of moral and social order” that have developed in the West and around the world.^{vi}

Taylor's social imaginary is intended to do something specific: to resist the “spectre of idealism,” the distinction between ideas and practices, between “ideologies” and the so-called material world as “rival causal agents.” Taylor suggests, “Because human practices are the kind of thing that makes sense, certain ideas are internal to them; one cannot distinguish the two in order to ask the question Which causes which?”^{vii} Even if materialist explanations of cause are satisfying, as they often are, Taylor suggests that they are so “at the cost of being implausible as a universal principle,” and he offers instead an analysis of the rise of the modern imaginaries of moral order.^{viii}

The concept of recursive public, like that of Taylor's public sphere, is understood here as a kind of social imaginary. The primary reason is to bypass the dichotomy between ideas and material practice. Because the creation of software, networks, and legal documents are precisely the kinds of activities that trouble this distinction—they are at once ideas and things that have material effects in the world, both expressive and performative—it is extremely difficult to identify the properly material materiality (source code? computer chips? semiconductor manufacturing plants?). This is the first of the reasons why a recursive public is to be distinguished from the classic formulae of the public sphere, that is, that it requires a kind of imagination that includes the writing and publishing and speaking and arguing we are familiar with, as well as the making of new kinds of software infrastructures for the circulation, archiving, movement, and modifiability of our enunciations.

The concept of a social imaginary also avoids the conundrums created by the concept of “ideology” and its distinction from material practice. Ideology in its technical usage has been slowly and surely overwhelmed by its pejorative meaning: “The ideological is never one's own position; it is always the

Kelty: Recursive Publics. 2008.

stance of someone else, always *their* ideology.”^{ix} If one were to attempt an explanation of any particular ideology in nonpejorative terms, there is seemingly nothing that might rescue the explanation from itself becoming ideological.

The problem is an old one. Clifford Geertz noted it in “Ideology as a Cultural System,” as did Karl Mannheim before him in *Ideology and Utopia*: it is the difficulty of employing a non-evaluative concept of ideology.^x Of all the versions of struggle over the concept of a scientific or objective sociology, it is the claim of exploring ideology objectively that most rankles. As Geertz put it, “Men do not care to have beliefs to which they attach great moral significance examined dispassionately, no matter for how pure a purpose; and if they are themselves highly ideologized, they may find it simply impossible to believe that a disinterested approach to critical matters of social and political conviction can be other than a scholastic sham.”^{xi}

Mannheim offered one response: a version of epistemological relativism in which the analysis of ideology included the ideological position of the analyst. Geertz offered another: a science of “symbolic action” based in Kenneth Burke’s work and drawing on a host of philosophers and literary critics.^{xii} Neither the concept of ideology, nor the methods of cultural anthropology have been the same since. “Ideology” has become one of the most widely deployed (some might say, most diffuse) tools of critique, where critique is understood as the analysis of cultural patterns given in language and symbolic structures, for the purposes of bringing to light systems of hegemony, domination, authority, resistance, and/or misrecognition. However, the practices of critique are just as (if not more) likely to be turned on critical scholars themselves, to show how the processes of analysis, hidden assumptions, latent functions of the university, or other unrecognized features the material, non-ideological real world cause the analyst to fall into an ideological trap.

The concept of ideology takes a turn towards “social imaginary” in Paul Ricoeur’s *Lectures on Ideology and Utopia*, where he proposes ideological and utopian thought as two components of “social and cultural imagination.” Ricoeur’s overview divides approaches to the concept of ideology into three basic types—the distorting, the integrating, and the legitimating—according to how actors deal with reality through (symbolic) imagination. Does the imagination distort reality, integrate it, or legitimate it vis-à-vis the state? Ricoeur defends the second, Geertzian flavor: ideologies integrate the symbolic structure of the world into a meaningful whole, and “only because the structure of social life is already

Kelty: Recursive Publics. 2008.

