Scary Monsters?
Software formats, peer-to-peer networks, and
the spectre of the gift

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Abstract

The paper focuses upon a socio-technical network made possible through the combination of software, the Internet and peer-to-peer computer networks. These socio-technical networks have destabilised the regime of governance that supports what I describe in the paper as copyright capitalism by creating a series of gift economies where the products of those industries are given away. This development has significance for a wide range of creative industries that are dependent upon copyright protection for their reproduction including motion pictures, publishing and software engineering. The main empirical focus of this paper is the music industry because it is there that the challenge to copyright capitalism’s mode of reproduction has been most acute. The paper looks at the origins of these gift economies, which can be traced back to the academic roots of the Internet. A musical gift economy centred upon MP3 emerged during the early 1990s, but was only constituted as a problem for the music industry following the commercial invasion of the Internet during the late 1990s. Dot.com start-ups transformed the specialised knowledge that was once the preserve of hackers and hobbyists into generic knowledge through the development of ‘user-friendly’ file-exchange systems, thereby providing mass access to a once underground musical gift economy. Copyright capitalism mobilised the powers of law enforcement to reassert its control over the circulation of recorded music, and has successfully tamed many of the firms that sought to extend this gift economy for commercial gain. However, there have emerged a set of
networks that are both ideologically and substantively opposed to the interests of copyright capitalism, and that are more resistant to attempts to reassert the control of the large corporations. The paper argues that the continued existence of these networks will undermine the ability of large media companies to control copyright in the way they have in the past. Although the communities that facilitate such economies are themselves unstable and rely, like other ‘alternative’ economic systems, upon a narrow band of active participants, such gift economies may emerge as the most significant and problematic legacy of the ‘new economy’

**Key words:** copyright capitalism, gift economies, peer-to-peer networks, Open Source software, music industry, MP3.
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“All old … established industries have been destroyed or are daily being destroyed … And as in material, so also in intellectual production. The intellectual creations of individual nations become common property” (Marx and Engels, 1971 [1848], page 39)

“Napster and Gnutella work poorly as actual threats to the business of the music industry, [but] they have considerable promise as scary stories to tell legislators, particularly if one were lobbying for government assistance in preserving the current shape of the market.” (Boyle, 2000, emphasis added).

“They created a monster …” (US District Judge Marilyn Hall Patel, on the Napster peer-to-peer file-sharing system, quoted in Borland, 2000, emphasis added).

I Introduction

A spectre is haunting capitalism, the spectre of the gift.¹ An emergent socio-technical network, understood here as a network of human actors, information and communication technologies, and institutions, is challenging those domains of the capitalist economy that rely upon the exploitation of intellectual property rights for their reproduction. These

¹ The phrase is borrowed from Marx and Engels (1977) – ‘A spectre is haunting Europe – the spectre of communism’ (page 34) – via Richard Barbrook (1999) – ‘A spectre is haunting the Net: the spectre of communism’ (page 1).
domains, which for the purposes of this paper I shall describe as *copyright capitalism*, have become ever more extensive, a product both of increases in the knowledge and information content of the economy, and of the subsequent rise in the measures taken to defend ideas, images and creativity through laws and regulations pertaining to copyrights and patents (Boyle, 1996, Rifkin, 2000, Thurow, 1997). While concern about the emergence of this challenge to intellectual property rights is wide and generally felt, it is most intense within the culture industries, broadly defined. These industries are currently dominated by large corporations that translate acts of creativity into commodities that, for the most part, are sold in mass markets on a per-unit pricing basis. However, in recent years business models have emerged from the corpus of the ‘new economy’ (Cassidy, 2002; Frank, 2000, Lewis, 1999) that have reduced the per-unit marginal cost of cultural commodities such as music, movies and texts to virtually zero, while the fixed initial costs required to produce these commodities remain high.

