# The Scale of Norms: Free Software and the theories of Gift Exchange[1]

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*We are all waiting for cargo.*

*In 1998 I started living with geeks. What started as a study of a particular set of programmers in a healthcare internet start-up quickly led to questions about "open standards" and from there into "open source" or as it had been previously known "free software." With a copy of Marcel Mauss in hand, I tracked down hackers, sysadmins, entrepreneurs, computer scientists, businessmen, artists and activists and started asking questions about this culture, the way it makes and exchanges things, the way it understands its own practices of exchange and the way software, information, and most importantly, reputation are used almost as currency. I looked in Boston, in Bangalore, in Bombay, in Berlin and in other places beginning with B. In the midst of this work, I discovered something exceedingly strange. One of the "big men" of this culture—Eric Steven Raymond—was describing himself as a "hacker anthropologist." He'd written a few ethnographic observations and even a lexicon, The New Hacker's Dictionary, which would prove indispensable to my own participant-observation. What's more, he had written a series of articles describing the culture of Free Software where he explained how the circulation of free software could be understood as a "gift culture." Since the exchange of this*

[1]Written in 2005-6 for a volume on gifts that never appeared.

*software was never explicitly perpetrated for actual money, he suggested, there must be an alternate explanation for how people could spend their time making such exquisite objects and then "give" them away for free, thus creating a social bond that was expressed in certain "hacker taboos" regarding what one should and shouldn't do with the software code that was both their spiritual sustenance and their daily bread.*

*Here, then, in the middle of my putative field site was a kind of imitation Mauss—a primitive version of a standard anthropology text on natives, which the natives were using to explain their actions to themselves and to me: I had discovered a cargo cult. Awestruck and bewildered, I imagined copies of The Gift washed up on a pacific island populated by hackers and sysadmins eager for an explanation of their bizarre world and behavior—waiting in near rapture for the manna of scientific explanation to rain down on them. They would build semi-conductors out of white-sand beaches and power their clunky wooden motherboards with yams and sunlight and type on bamboo keyboards about the social structure of their tribe. Meanwhile I would record a meta-explanation of the syncretic nature of modern networked culture. I would explore the cultural logic of this new subjectivity formed from childhoods spent wiring discarded radios and adulthoods trading complicated linguistic puns for approval. Defiantly, I tossed my copy of Mauss to the natives and turned instead to their abandoned oracle: Google™.*

*As one does in the era of internet research, I immediately entered the phrase "cargo cult and science" in order to see who else might have begun such a study. The result: URL upon URL of the last chapter of Richard Feyman's Surely You're Joking, Mr. Feynman! entitled "Cargo Cult Science" in which Feynman compares psychology and other sciences with cargo*

*cults:*

> I think the ... studies I mentioned are examples of what I would like to call cargo cult science. In the South Seas there is a cargo cult of people. During the war they saw airplanes land with lots of good materials, and they want the same thing to happen now. So they've arranged to imitate things like runways, to put fires along the sides of the runways, to make a wooden hut for a man to sit in, with two wooden pieces on his head like headphones and bars of bamboo sticking out like antennas—he's the controller—and they wait for the airplanes to land. They're doing everything right. The form is perfect. It looks exactly the way it looked before. But it doesn't work. No airplanes land. So I call these things cargo cult science, because they follow all the apparent precepts and forms of scientific investigation, but they're missing something essential, because the planes don't land. (p.340).

*I sat dumb-struck. Here was a felicitous coincidence: a famous physicist using a similar trope to describe the behavior of scientists who engage in the same behavior. Not only that, but it referenced the other core feature of my interests: the nature of scientific inquiry and objectivity. Terrific! I had found my epigraph. Then I Googled further: "cargo cult and programming":*

> :cargo cult programming: /n./ A style of (incompetent) programming dominated by ritual inclusion of code or program structures that serve no real purpose. A cargo cult programmer will usually explain the extra code as a way

of working around some bug encountered in the past, but usually neither the bug nor the reason the code apparently avoided the bug was ever fully understood (compare {shotgun debugging}, {voodoo programming}).

*The term `cargo cult' is a reference to aboriginal religions that grew up in the South Pacific after World War II. The practices of these cults center on building elaborate mockups of airplanes and military style landing strips in the hope of bringing the return of the god-like airplanes that brought such marvelous cargo during the war. Hackish usage probably derives from Richard Feynman's characterization of certain practices as "cargo cult science" in his book "Surely You're Joking, Mr. Feynman!" (W. W. Norton & Co, New York 1985, ISBN 0-393-01921-7).*

*The source for this quotation:* The New Hacker's Dictionary.

*What could I have expected, really? Such turnabout is fair play to any student of cargoism itself. Not only would I find myself under the spell of an image which my informants used to explain a phenomena they observe in others (but that I presumed to observe in them), they had also dutifully documented the etymological and philological emergence of this image in their own culture. Not only was my thinking operated by my informants—they had already done my job for me. I found myself recursively duped by my own participation and attempts at analysis. I thought I had boarded a boat back to the metropolis, and instead I found myself flying a wooden plane towards a landing strip prepared for me by my informants. I found myself in a world of cargo cults, each with its own ad hoc leaders and syncretic-heroic stories, each imitating another*

*more efficacious discourse, every cult claiming ownership of revealed knowledge that is shared across some subset of them. A democracy of cargo cults, a pluralism of millenarians; each one blaming a real or imagined group for the diversion of its cargo; for everyone a dominant order, membership in it for none. We are all waiting for cargo.*

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The preceding story illustrates a number of things that are surprising about the world today; some are about the discipline of cultural anthropology and some are about the state of software, networks, digital culture, and this peculiar object called "Free Software." It illustrates the dissolution of the boundary between academic and amateur science; it illustrates the difficulty (perhaps, impossibility) of doing anthropology of the classical kind (where one heads of to a semi-isolated corner of the globe in order to study human behavior and to reveal, holistically, the cultural life of some bounded set of people); it illustrates the surprising playfulness of hackers, geeks, programmers, and other aficionados of digital culture; and it demonstrates the difficulty of being a "disinterested" or "objective" observer of people who are already keen, often disinterested, observers of themselves.

