

The Cost of a Common Good: Putting a Price on Spam

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Common goods are notoriously vulnerable to destructive overuse. Indeed, certain online activities, such as spam, can jeopardize the very existence of the Internet. We defend an account of the net as a common good which provides the grounds for assessing various strategies for spam reduction.

Common goods abound in digital culture, from open-source software (both Operating Systems and specific applications), to online communities (such as chat boards and blog networks). In fact, the Internet itself can be considered a common good. The net and many of its components are common in that they are both freely and publicly accessible, and un-owned by either private individuals, nation states or corporate entities. They are good, for example, in that they enable enhanced and speedier communication and expand our informational resources thereby facilitating and expediting many activities. It is much easier to organize or participate in a conference using email and frequently updated web pages than by telephone, snail mail and hard copies of all information.

Common goods are subject to abuse because the behavior that benefits each individual does not benefit the group. As in the tragedy of the commons (Hardin, 1968), individuals can gain an advantage by extending their use of the communal good, and for many users, doing so is irresistible. Incrementally, the common good is destroyed, so collectively, it is irrational for the group to allow unchecked use. One response is to protect the common good by imposing restrictions or costs on users. Thus, some responses to spam recommend charging a nominal fee for sending each email message (calculated by the number of recipients) or insist on protocols that identify senders. Solutions of the latter kind face substantial practical obstacles. We will argue that the implications of the first solution-type are equally, or more, problematic, since charging for email would undermine the common good status of a distinctive part of the net.¹

This paper has three parts. First we show that the Internet is a common good and

that email is a constitutive part of the Internet, then articulate an account of (limited) co-ownership based on responsible participation. Second we demonstrate that the two most common responses to spam fail to respect the communicative and communal aspects of the net. Finally we explicate and defend a means of controlling spam sensitive to these considerations.

I. Common Goods – ownership, contribution and participation

The Internet is a shared good whose distinctive value lies in its informational, communicative and interactive dimensions. Private and common ownership involve a cluster of rights and responsibilities, including stewardship, access and transference. Certain common goods are non-transferable—*common* in the most straightforward of senses—but in which members of some community share joint interests. This can be a national interest, a public interest, or even a general human interest. A prototypical example of a non-transferable good is clean air. There are, in addition, a number of common goods that are *co*-owned, but in principle transferable (for example, concrete cultural heritage items or public libraries) or *privately* owned (for example, privately held art collections or national trust houses) whose transferable ownership changes through inheritance or sale, but in which a common interest remains. In the case of co-owned goods and some privately owned goods, there may be some individual or entity such as a committee or authority charged with their protection and management.² There are even local bodies responsible for non-transferable goods, such as clean air. Transferability rights are thus distinct from responsibilities for stewardship, preservation and protection. The right way to think about common goods online is in terms of stewardship responsibilities, not transferability rights. We will in fact problematize the notion of ownership of the Internet (and/or parts of the net). We will show, for example, that one common philosophical understanding of ownership—Locke’s account of private property—cannot be straightforwardly applied to cyber-culture.

The value of the net on this account is in the *access* it provides to information (something it shares with other epistemic artifacts like the public library system) and the way it enables *participation* with that information and *communication* with other users. The responsibilities and rights of access and participation are critical factors for this value

to count as a common good. Of course, we are not claiming that one needs to have access to or to participate in online culture to benefit from it: for it to be good *for* you. For example, the Internet has benefited victims of the recent tsunami tragedy including those without access to the web. Indeed, according to *The OPA Intelligence Report* (10 January 2005) the Internet was the main source of donations for the early relief effort. Our claim is merely that a net without active participation by its members would have a very different (arguably much diminished) value, and possibly cease to be a *common* good.