symbolic can it be distorted.”^{xiii}

For Ricoeur, the very substance of life begins in the interpretation of reality, and therefore ideologies (as well as utopias—and perhaps conspiracies) could well be treated as systems that integrate those interpretations into the meaningful wholes of political life. Ricoeur’s analysis of the integration of reality through social imagination, however, does not explicitly address how imagination functions: what exactly is the nature of this symbolic action or interpretation, or imagination? Can one know it from the outside, and does it resist the distinction between ideology and material practice? Both Ricoeur and Geertz harbor hope that ideology can be made scientific, that the integration of reality through symbolic action requires only the development of concepts adequate to the job.

Re-enter Charles Taylor. In *Modern Social Imaginaries* the concept of social imaginary is distinctive in that it attempts to capture the specific integrative imaginations of modern moral and social order.

Taylor stresses that they are *imaginings*—not necessarily theories—of modern moral and social order: “By social imaginary, I mean something much broader and deeper than the intellectual schemes people may entertain when they think about social reality in a disengaged mode. I am thinking rather, of the ways in which people imagine their social existence, how they fit together with others, how things go on between them and their fellows, the expectations that are normally met, and the deeper normative notions and images that underlie these expectations.”^{xiv} Social imaginaries develop historically and result in both new institutions and new subjectivities; the concepts of public, market, and civil society (among others) are located in the imaginative faculties of actors who recognize the shared, common existence of these ideas, even if they differ on the details, and the practices of those actors reflect a commitment to working out these shared concepts.

Social imaginaries are an extension of “background” in the philosophical sense: “a wider grasp of our whole predicament.”^{xv} The example Taylor uses is that of marching in a demonstration: the action is in our imaginative repertory and has a meaning that cannot be reduced to the local context: “We know how to assemble, pick up banners and march. . . . [W]e understand the ritual. . . . [T]he immediate sense of what we are doing, getting the message to our government and our fellow citizens that the cuts must stop, say, makes sense in a wider context, in which we see ourselves standing in a continuing relation with others, in which it is appropriate to address them in this manner . . .” but we also stand “internationally” and “in history” against a background of stories, images, legends, symbols, and theories. “The background that makes sense of any given act is wide and deep. It doesn’t include

Kelty: Recursive Publics. 2008.

everything in our world, but the relevant sense-giving features can't be circumscribed. . . . [It] draws on our whole world, that is, our sense of our whole predicament in time and space, among others and in history.^{xvi}

The social imaginary is not simply the norms that structure our actions; it is also a sense of what makes norms achievable or “realizable,” as Taylor says. This is the idea of a “moral order,” one that we expect to exist, and if it doesn't, one that provides a plan for achieving it. For Taylor, there is such a thing as a “modern idea of order,” which includes, among other things, ideas of what it means to be an individual, ideas of how individual passions and desires are related to collective association, and, most important, ideas about living in time together (he stresses a radically secular conception of timesecular in a sense that means more than simply “outside religion”). He by no means insists that this is the only such definition of modernity (the door is wide open to understanding alternative modernities), but that the modern idea of moral order is one that dominates and structures a very wide array of institutions and individuals around the world.

The “modern idea of moral order” is a good place to return to the question of geeks and their recursive publics. Are the ideas of order shared by geeks different from those Taylor outlines? Do geeks possess a distinctive social imaginary or do they (despite their planetary dispersal) participate in this common modern idea of moral order? Do the stories and narratives, the tools and technologies, the theories and imaginations they follow and build on have something distinctive about them?

The affinity of geeks for each other is processed through and by ideas of order that are both moral *and* technical—ideas of order that do indeed mix up “operating systems and social systems.” These systems include the technical means (the infrastructure) through which geeks meet, assemble, collaborate, and plan, as well as how they talk and think about those activities. The infrastructure—the Internet—allows for a remarkably wide and diverse array of people to encounter and engage with each other. That is to say, the idea of order shared by geeks is shared because they are geeks, because they “get it,” because the Internet's structure and software have taken a particular form through which geeks come to understand the moral order that gives the fabric of their political lives warp and weft.