But perhaps the most interesting aspect of this story—for anthropologists and historians in particular—is the surprising salience of the theory of gift exchange for explaining the existence of Free and Open source software. Why would a theory forged —in the heart of modernist social thory—from observations of South Pacific Islanders

and Northwest Coast Indians seem so significant to programmers today? Is it exoticism that draws them to it, or an explanatory power absent in contemporary economic, legal and political reasoning? Perhaps just as surprising is the fact that economists, lawyers and political scientists do not find it to be a useful or productive explanation. Why not? What do they think they know, that hackers and geeks do not? What can these peregrinations of the theory of gifts—beyond its traditional indigenous locale and disciplinary homeland--tell us about the circulation of social science concepts throughout the world—are they themselves involved in some kind of exchange, economy, transaction? What kind of gift is the theory of gifts? How does the theory of gifts itself create a social imagination of modernity that seems somehow right at home amongst the very people one would expect to resist it? Is there a gift economy, or only an imagination of one in modern economies?

## *Free and Open Source Software*

But first, what is Free Software?[2] For readers who are experiencing the concept

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[2] There are two names: Free Software and Open Source. In all respects they are identical, but the name reflects an attempt on the part of some hackers and businesspeople to create a more "marketable" image for Free Software—one that did not seem to have the trappings of ideological commitment to freedom and opposition to corporate proprietary software. Open Source (named and founded in 1998) sees itself as a "software development methodology" first and movement second, if at all. Free Software, on the other hand, is identified primarily with the Free Software Foundation, founded in 1985 by Richard Stallman, and is much more explicitly a

of Free Software as more exotic than any cargo cult, a brief explanation may be helpful: Free Software, as the name designates, is software that is free—but the ambiguity of this word is one of the core features of its uniqueness. It is, as hackers like to say "free as in speech, not as in beer." As software it is not unusual: it can be anything from a word processor to an operating system to infrastructural tools that make the internet work the way it does. What sets it apart is that, unlike its opposite "proprietary software," Free Software is freely available for download, copying, distribution, and even modification. The software is not in the public domain, but is instead copyrighted software that is distributed under a very liberal copyright license which essentially annuls the very strong rights granted under most statutory copyright law. So for instance, in the US, copyright law grants the author sole right to create "derivative works" from something he or she has created—but the author also has the right to grant this right to others.[3] Because of this friendly licensing attitude, it is possible for an individual or a group of

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movement aimed at securing freedom to copy, modify and re-distribute computer software. As a general phenomena, the two are often referred to together as Free and Open Source Software, or FOSS (see Kelty 2002, Coleman 2005, Weber 2003, Kelty 2004a, Kelty 2004b Feller et. al. 2005, Ghosh 2005).

[3] There are a very large number of such licenses today. The most common, and oldest, is known as the GNU General Public License; others include the Berkeley Systems Distribution License (BSD) and the Creative Commons Licenses. Compare the list at http://www.fsf.org/licensing/licenses/license-list.html and http://www.opensource.org/licenses/index.php

people to modify a piece of software for their own aims without needing to negotiate with, pay, or even ask permission from, the person who licensed it. The advantages of this scheme are numerous, but the most often remarked is that it allows people to see and fix software source code without asking permission of a corporation. Thus, a piece of software, such as the Linux Kernel, can have hundreds or thousands of people looking for bugs, making fixes and suggesting improvements. This "development methodology," claim many participants, gives the software a robust and responsive nature that most proprietary corporate software (like Microsoft Windows, for instance) lacks.

What makes this practice most surprising is that it is entirely voluntary; no one involved in the creation of Free Software is paid to create it. The putative purpose of intellectual property—to create monetary incentives for creativity by granting temporary monopolies—seems to have failed here, or to have been willfully subverted for some mysterious purpose. Free Software programmers are often accused of being communists (they are not, in fact most are classical free market liberals of one kind or another), since it is clear that such a practice cannot uphold the aims of the system of intellectual property.

And yet it moves, to paraphrase Galileo, and yet it moves. Free Software is widely used and continues to attract more and more adherents—and this poses a puzzle for anyone whose theories of human agency and motivation rest on some version of self-interest, incentive, or profit motivation. And so observers and participants alike are

driven to ask: why? What is it that motivates otherwise highly intelligent and rational adults to do this?

To answer this question, as I narrated above, hackers have turned to the theory of gift exchange.[4] It is clear that the mainstream economic explanation fails in some important way: the value of labor and the price of a good should be derived from individual's maximization of their utility—but giving away the fruits of one's labor is tantamount to valuing that labor at zero cost. Gift exchange, on the other hand, provides a kind of folk explanation that shores up this problem. Unlike the good old goods of economics which can be managed by marginal utility, free software is explained instead as a gift economy in which individuals give away the products of their labor to a pool of goods that is freely available to all—and receive in return a surplus of goods produced through the gift-labor of others. Hacker Eric Raymond was the first to articulate this, other media/internet academics were quick to pick up on it—though often with very different conclusions.

