

A Community-Based Model for the Production of Ideas

by

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THESIS SUBMITTED IN PARTIAL FULFILLMENT OF
THE REQUIREMENTS FOR THE DEGREE OF

MASTER OF ARTS

In the
School
of
Communication

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SIMON FRASER UNIVERSITY

Spring 2008

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Abstract

This thesis presents a community-based model for the creation of intellectual and creative works. Such works play an important role in our society and economy. They are often understood as products of exclusive ownership (granted through mechanisms such as copyright). I show that a community-based model has proven to be at least as effective in a number of areas, and explain how it resolves a number of economic inconsistencies and problems inherent in the proprietary model. Moreover, I argue that the creative community is not only a method of production: it is also a way of living that can strengthen communities and assist in the self-development of individuals.

Keywords: copyright; intellectual commons; community; open source; gift economy; creativity

Subject Terms: Intellectual Property; Information Society; Romanticism; Open source software; Social Groups

Acknowledgements

I wish to thank Dr. Richard Smith, Shane Gunster, and Andrew Feenberg for their support and guidance which made this research possible. I am also indebted to my wife, Cindy Xin, who encouraged me from the beginning and put up with me to the end.

Thank you.

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Introduction

This thesis explores a community-based model for the creation of intellectual and creative works. These works play an important role in our society and economy. But although these are often understood as products of exclusive ownership (granted through mechanisms such as copyright), I will shortly illustrate how the community-based model has proven to be at least as effective in a number of areas, namely science, open source software, and Wikipedia. The model resolves a number of economic inconsistencies and problems inherent in the proprietary model. Moreover, the creative community is not only a method of production: it is also a way of living that can strengthen communities and assist in the self-development of individuals. Its benefits extend beyond a simple economic question of the efficient creation of works.

The tension between the proprietary and creative community models is part of a larger conflict between markets and organizations (chiefly corporations) on one side, and community on the other. This is not a new conflict. Innis (1991) writes of media of space and media of time. Tönnies (2001) contrasts society and community. Feenberg & Bakardjieva (2004) contrast what they call the consumption and community models of the Internet. I am specifically concerned with the production of intellectual works, not of commodities or markets in general (the market provides the main incentives for the ownership of works, but not the only one – and works can be owned even without a market). The communities I am interested in engage in intellectual activity or production. Some of the tensions between the two models can be depicted as follows:

Exclusive Ownership	Creative Community
alienation	self-development
exclusive ownership	shared possession
authority	recognition and reputation
control	participation

Though I treat these models as disjoint, in reality there is overlap. Ownership cannot be absolute, for it depends on creative community in order to function: there is a multiplicity of ownership regimes. Creative community, in contrast, could exist without ownership – but in a society such as ours, with intellectual property, creative community must often find an accommodation with the law and the logic of capital. Creative community can also thrive in spite of ownership – for example if ownership is not enforced and social norms do not support it. This is the case with much activity online, which may technically or flagrantly violate copyright.

My aim is to describe the creative community and proprietary models. The proprietary model aims to address economic difficulties, but its solution is flawed. Its flaws impair economic efficiency, they change the meanings of works, and they limit the social benefit of works that are owned. I suggest that the merits of intellectual and creative works must be judged on social grounds – specifically the development of community and of individuals. The threads of alienation and authorship recur throughout. Intellectual works never stand alone: they reference and build upon each other, they derive meaning from their context, from interpretation, and from their authors. Ownership can alienate works from all of these things. Authorship is essential to the meanings of works and to the relationships they form within communities. The concept of the author justifies and defines copyright. Tracing the development of authorship reveals how it can play an important role in creative communities.

A note on terminology: By idea, I mean an abstraction with meaning. There are no atomic individual ideas: ideas are made of other ideas. Works are coherent collections of ideas that can be communicated from one human being to another. I use the two terms interchangeably, unless the context makes clear otherwise. Works are the product of intellectual activity, which I will also refer to as creativity. It is useful to distinguish between the activity and the works produced, for not all such activity results in works that are retained or seen to be useful, even though the activity itself may be significant. In our era of perfect digital duplication, the majority of creative and intellectual products are entirely abstract and subject to perfect duplication. However some works, such as paintings and sculptures or original manuscripts, are unique physical objects – but even for these works there is always an abstract ideational component which can be copied or

reused in derived works. When I refer to ideas or intellectual works, I mean abstract works (such as Einstein's theory of relativity) or the abstract component of physical works (such as the image of the Mona Lisa, as distinct from the unique physical painting). Note that a work does not need to be recorded in a tangible medium: it could be expressed orally or through kinds of performance. Also, as I will argue, a work is inseparable from its context so it is not as fixed as it might appear; what matters is that it is recognized as a coherent entity or phenomenon.

Science

Science is conducted by a community. For that community to function effectively, it cannot itself be based entirely on reason: it must depend on social norms. Habermas makes this argument when he shows that empirical rationality cannot be self-contained: the generalization of hypotheses from specific empirical data requires a judgement by scientists about what constitutes evidence (Honneth, 1991, pp. 212-213). This judgement presupposes a communicative understanding within the scientific community. Because that understanding cannot itself be scientifically based, scientific rationality presupposes a kind of communicative rationality, whose goal is the achievement of consensus by communicating participants.

Kuhn (1970) provides a detailed explanation of how this works. Most science is what he calls "normal science." It consists of expanding, developing on, and testing existing theories. It cannot proceed without a paradigm or "disciplinary matrix." Scientists within a discipline share a paradigm, and use it as a basis for deciding what questions are important, what is unresolved, what counts as evidence, and so on. A paradigm is not comprehensive: there is nearly always evidence that does not fit. In response to the accumulation of contradictory evidence, a minority of scientists may propose a competing paradigm. This is most often done by people from outside the discipline, or who are new to it and have not fully assimilated the existing paradigm. At some point the new paradigm becomes compelling enough to attract scientists to it – not necessarily because it offers more satisfactory answers to questions, but because it provides a basis for further investigation. When the new paradigm becomes dominant,

there is a “paradigm shift”: the old paradigm is discarded as mistaken, and scientists commit themselves to the new paradigm. That commitment is largely social in nature, but it is necessary to the progress of science, for without it the work of normal science cannot go on.

The adherence to a paradigm and the consequent agreement about what are the important questions for a discipline requires the consensus of a community. And it cannot, as Habermas explains, be fully scientific. Kuhn’s (1970) analysis shows that community is essential to science. “Scientific knowledge, like language,” he writes (p. 210), “is intrinsically the common property of a group or else nothing at all.” Knowledge is shared among scientists – and with the outside world. But, as in any community, there is an essential divide between the two. The work of scientists is meaningless in isolation: they must share values about what is important. These values are internal to the community:

One of the strongest, if still unwritten, rules of scientific life is the prohibition of appeals to heads of state or to the populace at large in matters scientific. . . . The group's members, as individuals and by virtue of their shared training and experience, must be seen as the sole possessors of the rules of the game or of some equivalent basis for unequivocal judgments. (Kuhn, 1970, p. 168)

The community has a boundary – but not an impermeable one, as the need for paradigm shifts initiated by those on the fringes shows. The community has a history, for new work builds on the old. And the community is focused around a certain intellectual activity, and a certain collection of works – theories and evidence – that bind it together. Kuhn (1970, p. 94) goes so far as to describe paradigms as “modes of community life.” Scientists, furthermore, are not alienated from their work – they are so closely tied and committed to paradigms that they are often unable to let go of them. Ultimately, Kuhn illustrates, many paradigm shifts are not completed until there has been a generational change among scientists in a field.

Open Source Software

Software plays a special role in the modern economy. It has become an essential part of the economic and social infrastructure. Our communications media depend on it,

as do our transportation networks and our systems of production. Eben Moglen (2006), legal scholar and former legal counsel for the Free Software Foundation, states that whereas the “primary underlying commodity” of the twentieth century was steel, its equivalent in the twenty-first century is software:

The twenty-first century economy is undergirded by software. . . . We are moving to a world in which . . . the most important activities that produce occur not in factories, and not by individual initiative, but in communities held together by software. It is the infra-structural importance of software which is first important in the move to the post-industrial economy. . . . software provides alternate modes of infrastructure and transportation.

Moglen (2006) argues that proprietary software is a dead-end. “The good news”, he says of the infrastructural importance of software, “is that nobody owns it”. Instead, he argues, the open source approach to developing software is so much more economically efficient than proprietary production that the former will displace the latter. There is some room for interpretation in this passage. Moglen doesn’t define communities or which are the “most important activities” that take place in them. However, he clearly believes software is important, and open source software is a powerful example of his claim. In many ways software differs from other kinds of intellectual works, but the story of open source is not primarily a story of software – it is as Moglen suggests, a story of community. Later I will explain how in this it has much in common with other creative and intellectual efforts.

Today, open source appears as an upstart challenger to the existing order: a recent alternative to the world of proprietary software sold in shrink-wrap boxes. In fact, proprietary software was largely the invention of Bill Gates (1976), who in a famous letter exorciated members of the Homebrew Computer Club for copying his software without compensating him. This was before software was covered by U.S. copyright law. The idea of software as a product for sale in the mass market was novel. For decades, computer scientists, researchers, and professional programmers had shared software freely with each other. Companies made money from computers – “big iron” the old mainframes are still called – not from the instructions that ran on them. Support information, from technical specifications to software, could increase the value of the computers to their customers. (This openness was echoed by personal computer

instruction manuals in the early and mid-1980s. In addition to basic operating instructions, like how to connect a monitor or disk drive, these often included technical schematics and pin assignments for developing new hardware to connect with the machine. Users were expected to tinker with and program their computers, which almost invariably came with the BASIC programming language as a standard feature.)

The realization by businesses that software could be a distinct industry or provide market advantage led to attempts to control it through copyright or secrecy. Much sophisticated software then, and nearly all of it now, is created in high-level programming languages – languages designed for human programmers to read and write, which are then translated into instructions the computer can carry out. But while programmers work with source code in high-level languages, the computer itself requires only machine code, which is not readily interpretable by humans. Commercial software developers not only copyrighted their software, they also kept the original source code secret and distributed only machine code. The result was that suddenly programmers, long accustomed to enhancing software and adapting it to their purposes, found themselves locked out of the now “closed” source code.

During this period of change, Richard Stallman was a member of the Artificial Intelligence Lab at MIT. He was “part of a software-sharing community that had existed for many years” (Stallman 2002, p. 15). That culture of sharing and incremental innovation was threatened with the growth of commercial software, and its adoption by Stallman’s lab. It forbade people from helping their neighbors by sharing and modifying code. Stallman felt that this “system based on dividing the public and keeping users helpless” was “antisocial”, “unethical” and “simply wrong” (p. 16). Here are Stallman’s four freedoms, excerpted from the Free Software Definition (2007):

- The freedom to run the program, for any purpose (freedom 0).
- The freedom to study how the program works, and adapt it to your needs (freedom 1). Access to the source code is a precondition for this.
- The freedom to redistribute copies so you can help your neighbor (freedom 2).
- The freedom to improve the program, and release your improvements to the public, so that the whole community benefits (freedom 3). Access to the source code is a precondition for this.

Stallman developed the concept of *copyleft*, a specific kind of copyright license designed to do the opposite of what copyright usually does. Where copyright reserves to the copyright holder the right to copy an intellectual work, copyleft protects the four freedoms – not only for the copyright holder, but for wider community and the public at large.

Stallman chose the language of freedom and community deliberately; for him, free software was an ethical imperative. Others, however, took a more pragmatic view. For them, collaborating with other programmers using shared source code was simply an effective way to develop software, and Stallman's talk of freedom and ethics was antagonistic to businesses and others who might be willing to share source code, but were not interested in a moral crusade. Thus an alternative definition was created – the Open Source Definition (OSD) (2006). Unlike Stallman's free software, whose freedoms are defined in terms of moral ends, open source is defined only in terms of what must be present in the software license. For example:

- The software must be free to redistribute
- Source code must be available
- Derived works must be permitted
- The license may not discriminate against persons, groups, or fields of endeavor
- The license may not restrict other software
- The license must be technology and product neutral

The split between these two visions of free and open source software is not as clear-cut as it may at first appear. Open source software is also acknowledged to exist in the context of community, as revealed in the rationale for one of the terms: “We want commercial users to join our community, not feel excluded from it.”

Open source has been tremendously successful. Today, the ties between business and the open source community are strong. Multinationals such as Sun Microsystems, IBM, and Apple have placed open source at the core of their businesses. Apple, for example, chose to use an open source application – KHTML – as the basis for their Safari web browser. The KHTML license obliged Apple to share any improvements and changes they made to the code. This they did – but other KHTML developers complained that while Apple obeyed the letter of the license, they did not respect its spirit. Apple had

released the source code, but in such a way that it was very difficult to find out what they had changed and make use of it in other projects. Under pressure from the community, Apple responded, setting up a web site to support the code and provide documentation explaining what they had done (Festa, 2005). Apple had decided that good relations with the open source community were worth the investment of time and money.

This sense of an open source community extends to developers within companies like Apple. Tim Bray, cofounder of Open Text corporation, is famous within the software community for his work on the ubiquitous XML data standard. Now employed by Sun Microsystems, on his blog he describes geeks as his “tribe”: “a complicated Pacific-rim multi-ethnic obsessive-geeky thing . . . I love it uncomplicatedly” (Bray, 2007). Software developers comprise a strong community of practice spanning businesses, with roots reaching back to the 1960s counterculture (Castells 2000a).

Within the community, certain values are widely shared. Software patents, for example, are commonly viewed as threats to the community (and particularly to open source and open standards) that are harmful to innovation. Mark Pilgrim, an open source developer who used to work for IBM, describes his regret for signing a software patent application (Pilgrim, 2007). Within the open source community, the exclusive ownership granted by software patents is decried, even by many with no ideological opposition to proprietary software or copyright. Mark quotes Stefan Tilkov: “If your name is on a software patent, you should feel ashamed.” And he admits that he himself submitted a patent while working for IBM. “The patent was original, it was innovative, and it was still shameful.” On his blog, he explains that he tried to delay filing the patent, but in the end he could not avoid it. When he received a bonus for the patent, he “saw the money and cried.” He writes, “It’s an institutionalized form of madness, outrageous, all-consuming, and incurable. I’m ashamed to have been a part of it.” As a software developer who has worked for large organizations, I share Pilgrim’s values, I understand his feelings, and I sympathize.

Dave Shields, a long time employee of IBM, has worked on their open source initiatives. In a blog post he describes the business proposition of open source, and cautions that companies considering it should weigh the risks and benefits (Shields, 2007). Then he puts purely business considerations aside, and speaks as a member of the

open source community. He describes open source as a meritocratic way to write software. It is, he says, “the scientific model applied to programming,” with sharing, collaboration and peer review. Shields’s words reveal the values of community: “sharing,” “collaboration,” “peer review,” “recognition.” Then he asks, “For whom are we writing this code?” For ourselves he answers, but then he describes the ideals of open source: improving software, reducing duplicated effort, helping the community. As a professional, he is a pragmatist, but as a member of the open source community, he is an idealist:

we open-source developers have made a major contribution to the world at large. We have spent the last quarter-century or so constructing thousands and thousands of gifts to humanity . . . What other profession, save medicine or education, can make such a claim? . . . to me this is really why we do this open-source work, to provide a tool that can be used to make the world a better place in revolutionary ways . . . Now we can set about doing something really useful with it, marking the start of a new era: the era of the use of free and open-source software in the public interest and for the public good

My sympathies lie with the claims of these three men, and particularly with the ethical concerns of free software. In that context, I must justify my choice of the term “open source” over “free software.” Within the community, the term “free software” is useful for signalling one’s views. Outside it, however, it is probably impossible to separate the word “free” from the more common-place use to mean “zero cost.” Elsewhere, the word similarly has a narrow meaning – as in “free market,” for example, which refers to a market in which parties are technically free to contract, regardless of larger contexts or pressures which might limit their practical freedom to do so. Contention over the meaning of “free” is larger than software alone, and it is unlikely to be resolved in the realm of software. Open, however, does have ethical implications, as in open access, open society, open process, open government, etc. Moreover, the term “open source” has made significant headway. Even many software developers who use the term open source also identify with the aspirations of free software. Therefore, I believe the term “open source” is clearer and stands a better chance of expanding it to encompass the ethical concerns of free software than does the latter term of becoming

accessible to the wider society. Understand that my use of open source often encompasses the values of free software also.