Internet Silk Road

In March of 2000, I moved to Bangalore, India, where I met Udhay Shankar. Udhay “collects

Kelty: Recursive Publics. 2008.

interesting people,” and it was primarily through his zest for collecting that I met all the people I did. I met cosmopolitan activists and elite lawyers and venture capitalists and engineers and cousins and brothers and sisters of engineers. I met advertising executives and airline flight attendants and consultants in Bombay. I met journalists and gastroenterologists, computer-science professors and musicians, and one mother of a robot scientist in Bangalore. Among them were Muslims, Hindus, Jains, Jews, Parsis, and Christians, but most of them considered themselves more secular and scientific than religious. Many were self-educated, or like their U.S. counterparts, had dropped out of university at some point, but continued to teach themselves about computers and networks. Some were graduates or employees of the Indian Institute of Science in Bangalore, an institution that was among the most important for Indian geeks (as Stanford University is to Silicon Valley, many would say).

While I was in Bangalore, I was invited to join a mailing list run by Udhay called Silk-list, an irregular, unmoderated list devoted to “intelligent conversation.” The list has no particular focus: long, meandering conversations about Indian politics, religion, economics, and history erupt regularly; topics range from food to science fiction to movie reviews to discussions on Kashmir, Harry Potter, the singularity, or nanotechnology. Udhay started Silk-list in 1997 with Bharath Chari and Ram Sundaram, and the recipients have included hundreds of people around the world, some very well-known ones, programmers, lawyers, a Bombay advertising executive, science-fiction authors, entrepreneurs, one member of a healthcare start-up, at least two transhumanists, one (diagnosed) schizophrenic, and myself. Active participants usually numbered about ten to fifteen, while many more lurked in the background.

Silk-list is public in many senses of the word. Practically speaking, one need not be invited to join, and the material that passes through the list is publicly archived and can be found easily on the Internet. Udhay does his best to encourage everyone to speak and to participate, and to discourage forms of discourse that he thinks might silence participants into lurking. Silk-list is not a government, corporate, or nongovernmental list, but is constituted only through the activity of geeks finding each other and speaking to each other on this list (which can happen in all manner of ways: through work, through school, through conferences, through fame, through random association, etc.). Recall Charles Taylor’s distinction between a topical and a metatopical space. Silk-list is not a conventionally topical space: at no point do all of its members meet face-to-face (though there are regular meet-ups in cities around the world), and they are not all online at the same time (though the volume and tempo of messages often

Kelty: Recursive Publics. 2008.

reflect who is online “speaking” to each other at any given moment). It is a topical space, however, if one considers it from the perspective of the machine: the list of names on the mailing list are all assembled together in a database, or in a file, on the server that manages the mailing list. It is a stretch to call this an “assembly,” however, because it assembles only the avatars of the mailing-list readers, many of whom probably ignore or delete most of the messages.

Silk-list is certainly, on the other hand, a “metatopical” public. It “knits together” a variety of topical spaces: my discussion with friends in Houston, and other members discussions with people around the world, as well as the sources of multiple discussions like newspaper and magazine articles, films, events, and so on that are reported and discussed online. But Silk-list is not “The” public—it is far from being the only forum in which the public sphere is knitted together. Many, many such lists exist.

In *Publics and Counterpublics* Michael Warner offers a further distinction. “The” public is a social imaginary, one operative in the terms laid out by Taylor: as a kind of vision of order evidenced through stories, images, narratives, and so on that constitute the imagination of what it means to be part of the public, and plans necessary to create that public, if necessary. Warner distinguishes, however, between a concrete, embodied audience, like that at a play, a demonstration, or a riot (a topical public in Taylor’s terms), and an audience brought into being by discourse and its circulation, an audience that is not metatopical so much as it is a public that is concrete in a different way; it is concrete not in the face-to-face temporality of the speech act, but in the sense of calling a public into being through an address that has a different temporality. It is a public that is concrete in a media-specific manner: it depends on the structures of creation, circulation, use, performance, and reuse of particular kinds of discourse, particular objects or instances of discourse.