There is however, another surprising aspect of this embrace of gift theory: for

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[4] Raymond's use (1999) of "gift exchange" is not actually drawn from anthropology, but from his own reprocessed version of work in evolutionary psychology (Barkow Cosmides and Tooby 1992). Other uses include Barbrook 1996 and Ghosh 1998. In fact, the salience of Gift exchange seems to come largely from a kind of common sense notion of how gift exchange works. Howard Rheingold (1993) refers to his virtual communities as gift economies; and the only other source for a popular imagination of gift exchange is probably Lewis Hyde (1983).

some reason, social scientists who *study* Free Software often reject or ignore the theory. Not only anthropologists, who might be expected find fault (though perhaps more likely flattery) in the amateur usage, but sociologists, economists, lawyers and political scientists as well.[5] For instance, here is an explanation from legal scholar Yochai Benkler (2004), one of the sharpest analysts of Free Software:

> Why do people do it? How do they organize without property and contract? Peer production modularizes work so that individuals can contribute at different levels of effort consistent with their motivation; contributions are then integrated into a usable whole. Instead of direct payment, commons-based production relies on indirect rewards: both extrinsic, enhancing reputation and developing human capital and social networks; and intrinsic, satisfying psychological needs, pleasure, and a sense of social belonging. Instead of exclusive property and contract, peer production uses legal devices like the GPL, social norms, and technological constraints on "antisocial" behavior.

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[5] To date, there are very few anthropologists who have yet picked up on the existence of this phenomenon, much less the use of gift theory in it (but see Chan 2004, Coleman 2004, Coleman 2005, Kelty 2002, Kelty 2004b), though there are a large number of scholars in other social science disciplines who have. Unfortunately, those analysts whom we might expect to be most interested in gift theory often exclude the anthropological approach; Steven Weber, for instance, finds fault with Eric Raymond's gift culture explanation (2003:150-1) and rejects the cultural and psychological explanation more generally in favor of political economic ones.

Though there is no mention of gift-exchange by name, the passage does make reference to some key themes present in various theories of gift-exchange: commons-based production, reputation and social networks, social belonging, norms and behavior. This implicit rejection often comes with a sigh of disappointment—although many such scholars are sympathetic to the idea of using anthropological explanations to help understand this novel phenomenon, such explanations are perceived as inadequate solutions to the so-called "collective action" or "collective goods" problems. They are too metaphysical, too dependent, in the end, on a mystical notion of social coherence which cannot be reduced to the desires and actions of individuals.[6]

So even while the actors themselves employ gift theory to explain their actions to themselves, scholars are rejecting it in favor of a theory that seemingly leaves no room for the very ideological misrecognition that would seem to be operating here. Two questions are thereby posed: if we take the software programmers seriously, what do they get from using gift theory as an explanation? And if we take the anthropological theory seriously, what should it add to the scholarly discussion of collective action

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[6] This methodological individualism is by now so entrenched as to be unimpeachable in many fields of social science. A classic statement of the collective action problem understood in these terms is that of Mancur Olson (1965). Much of the work that follows, in both rational choice-style political philosophy and game-theory inspired economic reasoning, has no truck with forms of cultural anthropological reasoning that highlight the role of interpretation. Of work in anthropology, though Mary Douglas (1986) has consistently sought a rapprochement with these forms of reasoning.

problems?

With respect to the first question, there are three possible answers:

First, folk gift theory provides geeks an economic explanation of human motivation which appears at first glance not to be self-interested. The gift, as Mauss (1990[1923]) (and later Bourdieu (1991[19??])) theorized it, is not an immediate transaction, but one that inserts an interval of time between the gift given, and the return gift received. Rather than experiencing their activity as the seemingly perverse act of spending a great deal of valuable energy and time on something which is given away and for which programmers get nothing in return, they see it as something that occurs over time. In this explanation, the return gift (literally terabytes of software which are available, and which many programmers use to create free software in the first place) is well worth the initial investment in creating a small part of it that is given away for free. The special qualities of so-called intellectual property are often held responsible for such an occurrence: since software is "non-rival" (my consumption or use of it does not diminish it for anyone else) and "non-excludable" (my possession of it does not exclude others from benefiting from it) the gift economy can expand without bound. When gift theory is reduced to this level (an explanation of the motivation of individuals), then economists and political economists find it lacking in the rigor or simply as saying something that can be said more simply and without the mystifications of exotic tribal customs (by which, it must be said, hackers are for some reason uncharacteristically intrigued). Hackers and free software programmers, however, find the explanation

compelling for precisely the same reason: it is a non-academic explanation of a mode of transacting which is taken to be a valid alternative to a money-economy.[7]

Second, by this very token, gift theory also occasionally provides a way to "humanize" the economic activity of FLOSS programmers by suggesting that FLOSS is a rosy, pleasant, re-constitution of a more natural, primitive way of life in which abundance and scarcity are managed optimally through enlightened contribution of software to a commons. Connections can be drawn to various valorized ways of life or alternately gift theory is seen as a scientific confirmation of the basic rightness of the FLOSS model (science, as an open system, is often used the same way). This "reactionary modernism" blends the contradictory love of high-high technology with the nostalgia for a country life in which relationships are directly negotiated and a single individual can grasp the whole of economic circulation.[8]

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[7] On this point, one of the greatest debates in economic anthropology turned—see Sahlins 1972—which reaches a similar conclusion that gift exchange (in Mauss, in particular) is entirely consistent with the economic logic of self-interest.