The paper focuses upon the ‘scary monsters’ that have been summoned into existencethrough socio-technical networks that have destabilised the regime of governance supporting copyright capitalism, which has enabled its leading corporations to become globally significant institutions. These changes have significance for industries such as motion pictures, publishing and software engineering, among others. However, the main focus of this paper is the music industry, for it is there that the challenge to copyright capitalism’s mode of reproduction has been most acute as new musical networks, made up of digital music, software formats and Internet distribution systems, have profoundly destabilised this most highly concentrated and centralised of
industries (Leyshon, 2001, Alderman, 2001). This is also where the spectral outlines and manifestations of what Richard Barbrook has described as a ‘hi-tech gift economy’ may be discerned most clearly (Barbrook, 1998). This gift economy – or more accurately, gift economies – has important implications for economic governance more generally, for it indicates how new competitive and regulatory norms are introduced through the hardware and software that forms electronic spaces such as the Internet and the World Wide Web (, Sassen, 2000; Thrift and French, 2002), and is arguably the vanguard of a mode of exchange that has significant implications for conventional business models across a range of capitalist industries.

The argument in the paper proceeds as follows. Part II provides some background and context by explaining the organisation of the music industry, and focuses upon the crisis caused within the musical economy by the emergence of software formats and Internet distribution system. Part III looks at the development of hi-tech gift economies, which may be seen to be based upon both the academic foundations of the World Wide Web and, to a lesser extent, the Open Source software movement. Part IV considers the emergence of a gift economy in recorded music in the mid 1990s. Founded upon the specialised skills of computer ‘hackers’ and hobbyists, its narrow base meant that this early manifestation of the hi-tech gift economy was seen more as an irritant rather than as a direct threat to the revenues of the music industry. Part V looks at the ways in which this irritation was transformed into a major strategic concern during the late 1990s as, driven on by the phenomenon of the new economy, new dot.com start-ups began to devise new business models for the music industry. The models transformed specialised

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2 For analysis of similar processes of destabilisation within the motion picture industry, see Currah (2002).
knowledge, once the preserve of hackers and hobbyists, into generic knowledge through the development of ‘user-friendly’ file-exchange systems, thereby providing mass access to a once ‘underground’ musical gift economy. Part VI discusses the foregoing argument and provides a conclusion to the paper.

II The musical economy in crisis

Over its relatively brief history the music industry has been constantly shaped and reshaped by what Christensen has described as ‘disruptive’ technologies; that is, artefacts that, through their social application, produce episodes of socio-technical change that have profound implications for organisational structures by changing the bases of competition within and between industries (Christensen, 1997). The music industry has been beset by numerous crises been triggered by the introduction of technologies originally developed for use beyond the musical economy but which migrated there some time after their original applications. The current crisis in the music industry has been brought about by the emergence of software formats (Leyshon, 2001).

Software formats, such as MP3, are examples of powerful disruptive (socio-) technologies, and their impacts upon the music industry were largely unforeseen and unintended. MP3 – or Motion Picture Expert Group Audio Layer 3, to give it its full name – is a software ‘compression’ programme that reduces digital files to around 10 per cent of their original size, with very little loss of quality. The programme was originally developed to reduce the size of digital motion picture and audio files as part of the
International Organization for Standards’ efforts to establish protocols and conventions for the emerging Interactive Television industry (Leyshon, 2001). However, by the mid-1990s MP3 programmes were being used to compress digital music files extracted from media such as compact disks, reducing them to a size that made it possible for the files to be sent as e-mail attachments or, more commonly, to be posted on web sites and available for downloading onto personal computers. These files were usually copies of copyrighted material, but made available as part of complex processes of gift exchange (see Parts III and IV).

The advent of software formats such as MP3 and of Internet distribution systems has threatened to loosen the grip that record companies have exerted over musical networks of creativity, reproduction, distribution and consumption, and that of retailers over networks of consumption (Figure 1). The networks most threatened by the advent of software formats and Internet distribution systems are those of reproduction and distribution. In the parlance of e-commerce, these networks are most at risk from ‘disintermediation’, or more accurately from ‘re-intermediation’ (French and Leyshon, 2002). Media such as compact discs, minidisks and their associated player technologies are gradually being supplemented by the intermediaries such as personal computers, telephone lines, Internet Service Providers and the software programmes that permit MP3 files to be played. In so doing, these new intermediaries are reducing the long-term commitment within the musical economy to capital-intensive manufacturing plants and physical distribution services. Meanwhile, as record companies seek to eat into the significant margins enjoyed by music retailers by making music available – for a fee – from a central web site, the viability of the many retailers that currently rely upon the sale
of music in conventional formats is called into question, and will probably result in the reshaping of networks of consumption.