Though it is risky to read too much into my own personal experience, I have some experience with developing open source software. I share the conviction that open source development is, in general, ethically superior to proprietary development. As software is the infrastructure of many activities within our society, control over software can be translated into control elsewhere. To a great degree, our ability to participate in our society depends on our freedom to access and control our tools. Furthermore, I have been fortunate enough to be paid for most of the work I have done; I have been able to realize an ideal without sacrifice. Though my experience has been positive, I don't believe this negates the relevance of my remarks – it only limits my ability to put them in context with the experiences of others, or alongside the negatives of open source development.

The critical benefit I have witnessed with open source development is a lack of alienation. Marx described how the laborer sells his labor, but is then alienated from its fruits. Thus, for example, an employee working on proprietary software may never meet her users, or understand their needs – indeed, if she is working on a smaller piece of a larger system, she may not even understand what that system does, what it is for, or who might use it. I have experienced this myself. The separation between a programmer and her work is partly a consequence of the size of the project and of division of labor, factors common to both proprietary and open source development. In addition, however, because the developer's chief connection to her labor is her wage, she is alienated from responsibility for it. The software is proprietary – its rights belong to someone else, so she is in fact required to detach herself from the work. She cannot take it with her. No matter how much pride she takes in her work, no matter how useful it might be on another project at another job, she must separate herself from it.

The situation is quite different for the open source developer, who can retain the connection with her work even as it is used and modified by others. For my part, I have felt responsible for my software when someone else uses it, even though they may not pay me. I am proud whenever someone finds my work useful. My creation of the software is not simply the expression of an idea. By making it open source, I identify

with the values of the community. I make a statement to that community, and seek a response – not necessarily as a communication, but as an imagined link to others. When other people use my software, they acknowledge that link. When they contribute to it or transform it, they build upon the relationship. The software becomes a medium of the relationship between members of the community.

There is a breakdown here of the divide between the author and the audience. They do not belong to separate groups of people. Stallman (2002) acknowledges this when he writes about proprietary software making users helpless where they had not been before. The meaning of the software to me is defined in part by the imagined nature and actions (reactions) of the audience that receives it. When an author creates, she imagines her audience and projects her work into it. When she is like her audience, she is imagining herself in a community with them. In their analysis of contributors to the open source Linux operating system, Hertel, Niedner & Herrmann (2003) found that “engagement was particularly determined by their identification as a Linux developer” (p. 1159). Membership in the community (at least partly imagined – Linux has accepted contributions from hundreds of developers from around the world who do not all know each other) was an essential motivation for contributors. As is the case for scientists, it is identification within the community that counts. This helps explain why the GNU General Public License (GPL) (1991), developed by Stallman and the most popular open source license, does not require attribution. The reputation of developers matters within the community of open source contributors; it is much less meaningful in the wider world, and there is no need to broadcast it to the public at large – certainly not if that would inhibit the spread of the software (which it probably would, given the complexity of trying to ensure that credit has been given for every line of code contributed or changed). For those within the community, evidence is available in the records of the community – source control systems, mailing list archives, online forums, and lists of credits maintained and enforced by the norms of the community¹.

¹ Open source communities vary – some are more open, others are closed. Weber (2004) notes that GPL-style licenses tend to attract contributions from a larger, more diverse group of developers, while non-copyleft licenses, such as the BSD (Berkeley Software Distribution license) – which requires only attribution – are often developed by smaller closed groups.

That community is not only of developers: it includes users too. Some of them contribute bug reports and suggestions – but that is not all. When I release software as open source, I hope that others will reciprocate or contribute to my effort. But between me and that other developer are users who may pass on knowledge of the software and increase its popularity. Users mediate between developers.

At one level, there are many points of difference between software and other kinds of intellectual works. The distinction between source and machine code, for instance, is not shared by most other creative forms (or is less important). Assessing the value or success of software is relatively more objective: it runs or it crashes, it performs as expected or it does not. This makes it much easier for developers to find common ground and consensus about what constitutes good software. Software is also comprised of modular pieces, making it easier to break up a task into work for many different contributors. Bug reports can also be valuable, even though the effort in submitting one is small. So it is easy for people to participate. These contrast with the coherence of content and of style required for successful literature, music and art.

Given all of these differences, it is too facile to say that the open source model can simply be applied in other domains. But some of the most important elements of the success of open source are not specific to software: community, the inalienability of one's work, the weak distinction between creator and user (author and audience).

Wikipedia

Wikipedia is an edge case for my argument. From the outside, Wikipedia appears to lack authorship. In practice, however, authorship and community play important roles in how Wikipedia is produced. Initial investigation into Wikipedia articles found that the majority of changes to its content were carried out by a small number of core users (Swartz, 2006). But a computer analysis carried out by Swartz, examining changes to Wikipedia, challenges the implication that these users were an essential group responsible for the majority of the content on the site. Most changes on Wikipedia are edits, fixing grammar or spelling mistakes, restructuring content, normalizing terminology, etc. These changes are indeed carried out by a core group of users – call them “editors.” Original

content, however, is different. It seems that most of this material is created by occasional participants who may only have contributed a handful of times (Swartz, 2006). It is very unlikely that these “creators” constitute a community or communities within Wikipedia, though they may well be members of communities beyond Wikipedia. More likely, they are specialists or experts in particular areas who contribute to relevant articles.

The editors do appear to form a community, however. Over time, Wikipedia has developed a hierarchy of influence and certain informal ways of doing things. Though the technology does not enforce a governance model, one has evolved. It has caused considerable conflict. The core group of editors has been accused of being controlling, exclusionary, and cliquish (Bauens, 2008; Metz, 2007). The deletion of articles has become a common practice on Wikipedia. Wikipedia’s norms of use specify that articles should be “notable,” and that they should reference sources. Editors frequently mark articles for deletion if they did not believe these criteria are met. Articles about specific episodes of television programs, for example, articles about recent practices or fads on the Internet, and newly-written articles with little content are examples of content that has been deleted. Many users outside the core group find this behavior offensive, controlling and counterproductive. Some subject matter experts have ceased contributing to Wikipedia as a consequence; they claim that this is one way in which Wikipedia is hostile to expert knowledge (a criticism also founded on the fact that the site does not take any note of credentials or expertise – sometimes even explicitly excluding it, for example by the rule that the subjects of Wikipedia articles are not supposed to edit those articles even for errors of fact).

What this shows is that there is a community on Wikipedia. That community is formed on the basis of the participation of its members, and the reputations they have built up. The editing tasks they carry out may be relatively boring or unoriginal, but they are valuable. This group’s behavior may not always be constructive, but it does fall within my definition of a creative community. What is intriguing about it, what begs for further investigation and analysis, is that the original material comes from outside this core group, and is often contributed by anonymous users. In the case of Wikipedia, it appears that what must be rewarded (with reputation and influence) is the boring work of editing, not the original task of creating.

I said Wikipedia is a borderline example of a creative community. Not all nonproprietary intellectual production takes place within creative communities. Because community is seldom the focus of analyses of nonproprietary production, it is often discussed alongside production that does not fall into either of these categories. Thus Yochai Benkler (2006), in his analysis of nonmarket production, writes about Amazon and Google using peer-production to provide accreditation and relevance (p. 75), and David Weinberger (2007) discusses the contributions of disparate individuals to ad hoc taxonomies on sites like del.icio.us. Systems like these that aggregate independent inputs from many individuals do not depend on the existence of a community, just as most contributors to Wikipedia may not know each other or identify themselves as belonging to any common group or movement. This kind of aggregation is largely a technical accomplishment; it could even be argued that it separates people, rather than bringing them together. Borgmann (1984), for example, criticizes devices for separating people and practices. With a device, “the relatedness of the world is replaced by machinery, but the machinery is concealed, and the commodities, which are made by the device, are enjoyed without the encumbrance of or the engagement with a context” (described in Barney, 2004, p. 43). A search engine could fairly be considered a device. Google’s search listings, for example, depend upon explicit relationships between web pages. The more links to a page, the more relevant Google considers it to be. So in a sense Google is dependent upon community-type relationships. However, the aggregated results that Google produces are divorced from these relationships. It does not expose and reinforce relationships the way gift-giving does; instead it conceals them.

A similar argument could be made for contributions with more individual create content, such as Amazon book reviews or YouTube videos. In some cases, these may be produced in communities (much of the amateur material on YouTube is personal, and of interest primarily to the creator and he friends), but YouTube as a whole is not a community. It is tool for distribution. More generally, research has shown that digital media such as email and instant messaging are primarily used by people to communicate with others they already know (Benkler, 2006, pp. 363-366). These media form an additional connection within existing groups and communities. So while the films on YouTube or the reviews on Amazon may well be the product of activity in a community,

YouTube or Amazon themselves are not communities. There are numerous other examples that may or may not fall within my argument (Facebook, MySpace, and so on). Not all nonproprietary production takes places within creative communities.

The ownership of ideas

The Economics of Information

So-called intellectual property laws treat information and ideas as commodities so that they can be integrated into the market. An obvious problem with trading information in the market is that it is easily duplicated. Absent copyright law, an author who writes a story loses control over that story once she has shared it with someone else. She could sell the story as a book, but once a publisher got a hold of the text, they would be able to knock off duplicates without the author's permission. The publisher's costs for doing this would be quite low – the cost of paper, ink, typesetting, and the other physical materials involved in publishing a book. They would not have to pay anything for the time and effort involved in composing the text – nor would they have to pay the author. Under these circumstances, authors might find it uneconomic to write.

The term “intellectual property” encompasses several different kinds of laws that commodify information. The main ones are copyright, patent, trademark, and industrial design laws. I will focus on copyright, which applies to a wide range of information and ideas, from scientific research to works of art. Patent law shares many of the characteristics of copyright, but is more narrowly focused on inventions, and is not so clearly grounded in a concept of authorship. When applied to communication technologies (which today include most digital technologies), patents can be used to inhibit ideas or even underpin technical copy protection regimes with effects similar to copyright (see Lessig 2006). Trademarks emerged from a different concern: they are meant to help consumers be certain of the reputations of sellers in the market by guaranteeing that a given mark refers to a given seller. Trademarks can also, however, impinge on the communication of ideas by restricting the use of marks, often with effects similar to copyright. The copyright for much of the horror fiction of H.P. Lovecraft, for example, has expired, but trademarks on names he invented (such as “Cthulhu”) used to

represent his body of works can be trademarked, making it difficult to expand upon his stories. I will deal specifically with copyright, with the understanding that some of the same concerns arise with patents and trademarks.

Modern copyright began with the Statute of Anne in 1709, “An Act for the Encouragement of Learning, by Vesting the Copies of Printed Books in the Authors or Purchasers of such Copies, during the Times therein mentioned.” It was intended to address “the encouragement of learning” and the protection of authors and their families from “very great Detriment, and too often . . . the Ruin of them and their Families”. Because at that time the technical means of reproduction was possessed only by publishers, in intent and in practice the law applied only to them. It protected the income of authors from unauthorized reproductions of their works.

Since then, copyright has been expanded to cover a much wider variety of works, such as musical compositions and performances, photography and film, dance, and computer software. As the means of duplication has become cheaper and more widely available, the law no longer applies only to publishers. As digital technology necessarily copies information when it is accessed, copyright now applies to many everyday activities other than publishing. Showing an image on a computer monitor, for example, requires the data of which the image is made up to be copied to video memory. Viewing a web page from the Internet similarly involves copying the data to the local computer before displaying it. Taking music with you on an MP3 player means copying it from your computer or CD.

With the expansion of the law and its effects, it has become heavily contested. There is general agreement that the current state of the law is not well suited for the contemporary technical reality. Governments have responded by increasing both the scope and duration of the law. This has happened despite protests from academics in a variety of disciplines who, while they dispute the specifics of what copyright should or should not be, argue that care should be taken that copyright not inhibit creativity and innovation. Legal scholar Mark Lemley (2004), for example, describes copyright as a subsidy which, because it increases the market price of copies above the marginal cost of reproduction, guarantees market inefficiency: more or stronger copyright is not necessarily better. Lawrence Lessig (2004) argues that copyright as it stands restricts the

freedom of creators to create; he has responded in part by founding the Creative Commons organization, which provides a number of choices to creators about how to permit their works to be copied and reused. Yochai Benkler (2006) is concerned that excessive copyright threatens what he calls “commons-based peer production” as an alternative to production organized by the market or by organizational hierarchies. Anthony McCann (2005) critiques the efforts even of Lessig and the free software movement, arguing that they reify production by reinforcing the legitimacy of copyright.

Despite these concerns, the majority of the world’s governments, under pressure from vested interests such as Hollywood and the recording industry, have fought (often successfully) for longer copyright terms and broader protections. Their arguments are often underpinned by an understanding of our society as one in which information, knowledge, and cultural products are especially important, both economically and/or socially. Webster (2006) catalogs some of the arguments and evidence for this approach: increasing employment in information industries, more economic activity relating to or dependent upon information, the ability of communication technologies to span great distances, a central role played by theory in our society. These changes are said to be such that ours can be described as an information society. Jack Kapica (2007), for example, has written in *The Globe and Mail* that this may be driving stronger copyright laws. “We can no longer compete with cheap labour from other countries”, he writes. “Instead, we will start to count intellectual property as our primary domestic product”. Kapica suggests that the pursuit of stronger copyright is a rational response to globalization.

I am not concerned with the validity of information society theories *per se*, but rather with the perception that economic and social change demands that information and ideas must be integrated into the market economy. Moglen (2006) implicitly accepts this when he argues that software is “the primary underlying commodity” in the 21st century. Proponents of enhanced copyright protection similarly justify it with arguments about the necessity of property relations to realize the value of ideas and enable their exchange in the market. The description I have given of the vulnerability of authors to the power of publishers and distributors may make this seem obvious. But the claim misunderstands the economic characteristics of information. In the long run, such an approach limits the

effectiveness and growth of intellectual and creative activity. Worse, it diminishes the potential of ideas to benefit individuals and society. The increasing commodification of information creates affordances that promote certain kinds of information over others, and demands certain relations of production. It creates tensions in how information is conceived – as a precondition for the market, as a commodity alienated from the relations upon which its significance depends, as the product of particular human experience inalienable from its author. To explain why, I must survey a number of economic characteristics of information.

First, new intellectual works (ideas, culture, science, and so forth) are always constructed on the basis of existing works and ideas. Information is both the input and the output of the production process. When its flow is restricted, the ability of creators to produce new works is limited. I will explore this in more depth later; for now, suffice to say that a barrier to the duplication of ideas is also a barrier to the creation of new ideas.

Second, in order for economic actors to make decisions, they need information on which to base their decisions. Markets cannot function in the absence of information about them and the goods traded in them. Prices, for example, must be shared widely, as must the qualities of goods to be traded. Information asymmetries damage markets because they give an advantage to buyers or to sellers. George Akerlof's (1970) analysis of used car markets illustrates the problem.

Akerlof (1970) explains that the seller of a used car has more information about the quality of the car than does the buyer. If the car is a lemon, the seller may be able to hide that information. In this case, the buyer will pay too much for the car. But buyers know that sellers have an incentive to sell lemons. So the rational buyer will be willing to pay less for any given used car than it would appear to be worth. This drives down the cost of used cars, so that a seller of a used car that is not a lemon will not be able to sell the car for its full value. The result, Akerlof explains, is that used car markets will be disproportionately made up of lemons.