[8] This is, to some extent, the message of Hyde's book (and Mauss's before him), though it is in its own right a sophisticated (and prescient) attempt to think about the nature of informal economies that exist everywhere in society. The opposition is usually drawn between a base economy of commodity exchange (the "cold cash nexus" of Marx), and more humane or less corrosive economy of gifts. In reality, Mauss did not draw such a distinction in theorizing the concept (he opposed gifts to money—and his moral conclusions have more to do with the role of sovereigns and charity in early twentieth century France, than with the style of an economy of

Thirdly and lastly, using gift theory geeks also tell a somewhat peculiar story of the evolutionary necessity of FLOSS. In this story, society is understood as proceeding through a crypto-Marxist evolution of economic "stages" (Neolithic, agricultural, industrial, information) culminating in an economy of "abundance" in the present (abundance of goods and services, and often in particular technical terms, an abundance of bandwidth and memory). This abundance shifts the economic question from the scarcity of goods to the scarcity of time and "attention". FLOSS and other similar commons-based production systems are presented as a necessary response (an evolution) that deals better with the new scarcity. This explanation is usually opposed to one (ironically, given the Marxist assumptions) that attributes class-consciousness and direct action to FLOSS programmers in having brought about the situation we have today.[9]

These three answers (which by no means occur in every case of explanation by hackers) are all ways of using the theory of gift exchange as a "usable past"—a story of how the world works, or has come to be that is not necessarily concerned first with the accuracy of its analysis, but with its success in making sense of the world. It is precisely for this reason that many social scientists who study free software are frustrated by the

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production).

[9] Raymond 1999 is the native *locus classicus* of this explanation. For a brief period there was much sound and fury around the concept of an "attention economy" measured in "eyeballs". The crash of the dotcom boom seems to have tempered this particular economic millenarianism.

gift-exchange explanations: they do not work to solve the "puzzle" of open source—the fact that it is a problem of collective action (which is taken to be the core problem of social science).[10]

The locus classicus of these explanations, for both geeks and scholars, is Eric Raymond's strange trio of works, "The Cathedral and the Bazaar," "Homesteading the Noosphere," and "The Magic Cauldron." For Raymond, there are only two systems in the world, complex adaptive evolutionary "bazaars", and hierarchical, authoritarian corporate "cathedrals". His strategic optimism of course favors the former: proprietary software "cannot win an evolutionary arms race with open-source communities that put orders of magnitude more skilled time into a problem" (Raymond 1997, Section 10).

Raymond specifies some of these qualities in his second paper, "Homesteading the Noosphere" (HtN). It is in HtN that Raymond is at his most anthropological, both in terms of his observations (which are extraordinarily perceptive and valuable) and in his attempts at theorization (which are not). His principal problem concerns the nature of property and space, signaled in the title of the piece: the Noosphere is the "space of all

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[10]For Instance, Steven Weber says: "[Open source software is] an important puzzle for social scientists worrying about problems of both small- and large-scale cooperation (which is just about every social scientist, in one way or another)…(2003:2)." Clearly, the actors themselves, however much joy and satisfaction they may take in understanding their lives and actions to be "solutions to problems of cooperation" would prefer a more clever, more baroque, or broader explanation, which the theory of gift exchange provides.

ideas" and hackers are the ones who are homesteading it.

Though Raymond doesn't make it explicit, it is clear that through the metaphor and mantle of anthropology two assumptions are rendered possible: first is that the borders of the Hacker tribes' space is identifiable and separate from that of contemporary modernity (i.e. the "real world"); the second is that Hackers, as an identifiable and coherent group, have a different, legitimate and perhaps incompatible notion of what property is—i.e. they exist in a non or counter-modern space of abundance, where altruism makes a different kind of sense. Anthropology, of course, is not innocent in rendering possible such assumptions. Most anthropologists continue to treat indigenous peoples as identifiable and separate based not on "real world" distinctions (e.g. reservations or "homelands" created by present day sovereign nations) but on some combination of kinship, language, culture, and biology. Likewise the debates over the incompatibility of property regimes (see Brown 1998) strengthen the assumption that such separateness either does or should exist and should therefore be equally legitimate. In the case of Raymond's anthropology, however, neither of these assumptions hold, but it is only because ofgeeks imagine the relationship between space and materiality in ways that are not very familiar to many people. For instance, Raymond makes use of four spaces in his article: Noosphere, ergosphere, cyberspace and "the real world". Raymond explains the distinctions thus:

> The 'noosphere'... is the territory of ideas, the space of all thoughts. What we see implied in Hacker ownership customs is a Lockean theory of property

> rights in one subset of the noosphere, the space of all programs... [Faré Rideau ] asserts that what hackers own is programming projects—intensional focus points of material labor (development, service, etc.)... He therefore asserts that the space spanned by hacker projects is not the noosphere but a sort of dual of it, the space of noosphere-exploring program projects [ergosphere].

The distinction between noosphere and ergosphere is only of practical importance if one wishes to assert that ideas cannot be owned, but their instantiations as projects can—a distinction that is very meaningful in practice, but less so in Raymond's abstract theory. To avoid confusion, however, it is important to note that neither the noosphere nor the ergosphere is the same as the totality of virtual locations in electronic media that is sometimes (to the disgust of most hackers) called 'cyberspace'. Property there is regulated by completely different rules that are closer to those of the material substratum.