Warner’s distinction has a number of implications. The first, as Warner is careful to note, is that the existence of particular media is not sufficient for a public to come into existence. Just because a book is printed does not mean that a public exists; it requires also that the public take corresponding action, that is, that they read it. To be part of a particular public is to choose to pay attention to those who choose to address those who choose to pay attention . . . and so on. Or as Warner puts it, “The circularity is essential to the phenomenon. A public might be real and efficacious, but its reality lies in just this reflexivity by which an addressable object is conjured into being in order to enable the very discourse that gives it existence.”^{xvii}

This “autotelic” feature of a public is crucial if one is to understand the *function* of a public as standing

Kelty: Recursive Publics. 2008.

outside of power. It simply cannot be organized by the state, by a corporation, or by any other social totality if it is to have the legitimacy of an independently functioning public. As Warner puts it, “A public organizes itself independently of state institutions, law, formal frameworks of citizenship, or preexisting institutions such as the church. If it were not possible to think of the public as organized independently of the state or other frameworks, the public could not be sovereign with respect to the state. . . . Speaking, writing, and thinking involve us—actively and immediately—in a public, and thus in the being of the sovereign.”^{xviii}

Warner’s description makes no claim that any public or even The Public actually takes this form in the present: it is a description of a social imaginary or a “faith” that allows individuals to make sense of their actions according to a modern idea of social order. As Warner (and Habermas before him) suggests, the existence of such autonomous publics—and certainly the idea of “public opinion”—does not always conform to this idea of order. Often such publics turn out to have been controlled all along by states, corporations, capitalism, and other forms of social totality that determine the nature of discourse in insidious ways. A public whose participants have no faith that it is autotelic and autonomous is little more than a charade meant to assuage opposition to authority, to transform political power and equality into the negotiation between unequal parties.

Is Silk-list a public? More important, is it a sovereign one? Warner’s distinction between different media-specific forms of assembly is crucial to answering this question. If one wants to know whether a mailing list on the Internet is more or less likely to be a sovereign public than a book-reading public or the nightly-news-hearing one, then one needs to approach it from the specificity of the form of discourse. This specificity not only includes whether the form is text or video and audio, or whether the text is ASCII or Unicode, or the video PAL or NTSC, but it also includes the means of creation, circulation, and reuse of that discourse as well.

For example, consider the differences between a book published in a conventional fashion, by a conventional, corporate press, distributed to bookstores or via Amazon.com, and a book published by an Internet start-up which makes an electronic copy freely available with a copyleft license, yet charges (a lower price) for a print-on-demand hardcopy. Both books might easily enter the metatopical space of The Public: discussed in homes, schools, on mailing lists, glowingly reviewed or pilloried, perhaps having effects on corporate behavior, state, or public policy. The former, however, is highly constrained in terms of who will author such a book, how it will be distributed, marketed, edited, and revised, and

Kelty: Recursive Publics. 2008.

so on. Copyright law will restrict what readers can do with it, including how they might read it or subsequently circulate it or make derivative use of it. However, a traditionally published book is also enriched by its association with a reputable corporation: it is treated more or less immediately as authoritative, perhaps as meeting some standard of accuracy, precision, or even truth, and its quality is measured primarily by sales.

The on-demand, Internet-mediated book, by contrast, will have a much different temporality of circulation: it might languish in obscurity due to lack of marketing or reputable authority, or it might get mentioned somewhere like the *New York Times* and suddenly become a sensation. For such a book, copyright law (in the form of a copyleft license) might allow a much wider range of uses and reuses, but it will restrict certain forms of commercialization of the text. The two publics might therefore end up looking quite different, overlapping, to be sure, but varying in terms of their control and the terms of admittance. What is at stake is the power of one or the other such public to appear as an independent and sovereign entity—free from suspect constraints and control—whose function is to argue with other constituted forms of power.