However, it is around the issue of copyright that the current crisis revolves. The exploitation and protection of copyright has been central to the music industry over a long period of time as a means of defending investments made within the musical economy. Copyright is a social convention developed to encourage cultural creativity. Emanating from debates on authorship and literary property in seventeenth and eighteenth century England (Rose, 1993), copyright may be seen as a compromise that seeks to balance the interests of producers with the distribution of knowledge within a broader public commons. According to Vaidhyanathan (2001, page 177), ‘copyright law is a system – an institute of practices and habits – that regulates information by creating artificial shortages for limited times and limited purposes’. By making unauthorized copying of material illegal for a fixed period, copyright enables cultural producers to exploit an economic rent from their creators. When the copyright on a work expires, the material passes into the public domain, enabling cheaper copies to be made available.³

As far back as the nineteenth century, music publishers were already fully conversant with the language of copyright, which was used to protect their investments within the production of sheet music. Performing Rights Societies were established from the mid-nineteenth century onwards to collect royalties for composers and publishers every time their music was performed in front of an audience. To similarly protect investments in sound recording, following its development in the early twentieth century, the music
industry pushed for the revision of copyright law to include the payment of ‘mechanical’ royalties for ‘each cylinder, record or piano roll manufactured, in addition to revenues already derived for live performances’ (Garafalo, 1999: 322). Such mechanical rights endured and were adapted as formats and technologies changed, and were supplemented by royalties earned from performances – both live and pre-recorded – in other developing media such as radio and television. Indeed, over time as record companies evolved into larger entertainment corporations, partly as a result of mergers with organisations within the publishing, broadcasting, motion picture and electronic manufacturing industries (Sadler, 1997), the raison d’etre of such companies began to change. Increasingly, they began to think of themselves more as exploiters of rights than producers of records. Their new mission was to develop as many “revenue streams” as possible. Music-television and cross-media marketing – particularly movie tie-ins – were crucial to this development (Garofalo, 1999: 343).

In so doing, a concern with copyright was extended to encompass the broader idea of intellectual property rights and their exploitation (Vaidhyanathan, 2001), which became ever more central to the production of profits by such firms. This encouraged a concerted and ultimately successful movement to further encircle the intellectual commons (Boyle, 1996; Lessig, 1999; 2001) and to enact regulation that ensured the maximum extraction of value from copyrighted material:

… corporate capital has expanded its hold over intellectual property rights in at least three critical areas: extending the term of copyright, narrowing the arena for

3 These periods have tended to increase over time. Take the example of US Copyright law (Vaidhyanathan, 2001). Until 1831 copyright lasted for just 14 years, for 28 years until 1909, and for 56 years until 1978.
fair use, and creating brand-new intellectual property rights. In the 1990s both the European Community and the United States extended the term of copyright to a point that effectively eliminates the public domain for music written in the twentieth century. In a sweeping revision designed to bring the United States in line with changes in the European Community dating back to 1993, the Sonny Bono Copyright Term Extension Act of 1998 extended U.S. copyrights owned by corporations to ninety-five years and individually held copyrights to the life of the author plus seventy years. While the move was spearheaded by Disney because, under the existing law, Mickey Mouse was about to enter the public domain, such legislation obviously serves the interests of transnational capital, which is becoming better organized on an administrative level (Garofalo, 1999: 348).