Common goods admit varying degrees of public access. Wilderness areas and components of art collections can remain common goods even if access to them is highly restricted. Restrictions are often linked to the good being seen as something to be preserved as opposed to being maintained by use. Consider the contrast between certain restricted natural wonders—areas of Uluru and Kata Tjuta for example—and a public library. A public library would not count as a *good* public library if it were unused. Likewise, the Internet is a good to be used and has limited value outside of its use. But with both public libraries and the net the general default of public access may be overridden in some circumstances: public libraries contain areas of restricted access. However, if all access were highly restricted, it would not be a *public* library. Similarly, the net contains many features that are not commonly accessible: certain sites are protected, certain user-groups are limited, and blogging, moo and other virtual communities often have highly restricted memberships. But the *default* is that postings are part of a public domain, that one's web-pages, blogs and discussion-board postings are going to be accessible to anyone and that anyone with adequate access to technology can post to the net, unless steps are taken to make it otherwise. If it were not globally available and universally accessible, the value of the net would be very different.

The Internet and public libraries are both artifactual common goods, human products, in contrast to natural common goods.³ Both deal with information, but they do so in strikingly different ways. For users, public libraries are a depository from which to take information and the net is a dynamic environment in which to contribute and to take information; libraries *provide* information via a one-way street, whereas the net enables its users to participate in the development of information content and provides users with communicative tools to *interact* with each other. The present day Internet, to a large

degree, consists in just such interactions.

Email, real-time text chatting and now audio-visual based interactions are ubiquitous on the net. In principle, any user can add information: one's own blog, photo library, draft papers and the like can be easily uploaded. Material can be made accessible to others via programs such as Limewire and it is possible to deliver audio content to portable mp3 devices. The net, therefore, is more than a new way of accessing information—it is not just a *virtual* library—it is also a new form of contributing to the shared informational world. It differs from a good like the public lending library system that extends availability of a resource such as published books. Public libraries do not provide a forum for *anyone's* writing to be made public and they are not forums for the communication of *anyone's* views. It may be objected that there is nothing to stop individuals from beginning their own library and opening it to public access. It could be argued that such a library would be much like many web sites.⁴ This establishes, the interlocutor may continue, that there is no real distinction between libraries and web sites, the public library system and the Internet. Admittedly, there are pragmatic differences in the degrees of accessibility and efficiency of use, but there is no deep philosophical difference. What we have is a difference of degree, not a difference of kind and a difference of degree cannot support a conclusion concerning the distinctive common good nature of the Internet.

We grant much of the force of this criticism. We accept that if the Internet is considered a medium for the storage and acquisition of information like an old fashioned public library,⁵ then it has no identifiable distinctive value. In broadly information seeking terms, there does not seem to be anything fundamentally novel in the Internet.⁶ Likewise for its common good character. However, we dispute that an information-seeking model is appropriate. The distinctive value of the net is to be found in its *interactive* dimensions. If only one individual had access to the net and this individual could not contribute to online content, the net would retain some value. However, it would not be *commonly* valuable and its value would not match that of the present day net. The comparison shows not that the net has no distinctive value, but that the delivery of information does not exhaust the value of the net. A purely book-based library does not, as a primary function, provide an obvious means for interaction with the information

provided and communication with other users. We will shortly look more closely at two net environments—discussion forums and blog nets—that provide just such interactive tools. For now, let us derive from the above contrast that the net needs to retain its interactive dimension in order to remain something of distinctive value: removing its interactive, communicative and, in principle, reciprocal dimensions would change it to something static and more like a museum.

The Internet is a communal good whose distinctive value rests in the opportunities it provides for informational interaction. Further, it is by nature essentially public and communal. The Internet is *contingently* public in that it is not privately owned—no individual, corporation, state or government body can legitimately claim disposal or transference rights over it.⁷ More importantly, its informational and interactive value requires it to be non-exclusive—the default position is universal accessibility. This is certainly not to deny that substantial parts of the net—domain names, web site content, images—are privately held and transactable between agents, and the proto-net was once in the hands of a particular organization: the US military. Rather, it is to insist that the widespread and inclusive ability to contribute to and participate in the infosphere is an essential part of the Internet. This communal nature yields a model of limited ownership based on participation and use.

Acquiring rights over common goods

On Locke's account, natural goods can become private property when individuals mix labor with them, thereby acquiring or earning some rights. Locke's account is framed in terms of natural goods, but may be applied to artifacts. If a good comes into being that is constituted and maintained by the use that is made of it, those who participate in mixing their labor with it are thereby the proper co-owners. This model might lead us to think, plausibly, that users of the Internet are co-owners to the extent that they participate. This seems to be precisely how discussion-board forums work with respect to ownership rights and in many ways such forums are isomorphic to the net as a whole. A discussion-board is used to illustrate our account of the relationship between participation, ownership and responsibility and we will generalize our account to the Internet as a whole.