The geek "social imaginary" is thus simultaneously a moral and a technical one—obsessed at once with the details of programming, source code, legal licenses, or schemes for coordination and collaboration and at the same time with imaginations of how society *should be ordered* as a collective phenomenon. For geeks the creation of free software is not simply an avocation, or a harmless "shadow economy" based in gift exchange, but is in fact an attempt to create an alternative that sets the standard for classic notions of individual autonomy, collective comparative judgment and even the creation of a public sphere (see Coleman 2005, Kelty 2007).

## *From Myth to Explanation*

Despite the use of gift-exchange as a kind of modern myth, Gift exchange theory, and economic anthropology/economic sociology more generally still stand to say quite a bit about the meaning and practice of Free Software. There are a number of different places to start, but the most salient is perhaps with the very powerful insight that *a gift is a part of a person*.[11] Most social scientists read this assertion metaphorically, because it smacks of too much metaphysics to be useful in a hard-nosed game-theory solution to collective action problems in which individuals are not sub-dividible in any meaningful way. What kind of "part" is given? What does the other individual "possess" when I have given them part of myself. For most social scientists, the only meaningful sense in which people can "give" part of themselves is through the donation of bodily fluids or parts. And indeed, there is an important contribution to the literature of gift exchange that deals with precisely this issue (Titmuss 1971; Fox and Swazey 1974). But such a possibility is better understood as a form of alienation of parts of the body, than as partability strictly speaking, as it has been theorized by anthropologists.

What Mauss, Emerson, and Strathern mean by giving a part of oneself is that giving creates, strengthens, re-inforces and sometimes destroys a relation of some sort.

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[11]the tradition is grounded in Mauss (1990), harkening back to Emerson, and realized most recently by cultural anthropologists Strathern 1988, Strathern 1999, Weiner 1992, Munn 1986, Gregory 1980; Gregory 1982, Graeber 2001 and others.

As Strathern (1999) says: relations *precede* individuals. Not *giving away* part of oneself, but *creating* or *destroying* a relation through a gift—it is the creation of debt and credit measured in more than simply calculated numerical terms or the simple notion of action and intention implied by collective action analyses.

Consider an example, courtesy of Alex Golub (2004). Around 2000, in giving a public speech, Tipper Gore, wife of the incumbent president Al Gore, had her picture taken, without her permission by a student photographer. Gore immediately sought, using intellectual property law, to recover the photograph from the student, in order to prevent its circulation. As Golub notes, there is a nice irony here if one considers the old anthropological saws (e.g. Levy-Bruehl) about the native suspicion that a photograph "steals one's soul" and the subsequent refusal to be so pictured. In Gore's case, it is not her soul she fears for, (though a native anthropologist might well translate it this way)—it is her *property*.

The modern world is one in which copyright in one's own image creates a system whereby individuals can attempt to control who sees (representations of) who, when and how—it is a tool for managing relations between people. Gore cannot control the people who look at her on the street, or at the podium—but she can control the circulation of her own image as a photograph—in magazines and newspapers for instance. Copyright, in addition to the law of privacy and publicity, are sound, tried tools for asserting control over parts of oneself—the image one projects, and thereby the relations one creates between oneself and others.

Take this example one step further, to the land of the Internet, where the only thing that people know about each other circulates from the get-go, as copyrighted intellectual property. Pictures, along with diary entries, thoughts, ideas, sketches, music etc. are all parts of ourselves which we have taken to policing with more and less vigor —depending on one's understanding of "privacy" or one's desire to be networked to others. Whereas two people speaking to each other on the street do not necessarily see their words as things that re-order their relationship (even when the fight, promise, exchange, or otherwise change their relationships through speech), people who do so on the Internet often do: email, electronic signatures, secure transactions on the Web, identity theft are all ways of experiencing and managing the creation, destruction, or transformation of relations between people conducted through words, text, images, video, games (see Kelty 2005).

The creation and management of relations in this sense, is therefore quite opposed to the notion of gifts understood as alienable property, which the sovereign individual chooses when and how to alienate for some more or less rational reason. Anthropological theories of gifts, rather, explain the negotiation of relationality and identity. The lawyers and economists are right: they do not provide a convincing explanation for the mystery of why individuals do something rather than something else. Gift theory rests on the assumption that people do things because they are embedded in relationships over which they have varying and incomplete control—not the assumption that people do things because they have desires that they either control absolutely (the will of the individual) or do not (the gene du jour, for example).

Ironically, there are plenty of examples of precisely this kind of relationality in Free Software—even in the work of Eric Raymond on "hacker taboos"--the things that Hackers are not supposed to do in the "gift economy" of Free Software. For Raymond the gift economy explanation is part anthropology, part hardcore Locke. Raymond again relies on the notion of a separate culture, in order to observe the Hacker tribe as it exists in "nature"—the pure realm of the Noosphere where: "Lockean property customs are a means of maximizing reputation incentives; of ensuring that peer credit goes where it is due and does not go where it is not due." (Raymond, 1998)

The reliance on an idea of the "noosphere" allows Raymond to imagine these taboos as functioning within a fabric of relationality—albeit one constituted in forms mediated by online interaction with novel technical an legal tools. When Raymond discusses his theories of gift exchange and "egoboo" for instance, he is forced into saying that they require "a medium at least as good as the Internet" to function—to say nothing of the leadership or charisma of the individuals involved.