The problem of information asymmetries is exacerbated when information is itself a good in the market: first because information is necessary for the trade of other goods, second because it is difficult to judge the quality of information without possessing the information. This second point requires elaboration. Say I have a treasure

map for which I demand \$100. You wish to know whether the map is worth the price. You would like to see the map to judge its worth – but I can't show it to you, because once you have seen it you will have the information and there will be no reason for you to pay me the \$100. One solution to this problem is reputation – which, as I will explain later, is produced by the audience rather than the creator.

Third, information is an example of a public good: once created, the benefits of an idea are available to all. In economic terms, public goods share two characteristics (Cornes & Sandler, 1996, pp. 8-9). First, they are not depleted by use – they are not rivalrous. This differentiates them from trees, for example, which can be chopped down, or from land, of which there is a limited supply. Second, ideas are not excludable: it is very hard to prevent them from being shared.

The problem with public goods is that markets are very poor at producing or provisioning them. Markets depend on property rights and decisions by individual actors. But because they are not excludable, public goods cannot be the property of individuals. Furthermore, because they are not rivalrous there is not a limited supply – so once created, the marginal cost of provisioning them (that is, the cost of producing one additional unit) approaches zero. Because of these characteristics, public goods are best provisioned collectively.

Collective action entails its own difficulties. Mancur Olson's (1965) analysis shows that the larger the group required to provision a collective good, the less likely it is to be provisioned at all. It is only certain to be provisioned when there is an actor whose benefit from provisioning the good exceeds the cost of doing so. Otherwise, it is in each actor's interests to try to "free ride" – that is, to benefit from the good without contributing. If the cost is spread out thinly enough, individual actors will feel that their contribution is so small as to be insignificant to the outcome, and will be even less likely to do so. And no-one wants to be taken for a sucker.

In a market economy, there are conflicts between the three characteristics of information that I have described. The problem of free riding can be solved by provisioning through a central authority (such as government funding for basic research), or (as intellectual property law does) by making information excludable and rivalrous so that copies can be traded in the market. But any restriction on the free flow of

information needed for the smooth functioning of the market is undesirable. And central provisioning is untenable in a system that depends on prices as signals to co-ordinate decentralized competition. The creation of new works is also threatened, for exclusive ownership of existing works restricts access to the material need to create new ones.

Copyright law (and patent law) is therefore a compromise. In order to avoid collective action problems, it makes makes certain kinds of ideas rivalrous and excludable so that they can be traded on the market. It limits the negative impacts of these controls by exempting certain uses and ideas, and by limiting the duration of protection (which is now quite long – typically the life of the author plus 50 years or 70 years depending on the jurisdiction).

One way copyright attempts to permit creators to build on the work of others is through the legal distinction between an idea and the expression of that idea. The expression is protected; the idea is not. There are inherent problems with this attempt to disentangle meaning from representation, which I will discuss later in the context of authority. But when copyright was first created to deal with written material, the idea/expression dichotomy seemed fairly well defined: the expression was the particular combination of words used, while the idea was the meaning. Over time, the boundary between idea and expression has shifted in law; expression now encompasses more than just words – it can cover characters, situations, and so on. For cultural forms other than literature, the distinction between expression and idea can be even more problematic. What is the idea of a song, or of a picture? If new works must be created from old, the idea must encompass something – but it is not clear what. If the understanding of expression is too broad then there is little to reuse.

James Boyle (1996) makes a detailed analysis of legal cases in which intellectual property has been applied. He finds apparent inconsistencies in how information is treated: in some cases it is considered a public good – e.g. the need for insider trading regulation and laws against blackmail, in other cases it is owned property. Boyle argues that the contours of the law and the decisions of courts can best be understood in terms of a vision of a romantic author whose creative genius creates original works from nothing. This, he says, addresses the conflicts of intellectual property “largely by defining them out of existence rather than solving them” (p. 60). He demonstrates, however, that the

flaw at the heart of this romantic vision – that all works build on what has gone before – remains largely unexamined in law.

Lemley (2004) provides a different critique of copyright by examining the problem of free riding. Lemley explains why an understanding of free riding grounded in rivalrous physical resources is ill suited for information. This understanding is perhaps best illustrated by Garrett Hardin's (1968) *Tragedy of the Commons*.

Hardin (1968) described a shared pasture for cattle. Anyone can use this pasture. If you have a cow, you can pay for your own pasture, or you can use the common one. Each person using the pasture contributes to its upkeep, but everyone contributes the same amount – no-one counts how many cows a contributor sends. It is in the interests of each individual to free ride by grazing as many cows as possible. Inevitably, Hardin explains, the pasture will be ruined from overgrazing. Because when I graze one additional animal, I gain all the benefit but the cost is shared with everyone else. These costs to others are negative externalities: I incur them, but someone external to me must bear them. Hardin's solution is private property: build fences and divide up the land. The negative externalities are thereby captured or internalized. Everyone is responsible for maintaining his own property – he gains all the benefit, but also pays the full cost. Better still, individuals have an incentive to improve their property (e.g. constructing buildings, roads, beautifying it, and so forth), because they will reap the benefit.

Lemley (2004) explains that this model is inappropriate for information. The problem is the nature of externalities. In Hardin's (1968) example, a free rider incurs negative externalities. But in the case of information, a free rider does not create any actual costs for the creator of that information. Quite the opposite: the original creator has created positive externalities, that is, benefits obtainable to others who were uninvolved in the creation of the information. When exclusive property rights are applied, as they were in the case of pasture, they capture these positive externalities. Where in Hardin's case the goal was to control (and limit) costs, in this the effect is to control and limiting benefits. This is counterproductive.

Lemley (2004) goes a step further. The best way to capture positive externalities is price discrimination, the aim of which is to force the user or purchaser of a resource to pay as much as possible. In other words, the goal is to close the gap between the value of

the resource to the person selling and its value to the person buying. You may sell potatoes because you have many of them, and they may be worth a little to you. If I am starving, they will be worth a lot more to me. Price discrimination allows you to charge me more – because the potatoes are worth more to me – while charging less to others who are not willing to pay as much. This scenario – differential prices based on the needs of buyers – is exactly what market competition is supposed to prevent. This kind of price discrimination, as Lemley (2004) points out, is most effectively instituted by a monopoly. Intellectual property laws grant limited monopolies in order to create incentives for production. They are not intended to capture positive externalities, nor should they be.

In short, excessive intellectual property law is counterproductive from a purely economic point of view. Yochai Benkler (2006) writes that claims for the “efficiency of regulating information, knowledge, and cultural production through strong copyright and patent is not only theoretically ambiguous, it also lacks empirical basis” (p. 38). The best evidence that does exist is for patents. It shows that stronger patent laws can actually result in a slight decrease in innovation as measured by patent applications (p. 39).

Yet the drive for the market to assimilate more and more of the economic activity in society pressures it to integrate information and ideas as property. As Karl Polanyi (1957) explains, the commons regimes of England did not collapse under Hardin’s (1968) Tragedy. They were deliberately dismantled in order to integrate land and labor into the market. (In practice, this had the coincidental effect of providing a labor force for industrialization and the future wealth of England – but that was not the original intent or expectation.) The logic of the market impels it also to incorporate intellectual property regardless of whether doing so is economically efficient. Marx claimed labor was the commodity form unique to capitalism; Drahos (1996) proposes intellectual property is another unique capitalist form. He explains why market actors would attempt to do so in pursuit of private advantage even though enclosing ideas and information could have a negative net impact.

The alternative to intellectual property is to treat ideas and works as things that are not owned. This is the “free software” of Richard Stallman (2002), the “peer production” or “non-market production” of Benkler (2006), and (to some extent) the Creative Commons of Lessig. Open source demonstrates the possibility of success. The

strategic choices of free software advocates have demonstrated that this alternative can be integrated with the market. Eben Moglen (2006) says,

the resources of the wealthy came to us, not because we coerced them, not because we demanded, not because we taxed, but because we shared. . . . We did not put up barbed wire, and so when they came to scoff, they remained to pray.

Free software offers a competitive advantage to technology firms that depend on using software to make money (by selling services, hardware, or other software). It is also largely immune to market-based attacks carried out by proprietary vendors (particularly Microsoft, which cannot own free software at any price). In consequence, large technology firms like IBM, Sun, and Yahoo! have invested in open source to the point where their businesses depend on it. Moglen (2007) claims that this will lead to the eventual triumph of open source and the collapse of proprietary production:

We have reached the moment at which the bourgeois power sources . . . have created the necessary structures for their replacement and the forces which are speeding up that replacement are their own forces, which they are deliberately applying because the logic of capitalism compels them to use those new forces to make more money, even though in the long run it speeds the social transition which puts them out of business altogether. (p. 7)

Maybe. Capitalism's efficiency does not always live up to expectations. I don't want to get sidetracked with an assessment of the likelihood that Moglen's (2007) scenario will play out, but it is worth asking: Under what conditions will creative community flourish, even to the point of out-competing ownership? There is no single proprietary model: there are many of them. There is, however, a single "pure" model of creative community in which no works (or at least works in certain domains of life) are not owned. Thus a more productive approach is to take creative community as the baseline and ask the opposite: Under what conditions will the proprietary model displace or diminish creative community? The evidence so far provides a partial answer to this question. Ownership can be more efficient when free rider problems are exacerbated by high up-front costs (of capital or initial creation). But if these costs are not sufficient to prevent a work being created, ownership is less efficient. Nevertheless, the logic of capitalism drives capitalists towards increasing ownership and appropriation even when

this is inefficient. Intellectual property is one way of achieving this, for example by appropriating from the commons (as with Disney's retellings of classic fairy tales) or by changing the law or its interpretation (e.g. by expanding the definition of "expression"). Control over creators is also effective; this has often be achieved through control over distribution (publishers, broadcasters, etc.). And where institutions engaged in ownership can solve problems of co-ordination (for example for film and television, which involve many creators in production), it can also produce when creative community would not.

The effectiveness of these strategies can be reduced by reducing the costs or capital investment requirements of production, providing better access to distribution, and finding new mechanisms of collaboration to avoid collective action problems. New technology has helped in all of these areas – it is clear why technology has become a flash-point in conflicts over intellectual property. Other approaches include government grants (common in science) or business models that avoid financing creation through per-copy sales (e.g. making money from services, a common open source strategy) eliminate difficulties with free-riding.

But economics is not the whole story, just as money is neither necessary nor sufficient for creative production to take place. Nor are regulation and law. The benefits of community and self-development in creative communities can drive creative activity regardless of the economic logic of capitalist appropriation.

Ideas as Things

A work never stands alone, nor is it ever the product of a single mind. It must draw on the resources of a culture. In order for a work to be communicated to others, it must be based in an existing shared consensus. Any work that did not do this would leave no point of reference for its audience: it would be incomprehensible and valueless. In other words, no work stands alone. It cannot be reduced to its expression in physical media (a disc or book) or actions (a speech or performance). Its meaning and significance are also composed of ties to other ideas, to the context of its creation, to the activities of which it is a part. Works are slippery. They overlap and interpenetrate one another. Each contains parts of others. Stories share themes, characters, motifs; sometimes there are

multiple versions of the same story. The interconnection of ideas spans time as well: ideas change as they are passed on; stories are retold, altered, added to.

Yet for a work to exist, it must be a coherent whole distinct from its context. Ideas must be bounded. There is an interior to a work, and an exterior: it is clear that certain ideas are within and of the work, while others are outside it. This is necessary not only for its physical embodiment in an object like a book or CDs. The object-like character of works allows them to reference each other. Allusion, synecdoche and connotation require that ideas be bundled together. Equally, as the relationships between works must reach across boundaries, those boundaries must be somewhat attenuated and indistinct. It is difficult for ideas to connect to each other unless they coalesce into larger works; nor can they connect to each other if ideas are isolated.

The exclusive ownership of ideas requires crisp divisions between works. The ambiguity of the boundary must be minimized: an idea cannot be within a work, but also be partly outside it. For a work to be mine, I must be able to say the whole of it is mine. The work must be separated from those relationships that make ownership unclear. Whenever there is a question of ownership, links that cross boundaries to other works, practices and contexts must be severed, changed, or denied. A story must be captured in a novel; a piece of music in a composition or a performance. (This is why intellectual property regulations can never be absolute: there must always be a realm for ideas that link owned works, from language to shared stories. This is the commons or, in the language of copyright, the public domain.)

I am not speaking here of commodification, the process by which a thing becomes a commodity to be traded in a market. Market exchange introduces its own transformations. What concerns me here is that part of the process of commodification in which an idea becomes sufficiently thing-like to be owned. There must be little or no question about what is part of the thing, and what is not. Furthermore, because ideas are not self-contained, there is an incentive for owners to draw the boundary of ownership as liberally as possible: owners will tend to expand the scope of a work so that they can own more (Drahos, 1996, pp. 135-136); this changes not only the work itself, but its context. The creation of the hard boundary changes the meaning of the work: as meaning is the essence of a work, it changes the work itself. When ideas are owned, the ideas we have

are different than when they are not. When works are owned, we produce different works than when they are not.

This demand of exclusive ownership does not only apply to intellectual works. A similar transformation took place with the enclosure of common pastures, forests, and wastes in the 18th and 19th centuries. “Enclosure” is not just a figure of speech: the enclosure laws of the 18th and 19th centuries required the owners of what had been common land to physically separate their holdings by building fences. Some could not afford the expense, and had to sell their property. Land ownership became concentrated; villages changed and disappeared. The land was physically different before and after enclosure, but it also meant and did something different too. Land that had been used for subsistence farming was converted to higher-profit pasture. Communities changed, and the understanding of land did also. When a like change took place in the Oklahoma territories, a Pueblo chief found himself lost in a landscape he had known (Bollier, 2002, p. 43). Enclosed land was not only managed differently, it was a different kind of land.

Copyright, in order to enable the ownership of works, attempts to resolve the requirement for an interior, an exterior, and a well-defined boundary through the distinction between ideas and the expression of those ideas. This has become increasingly problematic, as I have described, leading to inconsistencies in the implementation of the law – inconsistencies which James Boyle (1996) argues can only be resolved if creativity is thought of as the activity of a romantic author who crafts new works from nothing. This false understanding of creative works is the ultimate form of the transformation of an idea into an owned object: the claim that the bonds between the idea and others are severed completely.

This transformation is not only something that happens to the work as it is produced – it also motivates the kind of production that will be undertaken. Creators will aim to produce certain kinds of works simply because they are easier to bound as property (Boyle, 1996). In some cases, proprietary production is capable of producing essentially the same products as nonproprietary production – just as a fenced field and a common field are equally capable of producing cows. Yet in practice, proprietary works are different. They are different because they are produced in a different way, with

different motivations, for different purposes. They are different because they are cut off from their context.

In the case of open source, such claims are common. Linux advocates argue that it is more secure because flaws are potentially visible to all. Proponents of proprietary software suggest that the hierarchy of a company better enforces a single creative vision. Of course the line can be blurred: proprietary software can be opened up to inspection; an open source project can be tightly led or controlled or even descended from a proprietary work (as is the case with the OpenOffice productivity suite). Yet this is not enough for the two to converge. The difference between the two modes of production (as Benkler (2006) describes nonmarket production) can largely be understood in terms of affordances: some kinds of work are easier under one regime, some under the other. But the affordances vary so much, and there are so many of them, that it is highly unlikely for the two modes to produce the same works.