A discussion-board based forum is an online community of members sharing their

views on topics of common interest. Freshdisko.com is one such forum, focused on dance music in Australia. Like other forums, its guidelines specify both the content and the parameters of acceptable posting to which all participants must consent. The norms of freshdisko.com include respect for other members, guides to acceptable topics of discussion—banning the promotion of illegal activities and excluding commercial activities—and articulate the responsibility of members for the content they provide. Like many such forums, it is nonexclusive and highly accessible.

Different parts of such forums are owned in different ways. One person owns all revenue generated by freshdisko.com, is responsible for all expenses, such as registering the domain name, and could sell or bequeath that domain name. But the value of freshdisko.com both to its owner and to the general Internet audience resides in its public nature. Freshdisko.com would not generate income unless the discussion was active and accessible. Freshdisko.com provides the necessary environment, but the content is provided by community members. Freshdisko.com provides a concrete example of how the ways that the net deals with information differ from those of a public library. Public libraries do not provide an environment for the dissemination of everyone's views. A good public library system collects content in a systematic manner under the direction of a professional support staff. Discussion forums are, while public libraries are not, structures that exist to enable direct interaction with the info-sphere.

The Internet generally is much more like freshdisko.com than a public library. Anyone can add information and additions to content are neither systematic nor overseen by a staff of professionals. Freshdisko.com provides both structure and monitored standards, neither of which are encountered on the net as a whole which is a very anarchical place. Additions to freshdisko.com must confirm to its standards and must be appropriately located within the forum. The web environment aids this interaction. Other differences are that the net is a common good that is potentially valuable to anyone, and that some issues of ownership are different. For example, it is not clear that any contributors to the net have even partial transference rights, and no-one stands in the position of owning all its revenue. Hence the Lockean model of acquiring ownership in a full sense via mixing one's labor may not be suitable for the net as a whole. However, for our purposes, the rights of transaction—transferring ownership—are of secondary

importance, and our main argument will go through whether we conceive of the net as un-owned or co-owned along this dimension. We will argue that certain responsibilities emerge from participation and use. These are responsibilities to maintain the good that is constituted by that use. In this sense, the net as a whole is isomorphic with its micro-communities like freshdisko.com and the relevant responsibilities remain under most plausible ownership models.

Freshdisko.com is a microcosm of the net, more structured and restricted to specific topics of interest, but a valuable community for those sharing that interest. The distinctive character of the net resides in its virtual communities, since it is largely constituted by a collection of such communities with over-lapping memberships. As such, the conclusions drawn from freshdisko.com will extend to the net straightforwardly. Some of the technical details may be different—for example, not all net environments encourage responsible participation by the same means—but our general claims about responsibility will hold firm.

Establishing co-ownership via responsible contribution

To the extent that members contribute to the content of online forums, they are, arguably, co-owners of that content. There are a number of strategies used on freshdisko.com to encourage members to become active participants and to see themselves as owners of and responsible for their contributions. Posts are identified with the contributor's online persona and the poster always retains the ability to edit her posts, only moderators can edit the posts of others. Identification with one's online persona is enhanced by personalization such as including an avatar, signature, personal photographs and the like. Each avatar signature reflects the number of contributions made to the community and the most active members have the greatest freedom to personalize their online persona. Members are thereby publicly accountable and rewarded for their postings. Rewards and punishments for adherence to or breaches of the guidelines are the responsibility of the community moderators.

Like discussion forum members, many users of the net do not just view information, but contribute to the information and mis-information online. We have expressed this in terms of interaction both with content (contribution) and with other

members (communication). These interactive dimensions ground the distinctive common good status of the Internet, but email may present a problem for our account. Spammers are by far the most prolific users of email and email is the most commonly used communicative tool online. Hence spammers contribute substantially to the info-sphere. If, as we have argued, the common good status of the net is grounded on active contribution by its members, then spammers are models of good web citizens. Obviously, this conclusion is to be resisted. To achieve this we will refine the idea of co-ownership based on mere participation. This is not an *ad hoc* move. Reconsider freedisko.com. Different kinds of positive contribution are rewarded differentially and different kinds of breaches of the guidelines receive different penalties. Persistent off-topic posting sees posts deleted and the member thereby not credited with community contribution. Community spamming—attempts to sell commercial products via the community forum—is taken more seriously and usually results in exclusion from the community. In both cases it is not the *volume* of use, but the *value* of contributions that counts. By analogy, email spammers can be ruled out as co-owners of the Internet for failure to offer contributions others value: if it's valued, it's not spam.