Raymond's Noosphere is thus clearly not like land (despite his reliance on Locke as warrant for his ideas). It consists of non-excludable, non-material ideas, which can take the particular form of a programming project (an intangible, but perhaps not immaterial thing). Therefore a hacker can *own* this idea in a sense similar to the way a scientist might own a research agenda, i.e. it is his only to the extent he can convince others near it not to trespass, either by force or by charm. What is unclear here is how precisely the boundaries of an idea are drawn. Some version of expertise that is shared

amongst hackers needs to be already in place: a hacker needs to know how to find, understand, and evaluate what other hackers are working on. There is no equivalent to a fence, a stone wall or a no trespassing sign: rather a hacker is expected, by learned and evolving informal conventional means, to know who owns what.

Of course, the interesting aspect of this proposition is that in the world of hackers and developers, such knowledge of who owns what is, in fact, already relatively robust, even if they cannot articulate exactly how they know who owns what. So within this "noosphere" there is some system of property allocation and identification, but we are not yet sure what it is. Meanwhile, the "real world" impinges on the noosphere in a precise way: the actual code that people produce, share, download, archive, compile and run, is in fact explicitly (i.e. as part of the code itself) identified by a copyright, a name or list of names and occasionally an email or address—and therefore owned in a legal and non-tacit sense. The copyright in the "real-world" represents ownership of the code, even if the idea in informal conventional terms, is understood to be owned by someone else in the noosphere.

This opposition between ownership in the noosphere and ownership in the real world is identified by Raymond as a "contradiction" between the actions of geeks and the rights that the licenses guarantee. The contradiction, however, depends on whether or not the realm of informal conventional reputation is seen as part of the same space as formal intellectual property rights. Since Raymond strategically denies the importance of mere mundane legal rights, and substitutes his speculative "gift culture", these

differences appear as contradictions. The three taboos are:

> 1) There is strong social pressure against forking a project. It does not happen except under plea of dire necessity, with much public self-justification, and with a renaming.
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> 2) Distributing changes to a project without the cooperation of the moderators is frowned upon, except in special cases like essentially trivial porting fixes.
>
> 3) Removing a person's name from a project history, credits or maintainer list is absolutely not done without the persons explicit consent. (Raymond 1998, Section 3).

Raymond's explanations for these three taboos are an attempt to resolve the contradictions posed by his theory of gift exchange.

In the first taboo, there is peer pressure against taking the code of the project, and starting a new project. Forking a project is discouraged because it dilutes the identity of the project, and could potentially divert reputation from the original "owner" of the project, It can also diminishe the brand identity of a single project by giving it *competition*. Having to choose between one of two Free Software editors, for instance, can create religious wars and ideological commitments. Raymond is suggesting, with his gift theory in which reputation is like property, that reputation functions similarly to

patent in the real world: it grants a limited monopoly, and discourages competition in order to channel reputation—the incentive in Raymond's world—to the owner of the idea. Raymond's free market in ideas is in fact regulated by informal conventions, in the same way the real market in intellectual property is *regulated* by IP law. The contradiction, however, is that the real world copyright licenses guarantees that individuals will have the right to fork software—without this right it is not Free Software.

The second taboo is essentially the same as the issue of forking, but serves to regulate the behavior of people such that some entity (either a group—the Apache group—or an individual—Linus Torvalds) maintains control over managerial decisions. Authority must emerge somewhere, and it does so through the existence of informal taboos against the anarchic distribution of changes to software. Here the comparison with patent and copyright is apposite and overlapping: the role of patent and copyright is not only to exclude competition from the market for a limited time, but to recognize rights to decide who can or cannot use the intellectual products and for which purposes. Again, the contradiction emerges because patching software and releasing the patched version publicly is exactly what the Free Software Licenses are designed to allow. The existence of this convention implies that, for example, the subsequent kernel will not be named "Linux" until Linus or someone else in the hierarchy approves it and incorporates the new code. In fact, interestingly enough, Linus Torvalds holds the trademark to the Linux name—suggesting that even deep within the Noosphere, the regular old real world intellectual property system is functioning to protect the

reputation of individuals.

The third taboo is also interesting from a comparative perspective. It suggests that reputation actually depends on its explicit recorded form (what I have called in a elsewhere *greputation*[12]). If you are not a project maintainer, but just an aspiring bug-tracker, then your rise in the ranks is dependent on the explicit appearance of your name in the record. In patent and copyright law, the entire range of contributors is rarely given credit (patents more so than copyrights) and the purpose and goal of making these products into property is to *make them alienable*: to provide the ability to erase one name and replace it with another, given an appropriate transfer of some proxy for value (usually: enough money). For Raymond, contributor lists are an informal redistributive mechanism: they portion out some of the reputation that accrues to, say Linus Torvalds, and distribute it to people who have written device drivers, or modules or other less glamorous additions to the Linux kernel. Again, it results in a "contradiction" because in Free Software licenses, the only name that legally matters is that of the original

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[12] Greputation, from 'grep' the Unix program that searches for a regular expression. See the Jargon File for further clarification (http://tuxedo.org/jargon/). Greputation suggests that what in speech is accessible only by talking to people face to face, is actually available online as a residue of such discussions—in archives, mailing lists and other openly searchable archives of text. This has led to the research project of Rishab Ayer Ghosh and Vipul Ved Prakash (see Ghosh 1998 and Ghosh 2000) which seeks to measure reputation and contribution to software by explicitly tallying the names, copyrights and email ids in publicly available Free Software packages.

copyright holder—and this constitutes a market failure, so to speak, that requires a redistributive mechanism which hackers have developed to correct for it.