This is not the whole effect of the transformation, however. Even when two works are the same expression, they are not the same works. Because of the values of open source, it means something different to choose an open source application when a proprietary one would do the same job. When observed as a product at a fixed point in time, proprietary and unowned works may appear to be equivalent. Running Linux can be a political statement (as it is for Stallman (2002)), an effort to achieve independence (some countries use Linux to avoid depending on U.S. corporations), or a way of joining a community. Such a community has a different relationship to the development of the software than does the user base for a proprietary operating system. For example, producers in the commons often do work because it is useful to themselves. Those who produce for sale on the market, on the other hand, are less likely to use what they create. Ownership reinforces a distinction between author and audience that is often much weaker for unowned works. Furthermore, although one of the aims of copyright is to preserve the relationship between an author and her work, in practice it tends to result in alienation and aggregation by corporations. Since the author is an important part of a work's context, this too results in a change to the work itself.

An essential point in all of this is that the results of nonproprietary production should not be judged by how well they duplicate the results of proprietary production.

Proprietary production aims not to produce certain kinds of works, but to create a market for copies through scarcity. In many cases, nonproprietary production does not aim to produce certain kinds of works either – it is instead part of larger practices, practices from which owned works are often alienated. If we look for nonproprietary production to produce the same familiar novels, music, and films that arise from proprietary production, we are likely to be disappointed. On what grounds, then, are the merits of creativity to be judged?

Copyright takes for granted that creative works are good things. The focus on analyses of copyright often focus not on whether works should be promoted, but how (e.g. Lessig (2004), Benkler (2006), Drahos (1996)). But some works are better than others. Moreover, there is no neutral approach for promoting works: any given regime encourages certain works and discourages others. Exclusive ownership, as I have explained, results in different works being created than does a nonproprietary regime. Ownership also restricts the use of those works, thereby limiting other activities, such as the creation of personal relationships and community. While I am arguing that creative works can strengthen community, they can also dissolve it.

For example, the characteristics of mass media like television – centralized broadcast, minimal or no participation, high costs and centralized production – make experiencing television programs a relatively passive experience. Television is important to people; they interpret television in their own ways and construct their own meanings. But the experience of television is largely one of isolation, of alienation from community. The same is true to some extent of other forms of mass entertainment, including the book and film. It is even true of music, which is increasingly experienced by individuals who cut themselves off from public space and shared experiences through the use of portable players and headphones.

In his book *Bowling Alone* (2000), Putnam attempts to measure a decline in social capital in the United States over the course of the 20th century, and to determine the causes of this decline. Putnam estimates that TV has been responsible for 25% of the decline in social capital from the late 1960s through the late 1990s. He describes a town in northern Canada studied before and after the arrival of television: “A major effect of television’s arrival was the reduction in participation in social, recreational, and

community activities among people of all ages. Television privatizes leisure time” (p. 236). James Sanders (2007) and William Gibson (2007) both describe the decrease in street life in New York city when television was first introduced. Cindy Xin (personal communication, December 2007) reports the same phenomenon when she was growing up in Beijing in the late 1970s and early 1980s: people stayed indoors in the evenings to watch TV. Some of the vitality of the neighborhood was lost.

Television is not the only example. Horkheimer and Adorno (2001) point to the oppressive ideological potential of the mass media – specifically radio, “the universal mouthpiece of the Führer” (p. 96). Benjamin (2001) also discusses the link to fascism. Milosz (1981) writes a sad description of the role of artists and art in the Soviet domination of intellectual life in his post-war Poland.

These effects are not simply due to the medium or technology itself. The creation of a specific economic regime and the social understanding of technology influence its development (see Pinch & Bijker, 1987). Early radio in the United States was originally a much more decentralized form of communication than what arose after the government decided to license the airwaves to private industry (Lessig, 2002, p. 74). Moreover, media like television and radio are nothing without programming. That programming can attract larger or smaller audiences, enhancing or diminishing the effect – so the quality of television programs matters, but higher quality might actually be more detrimental to community life. The content is also relevant. Certain broadcasted moments, such as momentous events, can draw communities together. Similarly, Benedict Anderson (2006, p. 35) argues that imagined communities arose in part from the simultaneous daily ritual of reading the newspaper – a practice made possible by mass media.

Much of television is excellent. I single it out as an example of the (often unintended) consequences of promoting creativity. What I mean to make clear that it is insufficient to simply start from the assumption that creative works are automatically good, or that particular cultural forms are good. In general, I suggest, the displacement of shared popular and folk culture by mass entertainment, from community sports through music making and children's street games, has weakened community. When we evaluate the costs and benefits of different ways of provisioning culture, we must consider the nature of the culture being produced. Works cannot be evaluated on their own. They exist

in the context of a wider community or culture which builds upon and reuses them. The publication of a book or newspaper or the broadcast of a television program is but one moment in a larger process. Intellectual and creative works are, to a degree, the infrastructure on which culture, community, and individuals are built (see also Moglen 2006). It is possible that cultural forms other than those that dominate today will be superior from the point of view of community.

The Romantic Author

The story of the romantic author begins in community and is justified by community. The idea of the romantic author, though more an ideal than a reality, has come to justify a way of managing works as property. But all works derive from other works and ideas: every author must draw from a shared body of existing material. In Boyle's (1996) analysis, the ideal of the romantic author and copyright's distinction between idea and expression together provide

a moral and philosophical justification for fencing in the commons, giving the author property in something built from the resources of the public domain – language, culture, genre, scientific community, or what have you. If one makes originality of spirit the assumed feature of authorship and the touchstone for property rights, one can see the author as creating something entirely new – not recombining the resources of the commons. (pp. 56-57)

This assumed originality – both the independence of a work for from its antecedents, and the inalienable link between the artist and her creation – justifies control over derivative works. In reality, the copyrights of most published works are held by corporations, not creators. Nevertheless, as Boyle (1996) illustrates, the romantic ideal influences the perception of copyright and the implementation of the law. The romantic author who creates from nothing is a myth – but it is a myth grounded in the real connection between the author and her work.

I begin the story of authorship with the nostalgia of an earlier conflict between community and exclusive ownership. In 17th and 18th century England, labor was transformed into a commodity to be traded on the market – an event that marked the dismemberment of a previous regime of community production: the enclosure of the

commons. The historical commons of pasture and land was a pre-capitalist community. Today its name is invoked to describe a variety of arrangements, including open source software and open access regimes for infrastructure resources and culture. Neeson (1993) describes visiting a surviving commons community:

. . . I went to see Laxton in Nottinghamshire . . . I saw a film about it made in the 1940s. For a few minutes on the screen I saw men sowing seed broadcast together, talking across the furrows. . . . The description of common fields as *open* fields is entirely appropriate. Distances are shorter when fields are in strips. You can call from one to the next. You can plough them and talk across the backs of the horses at the same time. You can see at a glance whose bit of the hedges or mounds needs fixing, what part of the common ditch is choked with weeds. Standing at the centre of the village feels like standing at the hub of the whole system: the fields spread out around you, the decision to sow one with wheat, another with barley is written on the landscape. For all that individual men and women work their own bits of land, their economy is public and to a large degree still shared (p. 2).

There is an intense, even romantic, feeling of community in Neeson's (1993) words. The commoner was "one of a tribe" (p. 180). He was not alienated from his labor – he was part of it. He had possession of a landscape: "he was part of it and it was part of him. He fitted into it as one of its native denizens, like the hedgehogs and the thrushes. All that happened to it happened to him" (Bourne in Neeson, 1993, p. 179). Conversation overlaps with labor, and that work is integrated into the village life. Of course this is Neeson's (1993) subjective impression, but she supports it with evidence from the period before enclosure, when the

commons provided opportunities for building relationships of obligation with farmers and gentlemen too. For this reason time spent searching for wood strawberries, mushrooms, whortleberries and cranberries for the vicar, or catching wheatears for the gentry, was time well spent not only in the sense of earning money but also in the sense of establishing a connection. (p. 181)

The commons were not open for all to access. Rather, they were heavily regulated by the people who depended on them. The field orders decided by the community "regulated the working lives of more people, more often, than any other kind of law in common-field parishes" (Neeson, 1993, p. 110). Unlike the hypothetical commons of Hardin's (1968) tragedy, the commons did not degenerate into free riding and collapse.

The commons was a pre-market subsistence economy in which commoners each owned a bit of land and often some animals. With these and with support of their community, commoners produced most of what they needed themselves. These communities were not utopias. Starvation was certainly not unknown when crops failed or animals became diseased. (This is one difference between land and ideas: with food, quantity is essential – without it we die, while in the case of ideas quantity is not necessarily more important than quality.)

It was because of this independence from the market, not crop failures, that the commons were enclosed. Enclosure was a deliberate policy put into motion in large part to force the commoners into wage labor. Here is John Clark arguing for enclosure: “the inclosure of the wasters would increase the number of hands for labour, by removing the *means* of subsisting in idleness” (Clark in Neeson, 1993, p. 28). The result, Karl Polanyi (1957) explains, was the emergence, for the first time, of pauperism and urban poverty as displaced commoners went to the cities in search of work. As it happened, this period – the end of the seventeenth century, the beginning of the eighteenth – barely preceded the onset of the industrial revolution, so it was the extinguishment of the commons that produced a labor force for the new industrial cities.

This shift from an agrarian subsistence economy to an urban industrial one led to a disintegration of community and of social values. In the context of a society stressed by capitalism and industrialization, critics looked for a moral reservoir on which to base society. They sought values that transcended the problems with the society they lived in. They found it in art.

Literature, painting, film, software – these things have authors. Today this is commonplace. But it wasn’t until the 20th century that the concept of creativity was widely recognized (Drahos, 1996, pp. 60-61). Three hundred years ago, God was the Creator; man was competent only to construct reflections of God and nature. Even the words were different. “Art” was skill, an “artist” was an artisan. Over the course of the eighteenth century in England, both words took on their modern meanings (Williams, 1963, p. 60). The truth of God and nature was still Truth, but it was a special kind of man – the artist – whose creativity and genius it was to capture that truth and share it with society, to hold up a mirror to nature and to life (Abrams 1953, pp. 30-35). Dr Johnson

said that Shakespeare “holds up to his readers a faithful mirror of manners and of life” (Abrams 1953, p. 32). As Raymond Williams (1963) explains,

The tendency of Romanticism . . . towards a claim which all good classical theory would have recognized: the claim that the artist's business is to "read the open secret of the universe". . . . The artist perceives and represents Essential Reality, and he does so by virtue of his master faculty of Imagination. In fact, the doctrines of "the genius" (the autonomous creative artist) and of the "superior reality of art" (penetration to a sphere of universal truth) were in Romantic thinking two sides of the same claim. (p. 56)

Wordsworth (in Williams, 1963) described the poet as “an upholder and preserver, carrying everywhere with him relationship and love” (p. 58). Williams writes,

Here, again, is one of the principal sources of the idea of Culture: it was on this basis that the association of the idea of the general perfection of humanity with the practice and study of the arts was to be made. For here, in the work of artists – "the first and last of all knowledge . . . as immortal as the heart of man" – was a practicable mode of access to that ideal of human perfection which was to be the centre of defence against the disintegrating tendencies of the age. (p. 59)

Perfection. Art not only provides access to a transcendental realm of truth – it is a path to it. But this ideal embedded alienation. For this special kind of art must be *the right kind* of art; that is, art created by the artist as a special kind of person. Folk art won't do. Thus art was alienated – separated from everyday life.

art became a symbolic abstraction for a whole range of general human experience: a valuable abstraction, because indeed great art has thus ultimate power; yet an abstraction nevertheless, because a general social activity was forced into the status of a department or province (Williams, 1963, p. 63)

Yet the doctrine was progressive. Through art, people can improve themselves. It was opposed to utilitarianism; wrote John Stuart Mill (in Williams, 1963), “Man is never recognized by Bentham as being capable of pursuing spiritual perfection as an end” (p. 76). The romantic poets saw the mind “projecting life, physiognomy, and passion into the universe” in an “attempt to overcome the sense of man's alienation from the world” and “reanimate the dead universe of the materialists” (Abrams, 1953, pp. 64, 65). Against the utilitarian conception of education as a training for men to perform specific tasks, culture

aimed for “the harmonious development of those qualities and faculties that characterize our humanity” (Coleridge in Williams, 1963, p. 121).

Matthew Arnold saw culture as knowledge and activity: “Culture is right knowing and right doing; a process and not an absolute” (Williams, 1963, p. 134). The practice of culture is the practice of human progress, which can rescue the individual and the community from alienation:

Perfection, as culture conceives it, is not possible while the individual remains isolated. The individual is required, under pain of being stunted and enfeebled in his own development if he disobeys, to carry others along with him in his march towards perfection, to be continually doing all he can to enlarge and increase the volume of the human stream sweeping thitherward. (Arnold in Williams, 1963, p. 127).

In the artist, the romantics found a link to a higher plane of character beyond the hurly-burly of everyday life. Art was not only expression, it was Culture. To be a gentleman was to be cultured, to be possessed of good taste (Wood, 2006). It was the task of every gentleman to develop his taste and his culture. This culture was much more than etiquette, manners, or the affectations of class. It spoke to a man’s character, his responsibility in society, his ability to reason and play a role in public life. Art, produced by a class of authors set apart from everyday life (and particularly everyday business and profit), was essential in this process, the path to perfection. In practice, however, the knowing (in Arnold’s words) took precedence over the doing. In Arnold, Williams (1963) sees the danger that culture as an activity may be ignored:

his emphasis in detail is so much on the importance of knowing, and so little on the importance of doing, that culture at times seems very like . . . a thing to secure first, to which all else will then be added. There is surely a danger of allowing Culture to also become a fetish: “freedom is a very good horse to ride, but to ride somewhere”. Perfection is “becoming”, culture is a process, but a part of the effect of Arnold’s argument is to create around them a suggestion that they are known absolutes. (p. 134)

The metaphor of the mirror emphasizes art as a thing. It focuses on the subject of art, on its truth, on its correspondence to the world (Abrams, 1953, p.34). The artist, his individuality, the practice of his art and the specifics of any given work of art are diminished. Plato had criticized art as artificial. The defense against this criticism was an appeal to a transcendental ideal. Art was not merely a reflection of reality, but a

manifestation of something more real than the world of everyday life. Art grew closer to God – and farther from everyday life (Abrams, 1953, pp. 42-46).

Now that the artist was special, his art, too, became something unique and personal. Over the course of the eighteenth century, art came to be seen a special sphere detached from the business of living; in the nineteenth century, it came also to be detached from conceptions of universal truth. Art was understood as an expression of the individual subjectivity of the artist. This artist has often been idealized as a romantic, whose “divine spark” (Abrams 1953, p. 24) of creativity gives rise to original genius. Her art is not a mirror held up to truth, but an expression of her unique personality – and, as such, it is inalienable. As the critic Edmund Wilson (in Abrams, 1981) wrote,

The real elements, of course, of any work of fiction, are the elements of the author's personality: his imagination embodies in the images of characters, situations, and scenes the fundamental conflicts of his nature or the cycle of phases through which it habitually passes. His personages are personifications of the author's various impulses and emotions: and the relations between them in his stories are really the relation between these. (p. 20)

The artist was inseparable from her art, embedded in it. “To know a work of literature is to know the soul of the man who created it, and who created it in order that his should should be known”, said J. Middleton Murray (Abrams 1981, p. 18). Separate the two, alienate art, and the art is changed. This understanding of art and authorship is embedded in our institutions. The moral rights of copyright take as their ethical basis the necessity of protecting the connection between the author and her work. But copyright is also the mechanism intended to transform ideas into copies, commodities that can be exchanged in the market.

Marx witnessed the destruction of the commons and the absorption of their former communities into the labor force. His writings captured the suffering and wrenching change of the industrial revolution and laid it at the feet of capitalism and the market. In his critique, it is the transformation of the fruits of labor into exchangeable commodities that alienates workers from their labor, and conceals the social relations that produced it. This was the fate of the farmhand; for the romantic ideal it must not be the fate of the artist.