Our responsible interaction account of stewardship may face a problem when it comes to blogs. Like discussion-board contributors, bloggers *may* seem to obtain a stake in the Internet via their contributions.⁸ A blogging platform enables publishing one's views and interacting with online information without the structure or standards explicitly provided on discussion forums. Blogs are not subject to the same level of monitoring as discussion forums. There are no moderators as on freshdisko.com. Bloggers can and do publish anything on their blogs which can lead to abuses. Bloggers are routinely criticized by the established news industry for lacking publishing standards, and publishing unsubstantiated rumors. The pornography industry has used blogs to artificially inflate search engine rankings. However, standards are emerging within the blog-sphere. Using blogs to manipulate search engines is clearly inappropriate, whereas the status of source checking is more problematic. Whether these emerging standards are robust enough to support what our model requires of them is beyond the scope of the present paper. It may be possible to distinguish responsible from irresponsible blogging practices. If so, we would predict that greater levels of interaction will correlate with

greater responsibility.

Positive aspects of online community membership depend on responsible contribution. Moderator status, which allows more privileges and a greater ability to direct the community, but which also carries significantly increased responsibility, depends on contributions that promote vibrant and relevant community engagement. This status can only be reached by invitation by other moderators. In the case of freshdisko.com, standards internal to the practice distinguish constitutive or positive use from abuse, or unconstructive use. Online market places like ebay present a variation. On ebay each seller has a trust rating generated from feedback from previous buyers and prospective buyers according to standards substantially different from those on freshdisko.com (obviously, ebay does not ban commercial practices). But success on ebay still depends on a good rating, thereby encouraging responsible interaction. More generally, the common good status of the net and stewardship rights and responsibilities over it depend not just on participation, but positive constructive contribution as measured by standards internal to each practice. Thus the net can be understood as owned by its constructive contributors with the qualification that it is not just any use, but use that contributes to its value as a common good that entitles stewardship.

In the next section we use the stewardship account to examine two commonly proposed solutions to the problem of spam. Spammers may be like free-riders on public transport in that their activities raise the cost to other users. Spammers benefit from the common good without concern for the detrimental impact they may have on that good. Spam threatens to disrupt an essential part of the net. As such, it cannot count as constructive contribution. By considering the responsibilities of users to engage constructively we will see an appropriate solution to spam emerge.

II. Common Abuses – the cost of spam to digital culture

Many of us use email daily to maintain contact with colleagues, friends, family, clients and the like, and as frequent email users, we are all too familiar with spam. But spam is not just an individual irritation. Spam reduces the speed and efficiency of email to such an extent that it threatens its continuation as a mode of communication. Spam constitutes over 80% of email traffic at present (MX Logic Inc, statistics for July 2004). And that

proportion is increasing. In June 2004, spam accounted for 75% of email traffic, up from around 50% of traffic the previous June (MX Logic Inc, Report August 2004).

Spam proliferates because it is so inexpensive, effectively cost-free to produce. Using various programs, spammers can create ever-expanding lists of recipients and deliver spam to these accounts without significantly increasing their costs. But increasing spam increases costs to receivers. Time spent identifying and deleting unwanted messages translates to significant costs and replaces more productive work or more interesting activity. A sender of spam reaps greater benefits from minimal increases to outlay, but recipients and their associated organizations face more intrusion and ever increasing financial burdens. Nucleus Research Inc estimated in June 2004 that spam costs American employers an average of \$1934 a year per employee in lost productivity (reported Hicks, 2004). Given these costs and benefits, a natural solution is to balance the relative advantages of senders and receivers by imposing a financial burden on *all* senders of email messages.