Raymond's observations combine excellent ethnographic detail with very poor interpretation. Gift theory should be able to do better: First, the property customs he identifies could more accurately be described as a mechanism to minimize disputes and adequately credit co-developers in a context *outside of any given firm*. Since the bargain of Open Source is that the internet is its medium, and the internet is not a corporate form, dispute resolution needs to take some other form—informal conventions governing idea ownership are perhaps one successful way[13].

Second, these customs do not "maximize reputation incentives." Rather, they are an expression of one optimized design for a structure that would maximize net gain in reputation. One way this is done, outside of deliberate human thought, is through the social enforcement and gradual pragmatic evolution of conventions such as those Raymond identifies.[14] Furthermore it is not the *incentive* that governs where reputation

[13] Certainly the comparison with scientific dispute resolution is apposite: See again (Merton 1973, Hagstrom 1982, Latour and Woolgar 1979) which are all concerned with what amount to non-formal treaties on the recognition of priority, reputation, scholarly credibility and in the strongest formulation, epistemological claims on truth.

[14] Raymond insists on an elaborate genetic explanation for why reputation might have evolved into an incentive structure. However, genetics isn't necessary to explain it, a simpler and more direct explanation is offered by David K. Lewis in Convention (Lewis 1969), which

goes, but rather the *mechanism* of the property conventions themselves. The incentive, such as it is, can only be the expectation of what reputation will bring: for example, the power to decide over and maintain a project and to resolve disputes about it. The incentive could also include personal satisfaction, reputation spillover into the "real economy", or simply any subjectively valuable return on the investment of contributing. Everything hangs on what is understood by the term "incentive" here.

One cannot create an "incentive structure" in the sense that economists use that term, without a measurable return. And as reputation remains un-measurable, it is not a suitable incentive for such a structure—it remains a metaphor. Indeed, Raymond has identified conventions, which from his extensive experience, actually exist—but there is no evidence that these conventions actually concern reputation, which is an extrapolation on Raymond's part.

However, reputation could be an incentive in a less exact, metaphorical or less material sense: as that return which people expect to receive based on their knowledge of the past and their understanding of the structure within which they operate. In this sense, it is part of a structure of reciprocity and obligation whose material substrate is not money, but *language*. Or put inversely, the function of money—as a one dimensional measure of trust—can also be served by language. Words do matter then, because they are the medium of reputation, and hence of trust in this system—this community—of

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combines insights from analytic philosophy and game theory to describe how conventions arise and stabilize.

individuals who give free software to each other and pay in compliments.

So, while gift theory does not solve the economist's puzzle of collective action, It does, however, explain something about the creation and maintenance of particular forms of social order (cooperative and competitive, but also dominating and hegemonic —order in general). If one takes seriously the implications of gift theory, then the practice of creating Free Software (and a number of other practices, from game-playing to shopping to creative production of all sorts) appears to be more than just a solution to problems of collective action—that is, more than just a solution to a problem of the division of labor or the distribution of goods—it starts to become a contest of meaning—value in a linguistic, as well as an economic sense. It generates a system of signs and norms that allow individuals to interact with one another, and to make sense of the relationships that they develop in the new and unusual medium of the Internet. It becomes something more like a symbolic system that is also a technical infrastructure. And indeed, trying to parse the meaning and significance of "statements" ins such a system is no easy task—one that perhaps cannot be easily summarized in a paper, but that requires more detailed ethnographic work to understand (Coleman 2005, Kelty 2004a). Perhaps the best way to understand this in abstract terms is to consider the difference between the small-scale system of gift exchange well represented in the anthropological literature, and the planet-wide, lightspeed gift-exchange represented by Free Software.

## *Small scale but trans-local.*

Perhaps the most striking difference between the context of traditional gift-exchange and that of gift-exchange on the internet concerns the question of *scale*. Whereas the bulk of theorizing on gift-exchange has focused on its small-scale nature (within a geographically-bounded locality, though sometimes a very large one, such as the Kula of the Trobriand Islanders), gift-exchange of software clearly occurs at a global scale—anywhere the Internet is, there be Free software.[15] The rules of governance are abstracted from the locality of governance—it remains small scale, but becomes trans-local.

Another way to understand this, is to treat FLOSS as the creation of new systems for managing the distribution of intellectual property as it has developed in the US and Europe. Rather than the dominant and traditional system of distribution, represented well by Hollywood and the music industry in which corporations exert sole control over the intellectual property that they exclusively own, FLOSS allows for a radically different conception of intellectual property in which maximum, unfettered re-

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[15] This is not, strictly speaking, true of anthropological work: Nicholas Thomas (1991) for instance, has shown how even the supposedly small-scale gift-exchanges of the south pacific are deeply entangled with the global trade routes of Europe and the Americas, at least as far back as records go. Such a critique should clarify the distinction I draw here however, between the rules of governance and the locality of governance. Compare also, Latour 1987 (on La Perouse) or Law 1986 on navigation for similar issues of scale and network.

distribution is encouraged. In an attempt to explain this difference, some lawyers and social scientists have turned to the idea of a "commons" in which intellectual property is freely available, but managed in particular ways by those who use it.[16] The commons is a small-scale idea, but (thanks to the internet, and the standardization of the software and protocols that undergird it) it can be implemented trans-locally. It abstracts the rules of governance from the locality of governance.

Many legal scholars call these new arrangements "privately ordered legal regimes"—by which they mean that they are governed not by state and federal laws and regulations, but by systems of more and less explicit norms developed by the practitioners themselves (e.g. the diamond industry's adjudication system).[17] Put this way, it sounds a bit like a re-discovery of the discipline of early 20th Century anthropology: privately ordered legal regimes are like the tribes that time forgot; outside of modern law, but nonetheless fascinating for the various solutions they come up with to problems that only social scientists seem to know that they have. They are a bit like the cargo cults of the opening story.