There is, therefore, a tension within copyright. The market requires alienation; art is inalienable (not only art: other intellectual works, from science to computer software, are likewise tied to those who develop them). Within copyright are two conflicting imperatives: one economic, the other moral. In principle, what copyright does is to permit the alienation and exchange of the physical embodiment of a work (copies, such as books, CDs, or prints) while retaining for the author certain exclusive control over the work itself – particularly the right to copy, but also to create derivatives, perform the work, and so on.

This tension was recognized in English copyright law as far back as the 18th century. Drahos (1996, p. 45) explains that early legal cases based in natural law implicitly hinged on the conception of community. The author mixes her labor with material in the commons. Does she then have a natural right to control it as property? If the commons is owned by all, then she requires the consent of the community. But if the commons is owned by no-one, the community has no right to interfere with her property. Even if natural law dictates that the author has a right over his work, this may impinge on the rights of others to make a living or make use of their property. Drahos argues that intellectual property is best understood not in terms of property rights, but instrumentally in terms of its ability to promote creation. I concur, for both of these reasons: the model of the romantic author who creates something from nothing is mistaken, and the implications for community and the self-development of individuals is too great.

In practice, the tension in copyright has been decided in favor of the needs of the market, not the inalienability of the author. Much creative and intellectual labor is “work for hire” – employers are considered the original authors of any ideas produced, even before they are expressed in a medium. The apparatus for distributing ideas is largely controlled by a small number of large corporations. Their control over distribution allows them to exact control over works – and to separate them from their authors – through restrictive licensing agreements. By allowing works to be exclusively owned, copyright actually encourages this control. By creating barriers between works, it creates efficiencies within corporations that control many works – because for intellectual activity within these corporations, the economic costs of exclusive ownership do not need to be paid, and works need not be alienated from each other. Benkler (2006) writes,

“strong exclusive rights drive concentration of inventory owners” (p. 50). Copyright is justified by the inalienability of authorship, but in practice it alienates authors. Alluding to Marx, Moglen (2003) writes of intellectual property, “its existence for the few is solely due to its non-existence in the hands of everyone else” (p. 6).

The romantic ideal of the author was a response to the extinction of a former way of living together in community. Art provided a reservoir of social values transcending everyday life; the comprehension and activity of art were noble activities aimed at the development of the self towards a kind of perfection. But there was a problem with the elevation of art from the everyday: too much focus on art as an object, too little on it as a practice. The process was toward a predetermined end, rather than subjective self development. For the author, art was an exercise in self-expression, but for the audience it became objectified, transformed into isolated packages of property detached from reality of community life. The search for community ultimately alienated community from art.

Audience and Authority

The romantic ideal assigns the author a privileged role of authority. Her work is a unique expression of her personal experience and interpretation of the world. When it is transmitted to an audience, it remains inseparable from her. What this special authority of the author does not recognize is the role of the audience in their experience of the work – how each person interprets it individually, and how these individual interpretations influence the experiences of others.

This authority is reinforced by the law’s distinction between an idea and the expression of that idea. As I have mentioned, this distinction is ambiguous. It is most coherent for rational written discourse, in which the same argument or statement may be made with different words. For affective works (such as music) it breaks down entirely. Form is content: the idea of a work cannot be separate from how that work is represented. The connotations attached to expression are essential to meaning. These associations are largely beyond the control of the author. There is no single interpretation of an expression – no single idea that can be distilled from it. Each person

who interprets a work interprets it according to his own context, history, intentions, and so forth. An expression can refer to many different ideas. Just as the author interprets her experience of the world, members of her audience interpret their experience of her work.

Stuart Hall (2001) explains this in terms of encoding and decoding. A message is a product of a particular process of production. The message is encoded as a text. There is no one-to-one correspondence between message and text; the particular encoding chosen is a consequence of the meaning structures used. An image of a cow, as Hall writes, is not actually a cow – it is connected to a cow by a certain set of conventions. A different representation, such as a different image or the letters c-o-w could also convey the idea of a cow. In Hall's model, a member of the audience does not necessarily experience the message intended by the originator. Instead, he interprets the text that has been encoded. He does so according to a set of meaning structures – but these meaning structures are not the same as those used to encode the message. The interpretation may therefore be quite different. The decoding of the text is not all up to the recipient; it is constrained by the text itself, and conditioned by the process of decoding, the meaning structures, used the framework of knowledge, relations of production, and technical infrastructure (Hall's terms) into which the message is integrated. Similarly, the author is constrained in constructing the text. Even this is simplified. For the work is not created in a vacuum: it is a product of the author's experience of the world. This is a human world, filled with human meanings that influence the encoding of the work. In a sense, decoding takes place twice – once when the author experiences the world, before she encodes the work, and a second time when the audience decodings the constructed text. Both processes are individual and contextual; both are constrained by structures of meaning and other factors. In practice, this is an ongoing process in which experience and production are linked.

Natasha Girolami (2007) explains that with the expression/idea dichotomy, the expression is assumed to refer to a unique unchanging idea. This idea, she says, is like a Platonic transcendental form – eternal and unchanging. One interpretation is authoritative; others are secondary or simply not permitted. With an idea in mind, the author strives to express that idea. This entirely disregards the role of the audience, who may arrive at their own personal experiences and ideas through a work. But when the

work is proprietary, they are forbidden from communicating these personal interpretations to others. Girolami cites a case in which the “idea” of Mickey Mouse was determined to be “mouse” – all else was “expression”. Copyright permits the idea to be used, but the idea is stripped of all the texture and depth of interpretation. In effect, the transformation of an idea into an object divides the idea not only from its antecedents, but from ideas that precede from it. The work is cut off from its past and from other ideas to which it is related, but also frozen in time against reinterpretation in the future (except by the author – or rather copyright assignee).

The romantic ideal does not recognize this dynamic process of decentralized creative development. It cuts it short. The experience and interpretation of the author are privileged; the polysemy of the text and the interpretation of the audience are disregarded. In Hall’s (2001) model, a member of the audience produces his own interpretation of a text. According to the romantic ideal, production is only performed by the author of the text. Though copyright requires that a work be fixed in a tangible medium, it disregards the likelihood of different encodings and decodings. Copyright reserves this productive activity for the author of the message, who is given control over distribution and over the integrity of the work – so that it cannot be changed without the creator’s permission. People are restricted in creating new meanings in the form of derivative works, and from sharing the meanings they create. They are alienated from the fruit of their labors – the meanings they have created – and isolated from the ability to construct meanings over time. They are isolated from each other, because in order to communicate the personal interpretations and meanings of a work they must obtain it from a central authoritative source: the author (or in practice the owner, which is quite different).

The labor performed by the audience is not only something done after the fact. It affects the value of the original work itself. For example, the reputation of a work or creator (which can help solve problems of information asymmetry in the market) is constructed and propagated by the audience. Salganik, Dodds, and Watts (2006) found that preferences for music were strongly affected by the choices of others – and that these preferences could only be weakly predicted by the the perceived quality of songs evaluated without social influence. Furthermore, the inequality of preference was

increased when listeners knew the preferences of others. Salganik et. al. (2006) conclude, “markets do not simply aggregate pre-existing individual preferences” (p. 856).

In fact, the popularity of many (perhaps most) works, including Web pages, films, books, and scholarly papers, follows a power law (Sinha & Pan, 2005). This means that popularity of these works does not describe a normal distribution: there are a few extraordinarily popular works, a few more moderately successful ones, and a huge number of undistinguished works. Network theory suggests that this relationship will apply in networks if there are mechanisms for growth and for preferential attachment (Barabási, 2003, p. 86). The potential for audience growth is a property of virtually all cultural works. Preferential attachment means that a successful node in the network attracts more attention if it is already more popular than other nodes. Popularity compounds. The inherent qualities of cultural works, while it can contribute to their success, cannot be the primary factor. This is manifest in the experiment by Salganik et. al., even though subjects could not communicate with each other beyond expressing collective preferences. Social discourse and the ability to construct complex meanings from works would likely magnify the effect.

Thus, to a significant degree the audience of a public work is a coproducer of that work, and plays an active role in how that work is disseminated and interpreted by others. Dallas Smythe’s (2001) theory of audience labor helps to explain what is happening here. Smythe suggested that, rather than selling cultural works (and their embedded ideologies), the culture industries sell audiences to advertisers. They provide the audience with a “free lunch” – a television show, stories in a newspaper, music on the radio. This free lunch is combined with advertising. Thus, the labor of the audience is commodified: by watching the advertising, the audience performs labor for the advertiser, which ultimately pays the advertiser through choices by audience members to buy a product. Smythe’s specific analysis applies only to some works (novels and music CDs, for example, do not include advertising), but his insight that the labor of the audience is being captured and commodified can also be used to explain the other work also performed by audiences.

What I have said so far applies most obviously to creative and artistic works. But it is true of other works, too, such as the products of science. These also depend on a

connection to the author, only in this case the emphasis is less on the unique expression of the author than on her reputation and trustworthiness. This authority or reputation is as much a product of the audience as of the author. Open source projects also have a concept of authority or ownership, but it is very different from the exclusive ownership of intellectual property. The owner of an open source project is recognized as a leader of that project, and is accorded the power to make decisions about its future direction. But there is no property mechanism to enforce control. Ownership depends on the consent of other members of the community, who are always free to take the source code and develop a separate version, known as a “fork”. It is usually to the benefit of everyone to avoid a fork, which can only be achieved by the consent of contributors. So ownership is not a right: it is better seen as a position of responsibility that can only be sustained through respect. The control it exerts is over the activity of the community and the process of development, rather than over ideas or works. Ultimately, neither science nor open source relies on proprietorship over works and ideas: authority does not divide the author and audience into inviolable groups the way the ideal of the romantic author does.

More generally, while I criticize the chasm between author and audience, I do not discount the value of authorship, which recognizes essential subjectivity lacking in the vision of the producer as an artisan whose job it is to hold up a mirror to reality. The self-expression of author and audience alike is essential to self-development that makes culture worthwhile. Yet authorship can be sustained without alienating the author from the audience. In the romantic vision of the author, the two are often in different communities. In the creative community, the distinction between author and audience is permeable. Often they are the same people.

Intellectual works serve as objects that stand between and relate people within a community. Later I will explore that process in some depth. Works aside, creative activity often supports the construction of community. Such production is a social activity because it must draw on shared works and meanings. It is also different from many other activities and forms of production because at any point it is part of a trajectory. By trajectory, I mean a process that progresses rather than repeating or recapitulating itself, which is open-ended, and which at any point approaches an outcome or end – though it is not necessarily targeted at that end. For communities and groups,

progress along a trajectory means successively building upon past works and ideas. For individuals, a trajectory entails learning and self-development. Artists learn by imitating the masters, then develop their own styles. Writers begin with what they know, then mix and modify it to create original stories. Through building on other works, creators form relationships with others.

It can be said of other productive activities that they produce and reproduce the individual and the group (Williams, 2001), but this is particularly true of the creation of ideas. The progressive nature of the trajectory makes that production unavoidable. I have described the development of the ideal of authorship and culture as a means to achieve human progress. I am not arguing for a recovery of 18th and 19th century concepts of cultured taste. Yet something important was captured by them. The process by which creative activity and works promote community is integrally bound to the self-development of individuals. To the extent that the self-development of individuals in communities is an end in itself, the creative and intellectual activities are good things regardless of what work, if any, results.

A number of scholars have argued that self-development is an essential dimension of freedom and a building block of democracy. C.B. Macpherson (1973) argues that liberal democracy is founded on two principles of individual freedom. The first is the freedom of the consumer to maximize utilities – i.e., to satisfy wants, needs, desires, etc. This utilitarian freedom is aligned with the concept of choice, for example in the market or at the ballot box. Macpherson's second principle of individual freedom is my focus here. It is the ability of the individual to realize his or her human potential, which William Leiss (1988) describes as “self-development” (p. 82). I have used Leiss's terminology. Creative and intellectual activity, therefore, is not merely a means to an end – it is itself a form of freedom. Macpherson contrasts the role of people exercising their human capacities as “doers” from those maximizing utilities, who he calls “consumers”. The parallel with the network and community models of production, or Feenberg and Bakardjieva's community and consumption models of the Internet, is clear. Leiss applies a corrective, however: self-development and consumption are linked; indeed, the former depends on the latter. This is equally true of the creation of new ideas from old, and the self-development associated with the labor of the audience.

John Dewey goes further than Macpherson. For Dewey, personal growth is the ultimate objective of democratic society itself. “Democracy has many meanings”, he writes, “but if it has a moral meaning, it is found in resolving that the supreme test of all political institutions and industrial arrangement shall be the contribution they make to the all around growth of every member of society” (quoted in Hoy, 1998, p. 44). The point is echoed by Benjamin Barber (1984), who writes “without participating in the common life that defines them . . . men and women cannot become individuals” (p. xv).

For these thinkers, the self-development of the individual cannot take place in isolation. Dewey (1981) writes:

Liberty is that secure release and fulfillment of personal potentialities which take place only in rich and manifold association with others: the power to be an individualized self making a distinctive contribution and enjoying in its own way the fruits of association. (p. 624)

Although Macpherson (1973), Barber (1984) and Dewey (1981) are not explicitly concerned with creativity or intellectual activity, these are activities through which people develop themselves and learn – and they do so in association with others. This is certainly the case with science and open source software. In a society such as ours, in which creative and intellectual activity are important forms of production and are central to community life, this is even more true. The authority accorded the romantic author limits this self-development.

Community

Theories of the Commons

Several scholars, including include Lawrence Lessig (2002, 2004), Peter Drahos (1996), and Yochai Benkler (2006), have described nonproprietary intellectual production as an economic activity grounded in a “commons”. Their analyses are valuable and insightful, but their treatment of community is relatively weak. When creative works are produced, the commons and community can be seen as the same phenomenon viewed from two perspectives: economic and social. In order to understand one, it is necessary to understand the other.

The meaning of the word “common” has changed over time. The legal and economic usage of today, as an open access commons – that is, a resource “free for all to use” (Benkler, 2006, p. 23) – does not reflect many of the implications of the older usage of the word used to refer to common land. This older meaning is significant because the metaphor of the older commons has been applied to the current conception of the term, and the implications of the older usage are also relevant to a commons of ideas.

Hayden, in *The Encyclopaedia Britannica* (1971) defines a commons as “the rights of persons to enjoy a profit a prendre in common land and, more generally, to describe the land over which those rights are enjoyed” (p. 165). He continues, “By common law, a profit a prendre . . . is the right to take from the land of another either part of the soil or its produce, or the wild animals existing on it. . . . A profit enjoyed in common with others is called a profit in common, or simply a common”. This older definition differs from the idea of an open access commons in several ways. First, the resource is not necessarily owned in common – it can be held by individuals, though others have the right of access and use. This distinction, between ownership by an individual and possession by many, is essential to many commons arrangements. Second, the rights of access and use are typically available only to specific individuals, not

necessarily to all comers: access is not necessarily open. Third, such common rights are founded in long standing practice and tradition – common law and common practice – not in simple property relations; this common practice in turn implies some sort of community context in which the commons exists.

Peter Drahos (1996) argues that the legal understanding of a commons as a resource depends on how community is understood. He describes two such kinds of community: positive and negative. In a positive community, the commons is owned by all. The ability of individuals to appropriate resources from the commons – to assert property rights – depends on the consent of the community. In a negative community, in contrast, the commons is owned by no-one, and the community has no business interfering in appropriation from the commons. Drahos argues that in the case of an intellectual commons, positive community better encourages creativity and the expansion of the commons.