Two commonly proposed solutions to spam and their problems

The motivation behind charging senders a nominal fee is respectable: it reverses the relative costs and advantages to regular and abusive (spamming) users of email. Nominal fees for sending emails would impose a minimal cost on regular users, but a prohibitive cost on spammers. Another commonly advocated solution to spam is to slow spam by verifying senders' details. The most promising approach seems to be making the sender's identity transparent through Sender ID protocols. If successful, this would confine email users to legitimate domains and thereby make unacceptable use easier to track and discourage.

The first proposal is unsatisfactory for two reasons. First, it undermines the nature of the Internet as a communal good that is universally accessible. Nothing intrinsic to the net currently constrains who can participate. There are, of course, *external costs* associated with accessing the net, whether from your own computer or an Internet café. In many situations it is possible to overcome these financial barriers, public libraries often allow free Internet access. In any case, these costs are external to the net. Charging for email, however, would involve charging for a service that is one of the distinctive

aspects of the net itself. Such a financial barrier would significantly undermine the value of universal accessibility. A cost that is minimal to some users could be a disincentive to others. Second, this would further discourage certain groups currently under represented online and thereby reduce the diversity of the net. Making net use even minimally more expensive would have differential impact on poorer net users, who are already under represented, and thus would be a serious threat to one real value of the net: opening up debate and information to the full gamut of society. It seems many web users recognize the net's value as a source of diverse and challenging information. For example, during the 2004 US election, over 15% of surfers using the Internet to gain information about the election deliberately sought out opinions opposite to their own (OPA January 10, 2005). Charging for email significantly alters the value of the net as a forum for the publication and dissemination of ideas of diverse groups.

It might be objected that this attitude to fees is too extreme since fees for other common goods are not taken to disenfranchise particular groups. If national park fees are acceptable, nominal fees for email should be likewise. We will rehearse three responses. First, it is arguable that such fees are disenfranchising, but we don't need this stronger claim to defend our position. Second, economic exclusion from natural wonders is not as significant as exclusion from the information sphere. The ability to use Internet resources is all but essential in education and employment, lacking access to natural wonders does not have such a substantial impact on future prospects. Third, issues of international equity emerge. Charging for national park fees all occurs within one national population. When charges apply across international boundaries, serious issues of equity are insurmountable. A nominal fee for an Australian student may be prohibitive for many of her New Guinean counterparts.

Impracticality is the problem with the second solution. Setting up an alias, a domain name and an account on a server is very easy, but tracking users is not. The identity of the owner of a domain need not be transparent to a web user, even if they know how to use the Internet Corporation for Assigned Names and Numbers database. To illustrate: one of the authors has registered a top level domain name to a non-existent person, with a non-existent address, which is assigned to a hosting company similarly owned by a non-existent person living in a non-existent place. Jurisdictional issues across international

borders create further obstacles. Consider this. A resident of Canada registers a Tuvalu (.tv) domain name with an Australian company, using an India reseller to host her site on a Thai server and having all revenue paid by a German company into a US bank account. Should the individual begin spamming New Zealand residents, which jurisdiction has the authority to prosecute? Or worse, who would be responsible for dealing with a third-party who hacks the site and uses it as a portal to send spam? Maybe these questions can be answered, but the issues are extremely complex and a response to spam that does not rely upon answering them seems preferable. In any case, there is little empirical evidence to suggest that spammers will be moved by any attempt to track and punish them. This situation is well illustrated by the limited impact of the CAN-SPAM Act (US, 2004).

The CAN-SPAM Act requires that senders of unsolicited email include a range of personal details along with a simple means of opting out of further correspondence. This act has had *some* effect. A Boca Raton resident in the US had his assets frozen for failure to comply. But spammers are simply ignoring the act, by failing to include the relevant details and most significantly omitting any means of opting out. In July of 2004, compliance dropped to under 1% (0.54%) of unsolicited advertising email for the first time. Scott Chasin, chief technical officer of MX Logic, claims that the CAN-SPAM Act was never intended as a spam antidote so no-one should be shocked by this decrease in compliance. According to Chasin, the legislation ‘provides a definition of legally acceptable e-mail marketing practices and empowers consumer protection agencies and ISPs to go after hardcore spammers, but it cannot by itself control the onslaught of spam’ (quoted by Hartsock 2004).