What this explanation systematically ignores, is that these small-scale privately ordered regimes (like FLOSS) are in fact *embedded* in a globalized and economically

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[16] In particular, these ideas derive from the work of Elinor Ostrom (1990). See also. Boyle ed. *Conference on Public Domain* (2002).

[17] See Bernstein 1992 Ellickson 1991.

intricate world-system of law and regulation, within which (and only by virtue of which) they carve out localized forms of governance and control. The forms they create are ways of making the state see the work they do as legal, but as outside of its reach. Not for nothing is FLOSS thus often referred to as a "hack" of the legal system.

Anthropological theories of gift exchange, however, are much more at home in trying to understand such embeddings. Long ago anthropologists ceased to understand the cultures they studied as untouched pockets of cultural autonomy—and made the attempt to deal with the legacies of colonialism, expanding global markets, the history of exploration and travel, and the syncretism of culture.

Thus, the activities and interactions of hackers and geeks, in their relations with one another and the transactions they effect, are embedded in a rich palimpsest of cultural and economic meanings and technical and legal artifacts—it is indeed a complicated system, but not so complicated that they cannot learn (and learn at increasingly earlier ages) to navigate it fluently. Geeks and hackers are stunningly well versed in legal issues surrounding intellectual property in addition to having learned the details of multiple machines, programming languages, applications and so forth. It is a system of *recognition* and *pedagogy* through which they interact, trade, teach, and learn with and from one another across languages and national borders. Hackers recognize each other by the operating systems they use, the text editors (EMACS vs. vi) they rely on, the programming languages they know, the standards they adhere to and the corporations or companies they work for—a set of recognitions no less hermeneutic

for that. Individuals can be included or excluded, or subject to ridicule or other kinds of social pressure based on the choices they have made. Such interaction happens almost entirely textually and through the use of software or internet tools that might reveal information about someone. Here the interpretive skills of correspondents is restricted to a particular channel, one which excludes the gestural and the sensual to some extent, but is no less rich and detailed for that.[18]

A particular example of this system of recognition and pedagogy concerns the issue of choosing a free software license. At a first cut, the free software community distinguishes itself from software licensed according to restrictive end-user agreements that prevent the software from being used, modified, copied or re-distributed (the licenses used by almost all commercial "shrink-wrapped" software). In this sense, hackers identify the "privately ordered legal regime" less as a separate community, and more as a single action (choosing a license) that allows them to distinguish the meaning of this gesture, from those who choose to go mainstream. If you choose to use Open Office, instead of Microsoft Word, or GNU/Linux + KDE instead of Windows 2000—then you have signaled a certain kind of choice that will most likely be interpreted as a distinction that puts you squarely in the geek camp instead of the "consumer" camp.

At a second cut however, the choice between different kinds of free software licenses reveals even deeper affiliations. Free software advocates distinguish between the GNU General Public License and BSD/MIT style licenses. The crucial difference

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[18] Star 1995; Coleman 2005, Douglas Thomas 2003

here is that in the case of the former, software built on free software is legally required to be free in turn (often referred to as viral, reciprocal or recursive). In the case of the second, software built on free software may be copyrighted and sold as proprietary software (without "poisoning the well" of the original software product). Both styles may be considered Free, but one demands an immediate repayment, an obligation made explicit by a license to return the fruits of labor to the commons. The other may set up an obligation, but is silent on how that obligation might be repaid ("giving back to the internet" "giving back to the free software community"). Here the decision creates a more radical distinction: those who are committed to all software being free vs. those who are committed to a new form of software production. This is one reason for the terminological break Free Software/Open Source.

This all too brief example of the kinds of detailed arguments and discussions that geeks engage it is emblematic of the complicated cultural and symbolic milieu they operate in: one that is structured by norms and forms of transaction that contribute to producing a certain kind of social order amongst hackers and geeks—and anyone else who wishes to make use of the same infrastructure of tools, technologies, contracts and licenses. If the theory of gift exchange helps explain this, it does so by virtue of explaining the ways in which relations between individuals are created, weakened or strengthened, or severed by the transactions in and recognitions of software and licenses. It creates a network on the network—a net in the net of ties that need to be (and regularly are) learned, observed, interpreted and recognized through a welter of technical and legal complexity. It gives both the actors, and the analyst an abstract

image of association based in the fluid, immediate reconfigurability of software and networks (a dynamic and fractal image); it is an image that differs from the one dominant in both social science and much of common sense (the image of the machine, in which individuals are uniform parts that serve functions which taken together for a machine—whether a spontaneously ordered one, or a planned and designed one).

The theory of gift-exchange, however, does not necessarily provide a usable solution to practical economic problems of production and distribution—and for this reason it is often unsatisfying to analysts and to some participants. It does, however, often help make sense of a practice that is ongoing, and into which people find themselves thrown, sometimes without warning; it is a set of images and stories, a usable past which tries to capture a practice that pulls people and observers along and often frustrates their attempts to participate in it, or to change its course or direction. Such stories are necessary whether they are accurate representations of reality or not, because they facilitate the practices of recognition and pedagogy that keep the practices going, and it is for this reason that the circulate as easily and as fluidly as they do—so much so that the anthropologist who once considered the gift theory to be part of himself and his esoteric training, suddenly finds it on offer from a stranger in a strange land.

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