The distinction between ownership (which is exclusive) and possession (which is shared) is essential to many commons arrangements. For many physical objects, possession and ownership are often near equivalents: possession, we say, is ninety percent of the law. For cultural works, however, these two things are seldom the same. A failure to appreciate this difference had grave consequences for the historical commons in England. Parliament understood the written laws of ownership, but they were largely ignorant of the common law of possession – and the common law was misrepresented to them by the enclosers (Neeson, 1993, pp. 77-78). So while compensation was given to many commoners who owned their land, those who only possessed the common right were ignored when they were stripped of their means of livelihood.

My discussion of the commons is closer to the older definition. By it, I mean a regime of production managed by a community. Despite the differences from how Benkler (2006) and Lessig (2002) use the term, there are good reasons for my choice. First, this accurately describes the historical commons from which the term arose and the community nature of that institution. Second, the word is already used to refer to similar institutions for the production of knowledge and ideas. Third, it highlights the contrast with the conventional use of the word. The creative community as I describe it is

virtually the same as the commons, only an the emphasis on community, rather than on economic production that may or may not take place.

I have already explained Garrett Hardin's (1968) tragedy of the commons, in which overuse of a shared resource ruins the resource for everyone. The regime in Hardin's Tragedy is an open access commons: everyone is free to use the resource. Historically, however, the commons of land was not open access. Neeson (1993) explains that although the land was individually owned, it was also associated with common rights to graze cattle, collect firewood, and so forth. The exercise of these common rights was collectively managed by a community. This regulation was central to the community. Neeson writes, "by-laws or field orders . . . regulated the working lives of more people, more often, than any other kind of law in common-field parishes" (p. 110). For the most part, this regulation was successful: very few commons suffered Hardin's tragedy. (To be fair to Hardin, his commons was only a metaphor for the problem of world overpopulation). In using the term "commons" to refer to an open access commons like Hardin's metaphor, rather than to the historical regulated closed commons of land, an essential tie to community life is lost. Elinor Ostrom (1996) and other scholars refer to such regulated arrangements as common pool resources, or CPRs, though this category is broader in that it refers only to the technical regulation of the resource, ignoring many of the social arrangements and practices that may be associated with it. In the case of a regime for managing knowledge and creativity the purely economic understanding of the commons is particularly unfortunate, for these depend on communication and relationships between people and necessarily take place in a social context.

By the definition of the commons used by Benkler (2006), the public domain is a commons. Before copyright, virtually all knowledge and ideas were in the public domain: it was the default assumption. Because it was so pervasive, it did not even need a name. Copyright created the concept of the public domain. Unfortunately, the result is that the public domain is defined with reference to property: it is those ideas and culture which are *not* governed by copyright, either because they fall outside the realm of copyright all together (e.g. the vocabulary and grammar of language), or because copyright has expired. The public domain has gone from being the unstated assumption to becoming a negative definition. Without copyright, "public domain" is a meaningless

concept. With it, it is left as a residual category lacking a positive existence in its own right, and thus is tremendously difficult to defend in the face of encroaching enclosure.

Lessig (2004) has drawn attention to the need for creative work to build upon existing material. He emphasizes the need to foster a commons of culture. However, he accepts the open access definition of the commons as “a resource held in common” (Oxford English Dictionary quoted in Lessig, 2002, p. 19), such as a public park, a road, a scientific theory. (Though to say that an idea like a scientific theory can be “held in common” reinforces the understanding of ideas as objects that are owned.) In this sense, he says, such resources are “free.” “A resource”, he says (2002, p. 13), “is free if (1) one can use it without the permission of anyone else; or (2) the permission one needs is granted neutrally.” Such a resource can still require that users pay an access fee, so long as that fee is consistently applied to all. More specifically,

access to the resource is not conditioned upon the permission of someone else. The essence, in other words, is that no one exercises the core of a property right with respect to these resources – the exclusive right to choose whether the resource is available to others. (Lessig, 2002, p. 20)

Lessig (2002) argues that certain resources, such as radio spectrum, the physical cables of the Internet, or ideas, can be essential for future innovation, and that exclusive control over that resources hinders that innovation. In general, he argues that proprietary control is good for resources with a clear known use, while management in a commons permits experimentation and innovation (p. 89). In the realm of ideas, he specifically targets copyright and patent law which, if they grant excessive control, inhibit innovators and creators from building new ideas based on old ones. He makes this point, that creativity depends on the freedom to use existing works, most forcefully in his (2004) book *Free Culture*. The public domain is an essential resource for new creation. Lessig supports the underlying principles of copyright, first that it is a means to reward creators, second that it enforces the rights of authors. But he argues that maximalist copyright law, particularly its long duration, is starving the public domain. Lessig's efforts in this area have been valuable. His lucid expression of threats to the commons has drawn attention to the matter. In the absence of copyright reform to resolve the issues Lessig raises, he founded Creative Commons, an organization inspired by the success of free and open source software. Thus far, Creative Commons has not experienced the same dramatic success as

free and open source software. Though it was founded recently, in 2001, I suspect the strategy taken by Creative Commons is flawed.

Creative Commons did not emerge from the practices of a community. At its core, it is a technical attempt to create open access resources through the creation of a set of copyright licenses available to creators. The licenses combine a variety of conditions: whether a work may be used commercially, whether it must be attributed to its author, whether derivative works are permitted. The objective of Creative Commons is to offer creators choice. That is, to allow them to keep “some rights reserved”, a middle ground between the public domain and the “all rights reserved” of most copyright notices. A creator can pick a license with whatever combination of terms suits her. That some Creative Commons licenses permit authors to forbid derivative works reveals how committed it is to the principle of authorial control, even in the face of Lessig's arguments that new creativity builds on the past. The Creative Commons (2007) web site explains its mission thus:

Too often the debate over creative control tends to the extremes. At one pole is a vision of total control – a world in which every last use of a work is regulated and in which “all rights reserved” (and then some) is the norm. At the other end is a vision of anarchy – a world in which creators enjoy a wide range of freedom but are left vulnerable to exploitation. Balance, compromise, and moderation – once the driving forces of a copyright system that valued innovation and protection equally – have become endangered species.

Creative Commons is working to revive them. We use private rights to create public goods: creative works set free for certain uses. Like the free software and open-source movements, our ends are cooperative and community-minded, but our means are voluntary and libertarian. We work to offer creators a best-of-both-worlds way to protect their works while encouraging certain uses of them — to declare “some rights reserved.”

The emphasis here is on creators – their freedom, their exploitation, their choice. Despite the practicality of this approach from a legal point of view, the emphasis on balance is problematic. From an economic perspective, copyright is not intended to strike a balance between creators and consumers: it is supposed to align the interests of both. Creators are encouraged to create, thereby benefiting consumers with the fruits of their

art. The true balance in copyright law is between the creators of the present and the creators of the future.

The larger problem with this the Creative Commons understanding of “balance,” however, is one that Creative Commons shares with the public domain: defined as a response to the current regime of copyright law, it lacks a positive core vision. Lessig and Creative Commons are not opposed to copyright; they are simply trying to address its failings. But technical failings in the law have their origins in social understandings of ideas and property (particularly the idea of the romantic author), and in political pressures on lawmakers. Anthony McCann (2005) argues that this immersion of Creative Commons in the language and logic of intellectual property has led to its failure to construct a positive alternative. I agree. McCann goes further, however: for him, Creative Commons (and open source software) is actually counterproductive: it entrenches the ideology of ownership and the alienation of workers from their labor. In this I believe he is mistaken. Without such protections, capitalism would appropriate the products of the commons. And though these arrangements may make use of existing tools, such as copyright law, they do so in order to create an economy – and potentially a community – in which ideas are not alienated from their creators or from their audiences. A positive alternative to exclusive ownership is needed, and Creative Commons has the potential to be that positive alternative. The references to *community* and the open source *movement* point towards a positive conception of Creative Commons as something more than an economic resource (the Creative Commons statement also mentions the “public good”, but this is a term with its roots in economics which doesn’t assume any concrete relationship with creators). But just as the social underpinnings of the commons is lost when it is understood in purely economic terms, the Creative Commons emphasis on law and economics, and on the existing regime of copyright (and therefore the social understanding of that regime) has so far failed to provide a social grounding for it as a movement.

The positive vision missing in the Creative Commons and the public domain is present in the principles of community embedded in older commons arrangements. In contrast to Creative Commons, the GNU General Public License of the Free Software Foundation derives its terms from specific principles and objectives. These are expressed

as four freedoms of the Free Software Definition (2007): the freedom to use for any purpose, to study and learn from the software, “to redistribute copies so you can help your neighbor”, and the “the freedom to improve the program, and release your improvements to the public, so that the whole community benefits”. These freedoms focus not on the creator of the software, but on users and subsequent creators, whose benefit is seen as a benefit to the community. In such a community, the relationship between ideas and community is constitutive: each depends on the other. Remove the community from a commons and you remove it soul.

Yochai Benkler’s (2006) detailed and expansive exploration of nonmarket production addresses some the implications for self-development and community. He is interested in the ethical and social implications of the creation and sharing of knowledge. For Benkler, nonmarket production is a boon for democracy because it provides individuals with more and better information and expands the public sphere. It increases individual autonomy and choice. It serves the cause of social justice by reducing barriers to participation in the economy. And it cultivates a critical culture in which individuals are able to participate actively. My description here picks out only a few themes from Benkler's analysis, which is wide-ranging with a wealth of evidence. What this illustrates, however, is that Benkler's approach is avowedly liberal. His focus is on the individual and on “loose, nonmarket affiliations” (p. 16), which he contrasts to the state. When he does explain implications for community, he focuses on technology – the Internet, cell phones, and so on – with much less exploration of the role of works of authorship. For Benkler, cultural meaning is largely an individual affair; unlike the self-development of Dewey or the progress of Arnold it is not something that must take place in the context of a group. When he writes of the kind of collaboration the Internet fosters, he describes it as “low commitment”, not requiring “stable, long-term relations” (p. 9). He argues that the individualism of actors in may be a new form of community that enables more freedom for its members. What is missing from this perspective is a deep conception of community as an association existing in time which can aid in the self-development of its members. Benkler writes about the autonomy of the individual without placing it in the necessary context of community.

Defining Community

I have described a number of communities that engage in intellectual production, and criticized existing theories of the commons for their lack of emphasis on community. In order to explain how the production of ideas relates to community, I must explain how I understand community and pick out relevant characteristics.

One approach to understanding community is in terms of social capital. Social capital consists of human relationships. These relationships can later be used by groups and individuals to achieve their ends. Robert Putnam (2000) writes,

Just as a screwdriver (physical capital) or a college education (human capital) can increase productivity (both individual and collective), so too social contacts affect the productivity of individuals and groups. Whereas physical capital refers to physical objects and human capital refers to properties of individuals, social capital refers to connections among individuals – social networks and the norms of reciprocity and trustworthiness that arise from them. (p. 19)

Putnam attempts to measure social capital by examining membership in associations, behaviors reported by individuals, and so on. He reports that social capital correlates positively with a number of desirable social characteristics, such as education, civic engagement, and democratic participation. Putnam claims that social capital in the United States decreased precipitously over the course of the late twentieth century. This conclusion has been criticized for a failure to account sufficiently for the integration of minorities and women, or for changes in how people associate. Putnam measures card playing and Rotary Club memberships, for example, but misses the uptake in social software on the Internet since his book was published. Despite these criticisms, social capital and Putnam's analysis of it are useful regardless of the accuracy of his larger claims. He makes strong arguments, for example, that the advent of television and the dispersion of residence into suburban communities have reduced human connections and relationships. Yet from the perspective of my analysis of ideas and the commons there is a weakness with social capital as an understanding of community: it treats human relationships as instrumental, something to be used or expended to achieve something else. One of the strong arguments in favor of commons production of ideas is that it entails the creation of community as an end in itself.

Benedict Anderson (2006) offers another approach to understanding community. Anderson is concerned with the rise of nationalism, both among old world peoples sharing a language and culture, and in colonies lacking a long tradition of shared culture to bind them together or to differentiate them from their neighbors (as in South America or the Dutch East Indies). Despite this lack, colonies around the world found independence as coherent entities – even though in many cases the members of their new ruling classes had not known each other personally or even known specifically of each others' individual existences. Anderson explains this in terms of imagined communities of people with similar life experience and cultural backgrounds who, although they did not know each other or know of each other, were aware that others like themselves were present in their territories – others who shared similar knowledge and experience. This, he says defines the nation:

it is an imagined political community – and imagined as both inherently limited and sovereign. It is *imagined* because the members of even the smallest nation will never know most of their fellow-members, meet them, or even hear of them, yet in the minds of each lives the image of their communion. (pp. 5-6)

Anderson's (2006) characterization is particularly useful because it can capture a whole society. And society was the concern of the romantics who claimed that authorship and the arts could provide a moral foundation for a nation or people.

Anderson (2006) understands nations as limited. "No nation imagines itself coterminous with mankind" (p. 7), he writes. They are also horizontal, rather than hierarchical: "regardless of the actual inequality and exploitation that may prevail in each, the nation is always conceived as a deep, horizontal comradeship" (p. 7). One of the shared experiences Anderson uses to illustrate the common life and equality of people in a nation is that of reading the newspaper. The newspaper has been widely linked to nationalism (e.g. Thompson, 1995), but Anderson goes beyond the content and language of the news:

We know that particular morning and evening editions will overwhelmingly be consumed between this hour and that, only on this day, not on that. . . . It ["this mass ceremony"] is performed in silent privacy, in the lair of the skill. Yet each communicant is well aware that the ceremony he performs is being replicated simultaneously by thousands (or millions) of others of whose existence he is confident, yet of whose

identity he has not the slightest notion. . . . What more vivid figure of the secular, historically clocked, imagined community can be envisioned? (p. 35)

By community, I mean a non-instrumental bounded collection of participating members who are conscious of their membership in the community, and who are connected to other members within the community by relationships that extend over time.

First, community life is *not simply instrumental*. Communities are ends in themselves.

Second, a community must have *boundaries*, though there is often ambiguity at the edges. It must do so in order for the question of membership to make any sense. The ambiguity arises partly because that sense of membership can be qualified (e.g. because people are often members of conflicting communities), and because of the element of time – membership can be gained or lost slowly over a long period.

Third, a community consists of *relationships that extend over time*. It persists. This element of time is critical. Innis (1991) captures its importance when he contrasts media of space with media of time. Feenberg and Bakardjieva (2004) describe online community as “relatively stable, long-term online group associations” (p. 2).

Fourth, members of a community are conscious of that membership – there is a *sense of identity*. Furthermore, membership is acknowledged by others within the community. The reverse is not necessarily the case. Though others within the community may potentially identify someone as a member, like Anderson’s (2006) citizens they may in practice not be aware of the membership of a specific individual.

Fifth, communities are oriented around *participation*. The importance of a member of a community is largely a product of that person’s engagement with the community. Membership isn’t simply a binary quality, it is something that may apply more or less to any given person. That membership is largely a result of that person’s choices and actions. Communities can be distinguished by the scope for participation they offer to their members. This dependence of participation is both a strength and a weakness. A strong community requires action by individual participants, and may therefore suffer from collective action problems. It also becomes difficult to exclude a

member who is disruptive. On the other hand, a community can be more resilient and offer more individual freedom to its members.

From the point of view of the individual, a healthy community has one other attribute: it helps its members pursue their own self-development. (I say healthy community because not all communities are communities of choice, and because not all individuals choose to pursue self-development.) To put the argument in its proper order, the pursuit of self-development requires community.