Technical solutions are always a step behind problematic uses of technology.⁹ The music industry’s ongoing attempt to stop CD pirating demonstrates the problem vividly. The successful case against Napster just opened a niche for more advanced peer-to-peer file sharing. The Australian music industry currently has a case against Kazaa, a peer-to-peer system that allows any digital file to be shared. Even if this is successful, LimeWire can fulfill exactly the same function. Sony recently abandoned file protection on CDs. The system was both too effective in that some portable systems could play only the first few seconds of each song on protected CDs and too ineffective in that it did not prevent Mac OSX users encoding CDs, burning them, or loading them to multiple mp3 devices. If

very technically sophisticated and financially powerful organizations such as Sony and the music industry cannot control the pirating of their own product when they have complete control over its original distribution, there is little hope for controlling spam across the board. Technical solutions to technically enhanced illegal or immoral activity look like non-starters.

We seem to face a difficult decision: do we charge for email and risk further disenfranchising our most disadvantaged groups and permit the net as a common good to deteriorate, or do we seek to play catch-up with the spammers using technical solutions, a strategy unlikely to preserve the efficient communicative functioning of the net?

III. Common Responsibilities

Although ultimately wrong, there is something correct in both the user-pays and the technical innovation responses to spam. The user-pays approach is right to want to change the balance between the cost of sending and receiving spam. And the technical innovation approach is right to look to new advances in software for help. Both approaches also have something fundamentally wrong: neither takes seriously enough the essentially interactive and communal nature of the net. In the case of the user-pays response, this is expressed as an exclusive focus on the provider of information (the spammer) and results in a proposal that threatens the net's communal nature. The technical innovations so far discussed, locate the responsibility for dealing with spam at too high a level. An environment that is as complex as the Internet cannot be subject to some overarching rule of law. Transjurisdictional and pragmatic issues make that approach if not completely unworkable, at least exceedingly complex and most likely prohibitively expensive and, as such, an option of last resort. The responsibility for dealing with spam is properly located at the user level, precisely because the net is essentially interactive.

There is a principled reason for locating the responsibility for spam with Internet users, if we take the notion of stewardship seriously. Users must learn to deal responsibly with spam. Such responsible dealing could mean anything from deletion, to posting a warning to a discussion-board, to setting up a site that provides warnings against improper email solicitations. The appropriate response will depend on the user's

sophistication and resources. There is a strong parallel here with discussion forums. Recall freshdisko.com which has thousands of members and generates hundreds of posts a day. It would be simply impossible for the moderators to scan every post to ensure community guidelines are followed, so they rely heavily on input from advanced users who can log complaints about specific posts. Moderators use this log to track and deal with posts that fall outside the community guidelines. New members are not always fully aware of or sensitive to borderline content issues. They may be able to identify and report extreme breaches—spamming, obvious flaming and the like—but a majority of problematic posts are not of this obvious nature. Borderline breaches fall to long standing members to report.

Similar variations apply to dealing with spam. For the average net user the appropriate response may be deletion. More advanced users are required, time permitting, to deal with spam more proactively. For example, they might warn colleagues of new spam based scams or attempt to take up the time of spammers—and thereby reduce the relative value of the practice—by responding to the spam with time-consuming email.¹⁰ Technology can help responsible users to deal efficiently with spam. Many email programs and web-based email platforms have spam-blockers as a standard feature. These vastly reduce the amount of time it takes to exclude spam from regular inboxes. These protocols allow an end user to set her own degrees of tolerance towards the type and degree of error. Some users may prefer to allow the odd piece of spam through so as not to have real mail mis-categorized and lost. Others who receive thousands of spam messages a day may not have this luxury. Our practical suggestion is that end users should be trained in the use of and encouraged to employ spam-blocking features of email systems. This will both diminish the amount of time each individual needs to deal with spam and will ultimately reduce the amount of spam by making the practice less profitable. On our account of the distinctive common good nature of the net, the end user is *obliged* to respond appropriately to spam and it seems to us that employing such blocking strategies is the most appropriate response for many web users. Advanced users may be required to do more, but the aim is the same: to reduce the time needed to deal with spam and redress the balance between sending and receiving spam.