The conventionally published book may well satisfy all the criteria of being a public, at least in the colloquial sense of making a set of ideas and a discourse widely available and expecting to influence, or receive a response from, constituted forms of sovereign power. However, it is only the latter "on demand" scheme for publishing that satisfies the criteria of being a *recursive* public. The differences in this example offer a crude indication of why the Internet is so crucially important to geeks, so important that it draws them together, in its defense, as an infrastructure that enables the creation of publics that are thought to be autonomous, independent, and autotelic. Geeks share an idea of moral and technical order when it comes to the Internet; not only this, but they share a commitment to maintaining that order because it is what allows them to associate as a recursive public in the first place. They discover, or rediscover, through their association, the power and possibility of occupying the position of independent public—one not controlled by states, corporations, or other organizations, but open (they claim) through and through—and develop a desire to defend it from encroachment, destruction, or refeudalization (to use Habermas's term for the fragmentation of the public sphere). The recursive public is thus not only the book and the discourse around the book. It is not even "content" expanded to include all kinds of media. It is also the technical structure of the Internet as well: its software, its protocols and standards, its applications and software, its legal status and the

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licenses and regulations that govern it. This captures both of the reasons why recursive publics are distinctive: (1) they include not only the discourses of a public, but the ability to make, maintain, and manipulate the infrastructures of those discourses as well; and (2) they are “layered” and include both discourses and infrastructures, to a specific technical extent (i.e., not all the way down). The meaning of which layers are important develops more or less immediately from direct engagement with the medium.

These two aspects of the recursive public also relate to a concern about the fragmentation or refeudalization of the public sphere: *there is only one Internet*. Its singularity is not technically determined or by any means necessary, but it is what makes the Internet so valuable to geeks. It is a contest, the goal of which is to maintain the Internet as an infrastructure for autonomous and autotelic publics to emerge as part of The Public, understood as part of an imaginary of moral and technical order: operating systems and social systems.

Conclusion: Recursive Public

I started this chapter by asking what draws geeks together: what constitutes the chain that binds geeks in the American IT industry to hipsters in Berlin and to entrepreneurs and programmers in Bangalore? What constitutes their affinity if it is not any of the conventional candidates like culture, nation, corporation, or language? A colloquial answer might be that it is simply the Internet that brings them together: cyberspace, virtual communities, online culture. But this doesn't answer the question of why? Because they can? Because Community Is Good? If mere association is the goal, why not AOL or a vast private network provided by Microsoft?

My answer, by contrast, is that geeks' affinity with one another is structured by shared moral and technical understandings of order. They are a public, an independent public that has the ability to build, maintain, and modify itself, that is not restricted to the activities of speaking, writing, arguing, or protesting. Recursive publics form through their experience with the Internet precisely because the Internet is the kind of thing they can inhabit and transform. Two things make recursive publics distinctive: the ability to include the practice of creating this infrastructure as part of the activity of being public or contesting control; and the ability to “recurse” through the layers of that infrastructure, maintaining its publicness at each level without making it into an unchanging, static, unmodifiable thing.

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The affinity constituted by a recursive public, through the medium of the Internet, creates geeks who understand clearly what association through the Internet means. This affinity structures their imagination of what the Internet is and enables: creation, distribution, modification of knowledge, music, science, software. The infrastructure—*this-infrastructure-here*, the Internet—must be understood as part of this imaginary (in addition to being a pulsating tangle of computers, wires, waves, and electrons).