In the context of the ownership of ideas, communities are implicitly contrasted with markets and market actors (often corporations). There is some overlap between communities and other organizations – colleagues in a workplace, for example, can form a community – but there are key differences between organizations and communities. It is necessary to bear this in mind when considering the open source movement or other similar commons production systems. Both are systems with boundaries: actors can be within a network or community, and they can be without it. In both cases the boundary can be fuzzy, though in organizations it is more often hard edged (the boundary is a political matter, as Feenberg (1999) explains): a worker is employed by a company or he is not – there is no middle ground, and this status can change from one day to the next. Membership in a community is often qualified or ambiguous; changes in status can be slow, or only retrospectively evident. More significantly, markets and organizations are often dynamic and fast-changing: they include or exclude according to the demands of the moment. Their fluidity and dynamism is key to their efficiency – in a sense, it is what defines them. Communities, however, are durable, and membership in them is lasting. Ties between members are not purely instrumental.

Creative Community

Science, open source software and Wikipedia demonstrate that communities can create works and sustain a successful alternative to exclusive ownership. I call these creative communities, about which I make two complementary claims: that the production of works reinforces community, and the production of works is promoted by the construction of community. These former is partly a normative claim, for the

development of communities and individuals are ends in themselves, which also explain the forces that can lead to the construction and success of creative communities. Now I must explain the relationship between these processes, and show how it connects to authorship.

In a creative community, shared activities and shared objects mediate between people. J.M. Neeson (1993) describes how in the historical commons of land, activities were shared because they depended upon a shared space. An analogy can also be drawn to Benedict Anderson's (2006) description of the bond formed when people read the same newspaper at the same time. Though not aware of each other specifically, each knows that he is part of a larger community of individuals doing the same thing – and thus understands himself as a member of a larger imagined community.

Hannah Arendt (1998) makes a similar argument about the need for a durable world of stable objects against which we define our identities. “Men . . . can retrieve their sameness, that is, their identity, by being related to the same chair and the same table” (p. 137). Arendt emphasizes that natural objects cannot do this: human subjectivity depends on our relation to the things we create, otherwise we are drawn into “biological movement” (p. 137). Albert Borgmann (1984) takes this idea further, arguing for the value of focal things. A thing, he says, “is inseparable from its context” and from our engagement with it (p. 41). “The experience of a thing is always and also a bodily and social engagement with the thing's world”. A focal thing is not purely instrumental. It is produced not only for what it can do, but for what it is and how it relates to the world. It is focal because it is the center of focal practices; engaging in these practices promotes “discipline and skill which are exercised in a unity of achievement and enjoyment, of mind, body and the world, of myself and others, and in a social union” (p. 219).

Physical things are not necessarily the most durable or permanent. Arendt (1998) implies this when she suggests that “because of their outstanding permanence, works of art are the most intensely worldly of all tangible things” (p. 167). She goes on to explain that they “are strictly without any utility whatsoever” (their use, in fact, “can only destroy them”). And because objects of art “are unique”, they “are not exchangeable and therefore defy equalization through a common denominator such as money”. Arendt is describing physical artifacts like paintings and sculptures. But the claim for durability is

even more true for creative works in their abstract form. While the physical media on which a work subsist is often short-lived (magnetic and optical storage last for decades, in contrast to the centuries that traditional media like paper are capable of), when a work has cultural or intellectual significance it is likely to be copied repeatedly, quoted and used as the basis for derived works. There is no physical limit on the reuse or durability of ideas. In an environment where duplication is cheap and widespread, the greatest danger to the permanence of knowledge and cultural works is the loss of the community that values and reproduces them. The best guarantee for the survival of of such works is their ability to sustain that community (hence the limits imposed by copyright tend to reduce durability – see Lessig's (2004) discussion of orphaned films (pp. 223-225).) Still, there is a sense in which ideas and works can be exhausted simply by being experienced or communicated. Human beings seek novelty, new understandings and new insights in art. The practice of interpretation and of placing works in new contexts gives them new meaning. Creative works grow through our interaction with them; for this reason too they need community to preserve their durability – not because they might be destroyed, but because practice is essential to their existence: without it, they become stale and lose significance. This activity of the work can be thought of as performance, in public or in private – for people who have not experienced it before, by those who find new meaning in it. Each experience contributes to the work, if only in some cases from the perspective of the individual who develops private meanings. The arguments of Arendt (1998) and Borgmann (1984) show how cultural works can be focal things, central to the foundation of communities.

In such communities, audience and author need not be clearly separated. Both contribute to works and to community. This activity is a form of self-development, the progress towards perfection through culture. That self-development depends on and contributes to community. Community makes these things even more durable, and enables their exchange – not in the commodifying sense meant by Arendt (“because they are unique, [they] are not exchangeable and therefore defy equalization through a common denominator such as money” (p. 167)), but as active participants in community that elude alienation and create even stronger bonds between giver and receiver.

One way to understand this process by which works and community reinforce and compose each other is to see works as members of the community at the same level as human beings. Drahos (1996) calls works “the disembodied presence of others” (p. 62); Latour (1995), in his analysis of technology describes technical devices as delegates, whose treatment should be symmetrical (in his words) with that of people. According to Latour, we inscribe or encode “scripts” – scenes, scenarios, practices – in technological devices. Like Borgmann’s (1984) focal practices, these scripts in turn prescribe the activities of people. Latour gives the example of the door closer. The door closer is designed by people to close a door, but it in turn prescribes certain actions for people who wish to pass through the door. Prescribed actions are not forced: people can still chose to do otherwise (e.g. by disabling the door closer or chopping down the door), and technical technical devices can fail or behave in unexpected ways. Just as Stuart Hall’s (2001) author’s encoding of a given text frames the interpretations of the reader, but does not force a particular response, so both kinds of actor, human and non-human, creates affordances for the actions of others.

If works are members of communities, then they too engage in self-development. Dewey (1981) and Barber (1984) argue that human self-development cannot take place without community. Works in a creative community are not complete things, fixed in time – they also change. So the same is true for the development of works. In Arnold’s vision (in Williams, 1963, p. 127), an individual cannot progress unless he carries others with him. The self-development of a work entails the development of members of the community; as a member itself, the work’s development is implicated in the self-development of others. People and works accompany and influence one another on their trajectories. Works are the focus of relationships between people, and so people are equally the focus of relationships between works. The interpretations of human beings contribute to and change the meanings of works: the audience, as I have said, are coproducers of works. Similarly, however, works construct the audience – or the community – who experience each other and each other’s meanings through the works. Then works can be understood not as static objects in community, but as active participants, their significance changing as they influence the people who interact with them.

This understanding of works in community throws the problem of proprietorship into relief. Boundaries around a work limit its ability to change and interact with community. It is no longer symmetrical with other members of the community: the prerogatives of ownership preserve its scripts against reinterpretation or recommunication in the form of derived works. The owned work is less a participant in the community and more a delegate of its owner (who may not even be a community member). Similarly the author – rather the owner – is not symmetrical with the other human members of the community either.

One approach to understanding such communities is as gift economies. A number of scholars have made this suggestion about open source. Eric Raymond (2001) characterizes open source software development this way, going so far as to suggest that “perhaps . . . the reputation-game gift culture is the globally optimal way to cooperate for generating . . . high-quality creative work” (p. 107). Aiyer Rishab Ghosh (1998) takes a similar view, and suggests that reputation in the open source community “is equivalent to price, having come about through the combination of multiple personal attestations (the equivalent of single money transactions)”. Steven Weber (2004) discusses reputation, but argues that it cannot be a central motivation for developers. If developers strove to maximize their reputations, he reasons, developers would compete to be project leaders; they don’t, so reputation cannot be so important. Weber considers it only one of several motivations for developers.

Weber (2004) makes a strong argument for other motivations, but he may overstate the case against reputation. Because software is not owned, developers can and do attempt to achieve leadership by launching a competing effort based on the same source code (forking) or by building something new on top of existing work. Because code is not scarce, and reputation is not zero-sum, such opportunities are not scarce either. It may simply be the case that the costs and risks associated with attempting to displace an existing leader are greater than those of working in parallel.

But gift-giving isn’t only about reputation. In Weber’s (2004) analysis, one of the motivations for making software free is the hope that others will reciprocate and improve the software. Weber also discusses how participation in the community reinforces common identity and belief systems; reputation may be less a value to be maximized

than a simple assertion of membership and solidarity – what might be termed recognition. This is supported by the evidence of Hertel, Niedner & Herrmann (2003), who found that while contributors to Linux hope to use their reputation to increase their job prospects (reputation), they are more likely to contribute on the basis of their identification with and participation in the community. All such contributions to the commons can be seen as gift giving. Just as with the commons itself, a microeconomic understanding of gift-giving fails to capture the richness of the practice. Gift-giving is embedded in community life and it produces and reproduces social relations. Gifts, it turns out are inalienable, and gift-giving is remarkably like authorship.

Gift economies are neither novel nor rare: they preceded money economies and can be found in societies around the world. Marcel Mauss, in his (1990) book *The Gift*, summarizes anthropological and historical depictions of gift exchange. His purpose is to understand why gift-giving is reciprocated in these societies. Mauss asks, “What rule of legality and self-interest, in societies of a backward or archaic type, compels the gift that has been received to be obligatorily reciprocated? What power resides in the object given that causes its recipient to pay it back?” (p. 3). As Godelier (1999) points out, the wording of Mauss's question reveals that he is not simply asking what the motivation is for the giver. By asserting that there is something in the gift itself that compels its return, Mauss is treating the gift symmetrically with people. In a sense, Mauss believes the object has a spirit.

Godelier (1999) rightly criticizes Mauss (1990) for accepting this explanation – for Mauss's spirit is not a quality of the gift itself but of the individuals involved in the exchange and in their society. At the same time, Godelier sees the gift as an actor – for him, the gift *is* a person. Yet while the spirit in the object may appear to be a product of the “archaic” societies Mauss describes, it is echoed in our modern understandings of creativity and authorship. It illuminates characteristics both of proprietorship over ideas and the success of arrangements in which ideas are shared. To the extent it applies, the motivation of reputation or recognition does not stand alone: it requires a connection between the giver and the gift. Unlike market exchange, in which the worker is alienated from the fruits of her labor, the giver of a gift must remain connected to it – even more so when the gift is the product of intellectual or creative labor, which is to say it is the

product of authorship. For an author, in order to be understood as an author, must not be alienated from her work. To explain this, however, I must begin with Mauss's analysis of gift-giving, and Godelier's extension of it.

Mauss describes two kinds of gift-giving: agonistic giving and exchange. In the former case, gift-giving is a competition in which givers attempt to outdo one another in the extravagance of their gifts. Mauss describes how leaders in native societies along the north west coast of North America demonstrated their power and asserted their authority by participating in a ceremony called the *potlatch* in which they gave away tremendous quantities of wealth. The objective of this kind of giving is to give so much that the debt cannot be repaid, thereby asserting a hierarchical relationship of authority. (There may be some parallel here with hierarchies that have emerged in systems like Wikipedia, in which participants accumulate authority over time and a hierarchy emerges.)

The other kind of gift giving is exchange. As Godelier (1999) notes, it is characterized by a period of time between the giving of a gift and its reciprocation. The most illuminating example used by Mauss (1990), and further refined by Godelier, is that of the Trobriand Islanders. The Trobriand Islands form a rough circle off the coast of New Guinea. Their inhabitants craft highly esteemed necklaces and arm shells known as *kitoum*, believed to have sacred and healing properties. These objects are attributed with qualities of human beings. Necklaces, for example, are considered to be male, while armshells are female. These objects are given in a definite pattern. When a necklace is given, it is always passed in the same direction around the circle of islands; when an armshell is given, it is passed in the opposite direction. Recipients of such a gift may keep it for a while, during which its spiritual qualities benefit them, but after a time they must pass it on to someone else. Mauss attributed this to the belief that the object has a spirit. The *kitoum* is not wholly owned by the recipient; it remains linked to the original giver:

the things exchanged . . . are never completely detached from those carrying out the exchange. The mutual ties and alliance that they establish are comparatively indissoluble. In reality this symbol of the social life – the permanence of influence over the things exchanged – serves merely to reflect somewhat directly the manner in which the subgroups in these segmented societies, archaic in type and constantly enmeshed with one another, feel that they are everything to one another. (Mauss, 1990, p. 33)

In the case of the Trobriand islands, it turns out that the *kitoum* is not always a gift. Some necklaces and armshells are owned in the proprietary sense: they are not passed on. This may be because the object has been crafted or purchased by its owner, but it may also be because the gift has been received in an exchange. According to Godelier (1999), the Trobriand Islanders have a precise system for ranking the quality of *kitoum*. When an islander receives a *kitoum*, he (for it is traditionally the male chiefs who engage in the practice) may choose to conduct an exchange. In this case, he must have an equivalent quality *kitoum* of the opposite gender (an armshell for a necklace or vice versa). He then keeps the object he received as his own, and gives away his matching *kitoum*, passing it around the circle of islands in the opposite direction from the gift he received. The reciprocated gift circles the ring of islands, eventually reaching the giver of the original gift, who may then keep it in exchange for the object he gave. Until this exchange takes place, the gift is inalienable: it is linked to the original giver. As it is passed around the islands, the reputation of the original giver is increased by each exchange, as is that of intermediate givers who may give it away in order to increase their status or repay a debt. As Godelier (1999) notes, the point of the exercise is to create debts and reputation:

what interests the people of Massim when they engage in *kula* [this practice of gift exchange] is not coming together to exchange equivalent items. What they want to do is to create debts, and to make these debts last as long as possible, in order to build up prestige and to aggrandize a name. In this sense *kula* may be compared with a potlatch. (p. 92)

The alienation of the gift, then, is something to be avoided, or at least postponed, for alienation ends (or at least weakens) the link between the giver and the gift – and thereby reduces the links that structure the society and bind it together. This is non-agonistic giving – all parties to the exchange achieve recognition and increase their reputations. Unlike Weber's scenario of competition for leadership, reputation and recognition are not zero-sum. They benefit individuals, but they also bind the society together. This recalls a description from Neeson (1993) of the commons communities of England, where gifts "were all significant because, in peasant societies, gifts helped families with little other reason for contact to make connection with each other, and through connection to establish a kind of safety net" (p. 180).

The parallel with open source is striking, though in this case it may be recognition that is being achieved rather than reputation that is being increased. Weber (2004) argues that one of the chief incentives of open source developers to contribute is the hope that their contribution will be reciprocated: another developer somewhere may find their work useful and improve it, benefiting the original developer. He describes open source software as *antirival* – it increases in value as it is shared. The comparison to *kula* can be taken further. Intermediaries are active participants. Software is passed from user to user, so that even though intermediate users may not themselves contribute (or they might, by submitting a bug report or providing other assistance), their activity increases the likelihood of another developer finding the software, using it, and contributing. This has happened to me: users of my software have found it useful enough to fund further development by me, or encourage other developers to work with the software.

Mauss (1990, p. 67) briefly connects the inalienability of gifts to the proprietorship granted by intellectual property laws. What his analysis and that of Godelier and Weiner show, however, and what the case of open source demonstrates, is first that contributions to a commons *in the context of a community* can continue to be connected to the giver; and second, that despite this connection these objects are not wholly dependent – they can be seen as actors in their own right.

Unlike the physical objects Mauss (1990) describes, which are given up from one individual to another until they reach an owner, intellectual works can be possessed indefinitely by many people at once. Mauss's owners are never deprived of ownership (though they can give it away); an intellectual work is never deprived of authorship – though new authors can add to it. Although authorship is retained, the passivity of the audience dissolves. Some of those who use or experience a work are relatively passive, but others are active participants who contribute to the value and meaning of the work. They are not merely recipients of knowledge and ideas, but conduits who pass them on to others in the audience and feed them back into further acts of authorship. Authors and audience are, to a significant degree, the same people. Eric Raymond (2001) comments that open source developers often write software in order to scratch an itch – they are

their own users (audience). The same is true of Wikipedia (Weinberger, 2007), or the scholarly value of peer review.