It may be objected that our suggestion, while good in principle, is impractical. Even

if a large number of people begin dealing responsibly with spam, the result will be inconsequential. Indeed, one may object that it would be *irrational* to make the effort to deal appropriately with spam knowing that most others are failing to do so. We have two responses. First, though your actions in the absence of action by others will not reduce the overall amount of spam, it will reduce the amount of time that *you* spend dealing with spam. Once you have a trained spam-blocker in place, much less spam will find its way into your inbox. Second, we accept that no individual's responses to *spammers* will have an impact on spam, but collective actions can do so. We have emphasized throughout this paper that the net is valuable because of its interactive nature, a nature that allows the development of virtual communities. It is within these communities—communities whose very existence depends on appropriate interactions by members—that an individual can impact spam, by occupying a leadership and perhaps training role within the community. One of the extra requirements on advanced users flagged above is the encouragement of other users to employ spam-blocking software. Again, on our model this is obligatory rather than optional on the part of the advanced user.¹¹

The co-stewardship of the net means responsibility resides with contributors and users. This analysis places the responsibility for dealing with spam in the hands of the receiver. We have advocated rebalancing the cost of spam by appeal to participation not punitive regulation. The appropriate use of technical solutions is to enable and buttress the end user's ability to deal efficiently and responsibly with spam. The appropriate response to spam rests on the correct understanding of the Internet as a common good, distinctively valuable for the way it allows nonexclusive interaction with information.

Notes

* Thanks to Eliza Goddard, Ron Sandler and the community of Freshdisko.com.

1. Since the net's inception email has been the most used of Internet resources in all but one period, that leading up to the 2004 USA federal election. This is a significant outlier because of the dramatic increase in the number of people using the net to gain political information. Pew Internet reported that 63 million Americans used the net to obtain news about the 2004 election, up from 30 million for the 2000 election. Further, over 30% of broadband users reported that the Internet was their primary source of political news during the campaign (November OPA 2004).

2. Ownership of an item need not give complete control. I have different disposal rights over things I can be said to own. There are no legal penalties for taking to my television with a hammer, but I must not treat my dog in the same way.
3. To differentiate direct human products such as artworks and technology from the non-human environment is not to deny human influence on the latter.
4. Indeed, this seems to be the very model of a web site for many academics, whose sites typically contain only links to or copies (eg, downloadable preprints) of their published works.
5. Contemporary public libraries provide significant Internet resources to their users, so it is artificial to treat their value as different in *principle* from the net. We do so here merely for the sake of argument.
6. It is worth noting that even if the net is wrongly considered a static medium, the degree of extra efficiency, ease and, most importantly, increased accessibility makes it seem like a new type of artefact. This point could be used directly against the supposed counter-example of the individual-cum-public library: you can start your own library, but it is essentially pointless, as very few people will have access to it.
7. Our position on accessibility is orthogonal to the question of transferability rights. The non-exclusivity argument will go through on any understanding of the ownership of the net along this dimension: regardless of whether the net is privately, co- or un-owned. We will focus throughout on stewardship.
8. We employ the qualifier “may” because, as we will suggest below, a lack of clear standards of responsible contribution may be problematic.
9. Precisely the same case can be made against technical “solutions” to student plagiarism, such as those offered by Turnitin.com. See Townley and Parsell (forthcoming) in which we term this the “Red Queen” phenomenon.
10. This last option can be used to deal with the Nigeria scam and its variations. One of the authors responds to versions of this spam with a pre-prepared message faking interest and requesting more details. Dialogue continues—using canned messages that take minimal to no time to send—until the spammer becomes suspicious. The correspondence is then posted to one of the web-sites interested in such material. We do not recommending that average users do this. Responding to spammers is a very good way of

having your email address added to a large number of databases thereby increasing the amount of spam you receive. This strategy depends on using untraceable, throw-away addresses set up specifically for this purpose.

11. The advanced user is typically a more active online participant who arguably receives more good and should be held more responsible for the preservation of that good. Since the advanced user is surely aware of the danger the Internet itself faces from spam and surely knows that an effective response requires mobilizing a vast majority of net users, it seems to follow the advanced user is obliged to engage in such mobilization.

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