The Internet is not the only medium for such association. A corporation, for example, is also based on a shared imaginary of the economy, of how markets, exchanges, and business cycles are supposed to work; it is the creation of a concrete set of relations and practices, one that is generally inflexible—even in this age of so-called flexible capitalism—because it requires a commitment of time, humans, and capital. Even in fast capitalism one needs to rent office space, buy toilet paper, install payroll software, and so on.

Software and networks can be equally concrete—connecting people, capital, and other resources over time and thus creating an infrastructure—but they are arguably more flexible, more changeable, and more reprogrammable—than a corporation, a sewage system, or a stock exchange. The Internet, in particular, represents a radicalization of this flexibility: not only can one create an application, such as Napster, that takes clever advantage of the layers (protocols, routers, and routes) of the Internet, but one can actually rewrite the layers themselves, rendering possible a new class of Napsters. The difficulty of doing so increases with ever deeper layers, but the possibility is not (yet) arbitrarily restricted by any organization, person, law, or government. Affinity—membership in a recursive public—depends on adopting the moral and technical imaginations of this kind of order.

Most geeks are urgently concerned with the Internet and its continual maintenance as the technical and moral infrastructure of this kind of public order. The urgency (which stretches from debates about Napster, to those about intellectual property to those about “net neutrality”) is linked to a moral idea of order in which there is a shared imaginary of The Public, and not only a vast multiplicity of competing publics. It is an urgency linked directly to the fact that the Internet provides geeks with a platform, an environment, an infrastructure through which they not only associate, but create, and do so in a manner that is widely felt to be autonomous, autotelic, and independent of at least the most conventional forms of power: states and corporations—-independent enough, in fact, that both states and corporations can make widespread use of this infrastructure (can become geeks themselves)

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without necessarily endangering its independence.

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- ⁱ Extracted and abridged from the book *Two Bits: The Cultural Significance of Free Software*, Durham, Duke University Press, 2008, with the kind permission of Duke University Press.
- ⁱⁱ For the canonical story, see Steven Levy, *Hackers*. *Hack* referred to (and still does) a clever use of technology, usually unintended by the maker, to achieve some task in an elegant manner. The term has been successfully redefined by the mass media to refer to computer users who break into and commit criminal acts on corporate or government or personal computers connected to a network. Many self-identified hackers insist that the criminal element be referred to as *crackers* (see, in particular, the entries on “Hackers,” “Geeks” and “Crackers” in tThe Jargon File, <http://www.catb.org/~esr/jargon/>, also published as Raymond, *The New Hackers’ Dictionary*). On the subject of definitions and the cultural and ethical characteristics of hackers, see Coleman, *The Social Construction of Freedom*, chap. 2.
- ⁱⁱⁱ See The Geek Code, <http://www.geekcode.com/>.
- ^{iv} Geeks are also identified often by the playfulness and agility with which they manipulate these labels and characterizations. See Michael M. J. Fischer, “Worlding Cyberspace” for an example.
- ^v Taylor, *Modern Social Imaginaries*, 86.
- ^{vi} On the subject of imagined communities and the role of information technologies in imagined networks, see Green, Harvey, and Knox, “Scales of Place and Networks.”
- ^{vii} Taylor, *Modern Social Imaginaries*, 32.
- ^{viii} *Ibid.*, 33–48
- ^{ix} Ricoeur, *Lectures on Ideology and Utopia*, p. 2.
- ^x Geertz, “Ideology as a Cultural System”; Mannheim, *Ideology and Utopia*.
- ^{xi} Geertz, “Ideology as a Cultural System,” 195.
- ^{xii} *Ibid.*, 208–213.
- ^{xiii} Ricoeur, *Lectures on Ideology and Utopia*, 10.
- ^{xiv} Taylor, *Modern Social Imaginaries*, 23.
- ^{xv} *Ibid.*, 25.
- ^{xvi} *Ibid.* p. 26-28.
- ^{xvii} Warner, “Publics and Counterpublics,” 51.
- ^{xviii} *Ibid.*, 51–52. See also Warner, *Publics and Counterpublics*, 69.