Recognition and reputation can only be constructed in the context of existing social relationships. Reputation and price may be alike, as Ghosh (1998) suggests, but they exist in different contexts. Price requires a market – dynamic, alienated, oriented around the logic of space. Reputation requires a community – stable, affective, lasting. This is a rebuke to the efficacy of organizations and property rights for producing ideas. It is not only a question of *production* but also a question of *exchange*. The works exchanged may be products – expressions fixed in a medium (as copyright supposes) – to some degree it doesn't matter so long as they represent relationships between people. For the exchange of ideas, novelty is required. The production of relationships requires creative activity – the creation of new ideas, new meanings, and new works. Then people produce in order to share, and commons production must be seen as fundamentally a social realm of exchange, in which production is sometimes only a side-effect. Marx's commodity conceals relationships between people. The gift exposes and represents them. This representation does not require the hard lines to be drawn between one object and another as property relations and the market do.

On the other hand, community is something that must be fostered in order for the production of works to take place. In the era of industrial mass production, it was in the interest of capitalists to dissolve personal relationships in favor of atomized consumption (Williams, 2001). But works exist only in the context of shared understandings of community; the more specialized the works (such as scientific knowledge), the more this is the case. Thus, in order to make works valuable, community must be constructed. Scarcity increases the value of *copies*, not necessarily the value of works: in most cases, the value of a work is increased when it is widely shared. So those who benefit from the creation of knowledge have an incentive to create community, or to attempt to capture or influence existing communities.

Creative communities are affected by legal distinctions of intellectual property, but regardless of exclusive legal rights over ideas, communities may share works and develop practices around them. Kids dancing to music on YouTube, fan edits of films, and fan fiction are all practices that may challenge the law, but they are nevertheless

community practices in a commons. Similarly, communities can exist within networks; this is one of the functions of corporations. Benkler (2006) points out that as copyright protections strengthen, the ownership of ideas becomes more concentrated – for within a corporation, there is no barrier to the interpenetration and reuse of ideas. We see this with businesses built on so-called “user-generated content”, such as YouTube and Facebook, who use words like “community” or “family” to describe their customers or audience. In this way, creative communities can be used to produce works that are then appropriated for exclusive ownership, or to increase the worth of works that are already property. There can be a struggle between communities and organizations for control or influence; businesses that push too hard for proprietary control may lose the coherence and benefits of community.

Exclusive ownership of works and the hard-edged boundaries that entails is one risk; similar hard boundaries around community are another. Kuhn’s (1970) description of science reveals that while community is necessary to the practice of science, not all of that activity happens at the core of the community: some of the most important creative activity happens at the fringes. Evidence about changes to Wikipedia suggests the same thing. Both communities and the works created in them are attenuated at the edges. While ideas and works are often sustained at the heart of a community, they are often produced at the edges. Stronger communities, more specifically more strongly bounded communities, are not necessarily better at producing ideas. This is one of the disadvantages of attempting to create closed communities of knowledge and ideas.

Kuhn (1970) describes two kinds of science: normal science and revolutionary science. Normal science is an incremental process within the core of a scientific community. It refines and develops theory, and is essential to the normal progress of science. Revolutionary science, on the other hand, usually arises on the fringes of the community. Those scientists who carry out normal science are necessarily committed to the reigning paradigm for a discipline. Working outside a paradigm requires distance from its assumptions.

Peter Hall (1998) analyzes the creative eras of several great cities. He suggests that creative cities require a tension between tradition and change. These are “cities in the course of kicking over the traces” (p. 286). But this is not enough:

. . . there must be traces to kick over. Conservative, stable societies will not prove creative; but neither will societies in which all order, all points of reference, have disappeared. (p. 286)

An intellectual or creative work must derive from a shared store of ideas – a consensus. The more specific, more detailed, more expansive that consensus, the richer is the store of ideas available for new works. There are certain ideas that are shared by all of humanity, but the richest consensus is the domain of smaller groups of people and communities who share something across time. Yet the greatest potential for new ideas arises from people who are different. This is a variation of Granovetter’s “strength of weak ties” (in Rogers, 1981) finding that the information exchange potential of individuals is proportional to the degree to the difference between them. Putnam’s concerns that communities can be too insular, held together by what he calls “bonding” social capital within the group, is balanced in the need for relationships with others, which he terms “bridging” social capital.

This separation of intellectual or creative activity into two kinds of work can be found elsewhere. In Wikipedia, for example, the core editors do essential work but they are not the primary source of new material. For the past several decades, the recording industry has experienced the same phenomenon. Record companies provide polish and marketing for established artists and genres, while new musicians and genres arise at the fringes.

Analytically, there appear to be two groups of people doing two sorts of work. Those within the core of a community incrementally improve works, providing editing, polishing, or creativity within a tradition. Many of these are seen as technicians – editors, managers, and so forth. In contrast to them, those on the fringes bring with them vibrant change and a personal connection to their work. They fit the romantic conception of the author. Yet in most cases they are unable (due to lack of time, limited knowledge of community norms, etc.) to refine their work or distribute it to a wide audience without the help of the first group.

In practice, copyright has a curious relationship to these groups. In many cases, copyright belongs to or is most clearly controlled by the core (as a generalization I will call them editors, though creative individuals are often also associated with this process –

in many cases working for hire), not to the authors on the fringes. This is interesting, for it suggests that the incentive copyright provides may be most needed by editors, not authors. Furthermore, copyright does little to make the work of romantic authors inalienable.

In this context, the inalienability of works in a commons or gift economy may offer real benefits to authors. But these benefits may come with a weakness: editing and polish may be lacking. In that case, the success of a community in providing for these contributions may be critical to the quality of creative and intellectual works produced. Moreover, when these contributions are most needed and can be provided by a commons, success may be greater.

This is supported by three of the examples I have provided: science, which rewards journal publishers with copyright control (and which may be simply discarding that step with online open access journals); Wikipedia, whose core group accumulate influence and reputation; and open source software, which has found a way to parcel up editing (particularly bug reporting and fixing) into small pieces so that outsiders require little commitment to make a contribution. It may be that areas with less evident success of commons production models – such as music, film, and fiction – are less amenable to individual contributions, or may have less need for them in the first place.

Of course this is only one factor in commons production. The benefit to authors of producing in a commons must still be clear to them (as with open source and science), or the cost of doing so must be low (as with Wikipedia). For communities as a whole though, this also suggests that fuzzy boundaries are essential for the continued production of creative and intellectual works.

Conclusion

The creative community is a kind of commons in which community and creative activity reinforce each other. Take away the ideas and you diminish the community. Take away the community and the ideas are empty husks. The two depend on each other – more, the two are made of each other. In effect, works are members of the community. The relationships of community are mediated through the production, exchange, and reproduction of shared intellectual works. (By reproduction I mean utterance, performance, reiteration, and so forth.) Individuals express their individuality and their commonality through these works. The value of the works is not only the ideas themselves, but the expression and relationship that takes place through them – expression not to an abstract other, but to known or imagined individuals within the community.

The creative community resolves difficulties that arise when intellectual works are owned. When they are property, works must be strongly bounded – separated from each other and from their contexts. They are alienated from their communities, from other works, from their histories and the potential for change. Economically, this alienation introduces inconsistencies and inefficiencies within the market, while the virtuous cycle of exchange, production, and reproduction that augments the value of works is dampened. Creative community can be more efficient.

Socially, the creative community enhances the self-development of individuals and relationships within the community. When works are not owned, the boundary between authors and audience is fluid. The experience of a work is also an act of creativity and authorship that can be freely shared with others. Unalienated from the participation of the community, works become actors involved in communication and relationships between people. This too is foreclosed by exclusive ownership, which reserves substantive engagement with works for their authors – in practice their owners, which are seldom the same – and in any case disregard the originators of shared

meanings and ideas on which a work builds. Proprietary works are proxies for their owners, not full members of the community.

Creative community can exist without ownership, but the opposite is not true: without common ideas and works, creativity cannot take place. The ownership of works arose to resolve the collective action problem of creating works, in tandem with the absorption of labor into the market economy and the development of the idea of authorship. Proprietary production attempts to resolve its inconsistencies by recourse to the fiction of a romantic author who creates from nothing, justified on the grounds that works are products of self-expression inalienable from their creators: but in practice, creators often surrender ownership of their works.

The potential for creative community to succeed, even in the face of competition from capitalists dedicated to the ownership of works, is demonstrated by the successes of science, open source software, and Wikipedia. This success is partly economic: working with social norms and copyright law, these efforts have withstood the threat of capitalist appropriation. The more important consequence of that success, however, is social: these are communities. Community is not simply a factor of production like coal or capital – it is a way of life. It is an end in and of itself. Community is not only necessary for producing works; it is also an outcome of that production. In some cases, the production of works may not even be a goal of community, but merely a side-effect of other activity. Even the simple exchange and sharing of works entails creative and intellectual activity as individuals form their own interpretations and meanings as a necessary part of the process of communication. Because works are connected to their authors, and because people share their experiences of works, exchange and sharing constructs relationships between people. These processes are desirable regardless of the works produced because community and self-development, furthered by creative and intellectual activity, production, and exchange, are ends in and of themselves.

Limitations and Future Research

It is a significant limitation of this thesis that I have focused on a narrow subset of intellectual works, all of which are formally supported by open or copyleft licenses. The

works in my examples are knowledge and tools (software). I am not aware of any equally striking examples of successful artistic communities structured formally around copyleft or open licensing. Creative community does not rest on economics alone, so it can often be sustained regardless of proprietary competition. However, absent formal protections (e.g. copyleft licensing, the idea/expression dichotomy, etc., depending on the kind of work), it is vulnerable to capitalist appropriation and at risk of erosion – as has been the fate of the public domain. Nevertheless, artistic creative communities surely exist, sometimes within the proprietary system. The proprietary model, however, isolates authors from audiences, so these are perhaps best seen as communities of authors, and are often subject to at least some of the limitations of ownership – which may increase as they are absorbed by the market system of exclusive ownership (or which may be shielded within a firm where copyright restrictions do not apply). When jazz and blues music evolved, for instance, they did so in a commons. Here is a story of how jazz musician Muddy Waters composed the song “Country Blues” (Lethem 2007):

“I made it on about the eighth of October '38,” Waters said. “I was fixin' a puncture on a car. I had been mistreated by a girl. I just felt blue, and the song fell into my mind and it come to me just like that and I started singing.” Then Lomax, who knew of the Robert Johnson recording called “Walkin' Blues,” asked Waters if there were any other songs that used the same tune. “There's been some blues played like that,” Waters replied. “This song comes from the cotton field and a boy once put a record out— Robert Johnson. He put it out as named ‘Walkin' Blues.’ I heard the tune before I heard it on the record. I learned it from Son House.” In nearly one breath, Waters offers five accounts: his own active authorship: he “made it” on a specific date. Then the “passive” explanation: “it come to me just like that.” After Lomax raises the question of influence, Waters, without shame, misgivings, or trepidation, says that he heard a version by Johnson, but that his mentor, Son House, taught it to him. In the middle of that complex genealogy, Waters declares that “this song comes from the cotton field.”

Lethem (2007) comments that this is not unusual: “Blues and jazz musicians have long been enabled by a kind of ‘open source’ culture, in which pre-existing melodic fragments and larger musical frameworks are freely reworked.” It is worth asking how well communities and works such as these fit the creative community model, and where and why they deviate from it or are appropriated. Some preliminary thoughts follow.

First, every cultural form has its own affordances which may make it more or less difficult to produce in a commons. Certain expressive works (such as novels) may simply benefit less from collaboration. Photography is less likely to be excerpted or to build on other works. Movies demand high capital investment and the complex coordination of many contributors. Science, software, and collections of facts have a number of characteristics that make them particularly easy to develop collaboratively. Their value is more objective than that of art: it is much easier to find a common ground and consensus for testable claims and software that works. These works are less tightly integrated wholes, and are more readily broken down into pieces for individuals to work – compared to, say, a novel, which must be consistent in style, plot, character, and theme. Because these works are more firmly grounded in a shared consensus, they are seen less as a product of individual self-expression. They are more easily shared, more readily given (though producing and sharing them would thus promote community and self-development less than more expressive works).

Second, intellectual collaboration depends on history and cultural norms. Collaborative development is part of the culture of science and of software. The culture of sharing in these fields goes back to their founding; it has not been usurped by proprietary ownership. The norms and economic models necessary to support commons production are well established. This is not the case for many forms of mass media: movies and printed books, for example, have always been products of the market. The communities to support the commons production of these kinds of works simply do not exist, and the shared culture they can draw from (current public domain or material available under open licenses) is limited; the potential for them is caught in a chicken-and-egg question of whether the community or the works must come first. Music is significant in that much musical even today is nonmarket – it may be a particularly good candidate for a formal creative community (one protected by copyleft).

Third, the transformation of literature, film and so on into owned products changes them. As I have explained, works in the commons would likely be different works. It may be, then, that we are looking for the familiar cultural artifacts when in fact new forms do exist. A focus on physical published objects may ignore other forms. Urban legends, Internet fads that enter the folklore of the medium and the reuse and

meanings built upon proprietary culture (disregarding copyright) may all qualify. Fans of the film *The Rocky Horror Picture Show*, for example, have developed complex cultural traditions. Cultures of fan fiction have sprung up around commercial properties such as *Star Trek* and the *Harry Potter* novels. It may be that the products of creative communities are sitting under our noses, but we do not recognize or value them because it is not what we expect, because it is not part of the market, or because the commons it is outside the law. It is worth applying the creative community model to such communities and their works.

Finally, my argument here suggests that the successes of software and science can be reproduced for other cultural works, but empirical evidence is required for individual fields of endeavor. A number of scholars have established the potential economic benefits of nonproprietary production. What I have tried to do here is to show the normative benefits. But I am not prepared to answer the question of whether or how much this is happening for various kinds of works. The answer to that is largely determined socially, not simply by technology or economics, so it must be grounded in the context and evidence of actual practices and works.

My focus on what I call intellectual works, which are abstract and can be mechanically duplicated, has also avoided detailed discussion of cultural artifacts, from unique works of art to mass-produced objects. This is a significant limitation of my analysis. Part of these objects is physical, but part of them is abstract. Much of what I say about community and the potential for such objects to relate to human beings as actors can also apply to them. Understanding how their role in communities differ from purely abstract intellectual works might help to uncover the special characteristics of the latter.

I have discussed authority briefly. Authority can be both an ideological (often conservative) justification for control, and a necessary feature of communities. The requirement of trust and the practice of peer-review in science, for example, require the construction of authority. Disputes over new media and forms of communication, such as the contrast between blogs and newspapers, or between Wikipedia and Encyclopedia Britannica, often center on authority. A study of authority may provide essential perspective for understanding the opposition the proprietary and creative community models. Authority and community are necessarily linked to politics. Authorship and its

role in creative community could be part of an analysis of the democratic potential of creativity and new creative forms.

I have approached proprietorship as a regime focused on the market. But all human communities have other reasons for recognizing some ideas, works, and information as proprietary or private. Godelier (1999) discusses the things that cannot be given as gifts in different societies, such as certain ritual objects whose identity significance is kept secret as a source of power and identity for certain Pacific Island tribes. Similarly, laws protect individual privacy, financial information, and secrets that could be used for blackmail (to use examples from Boyle (1996)). Not all ideas should be shared. The difference is that for those ideas and works that are meant to be shared, ownership imposes certain limitations.

Finally, I have described community as an end-in-itself – something that is normatively good. My emphasis has been on blurred boundaries between communities and works, and I have argued that creativity often takes place in these border zones at the edges of communities. Putnam (2000) draws a distinction between bridging social capital, which crosses boundaries between communities, and bonding social capital, which intensifies identity within a community and tends to isolate it from others. The creativity I have described could have this effect. The examples I provide all illustrate it to some degree: the conflict between contributors and the community of editors on Wikipedia, the relatively opaque communities of software and science. Strong community, it seems, does not come without a price. It would be worthwhile to determine what that price might be.

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