The importance that record companies attach to the protection of copyright is based upon valid enough concerns. The music industry is characterised by chronic uncertainty and by high levels of information asymmetries, so that is it generally accepted that only around 10 per cent of recordings recoup the investments made in them, which take the form of advances to artists and other production and marketing costs. However, low marginal costs of production means that the recordings that are successful are usually able to recoup sufficient returns to cover the costs of the other 90 per cent that do not (Ryan, 1996). But, such are the problems of uncertainty that run through such a fickle and fashion-conscious market, record companies are never able to predict which of their recordings will make up the successful 10 per cent. As a result, record companies adopt a portfolio approach to their rosters of artists, which are increasingly turned over, as acts

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Between 1978 and 1998 copyright was extended to the lifetime of the author plus 50 years.
that fail to generate high selling recordings for any length of time will fail to get their contracts renewed. Moreover, this low ratio of success to failure also explains the industry’s perennial concerns about copyright infringement because the ability of customers to obtain illegal copies of material may depress sales, thereby lowering income and reducing the amount of money that record companies feel they can invest in artists, particularly the 90 per cent that do not earn any money.

In light of the relationship between the music industry and copyright, software formats and Internet distribution systems were claimed by the record companies to be a particularly potent threat to their continued existence. It is important to put these claims into context. At one level, software formats raise exactly the same issues as did the adoption of earlier reproduction technologies such as audio and videotape. In both cases, the entertainment industry argued that the ability of consumers to make tapes of music or motion pictures would destroy markets for these products. However, both industries were able to overcome the perceived problems of ‘home taping’ through successfully securing a tariff for the sale of blank cassettes and by selling their products through new distribution channels (such as rental and sell-through in case of VHS videos) (Ryan, 1996). Moreover, the music and motion picture industries were able to successfully differentiate their products from taped copies through the development of products with high reproduction quality (such as Compact Disks in the 1980s, DVDs in the 1990s, and the upgrading of the cinematic experience across both decades) However, the music

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4 For example, according to Lovering (1998) MCA reduced the number of acts on its roster by 75 per cent in 1994-1995.

5 However, the argument that the acquisition of illegal copies of music acts as a substitute for purchases has never been proved. Indeed, there is some evidence to suggest that illegal copies circulate most rapidly among active music listeners who also buy more legal copies of music than average. For example,
industry argues that the ‘digital dilemma’ is different to that of taping, for at least four reasons. First, as a digital format MP3 offers a near perfect copy of the original recording\(^6\) which does not deteriorate over time as is the case with other recording media, such as audio tape. Moreover, software formats overcome what Pratt (2001) has described as the ‘physical drag effect’, which in the past meant that copies were either of inferior quality or expensive to produce. Second, and to compound this problem, MP3 is an insecure format which means that copies, once made, can be copied indefinitely and on a potentially world-wide basis due to the reach of the Internet. To give some illustration of this, Figure 2 shows just how far these files can travel. It reveals the geographical distribution of users logged into one on-line music provider, Audiogalaxy, at one moment in 2001. An MP3 file made available by a user could potentially have been quickly downloaded by 15,560 users in at least 64 different countries. Third, although the companies that provide MP3 player software have to pay mechanical royalties to the music industry in a fashion that is almost as old as sound recording itself, most of the MP3 files in circulation are illegal copies of copyrighted material for which no royalties are paid or received. Fourth, and finally, MP3 files are being exchanged in an environment that is not just indifferent to copyright law and intellectual property, but is in many respects actually hostile towards it. This is a particular problem as the music industry, like other industries, seeks to adopt the Internet for commercial use (Lessig, 1999). The industry is entering an environment that was created for an alternative purpose, and which still poses a challenge to the enforcement of copyright law as it is

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\(^6\) However, the sound quality of MP3 are considered by many to be far lower than compact discs, and although players are available which connect to hi-fi systems, most are played on the sound reproduction
currently configured. It is to the development of this economic space within the
infrastructure of the Internet that the paper now turns.

III The spectre of the gift

The process of making the Internet an infrastructure for the generation of profit via commodity exchange is well underway. The case for a ‘new economy’ founded upon the Internet was advanced in the mid- to late-1990s by a complex mixture of advocates made up, according to Feng et al. (2001), of Internet ‘visionaries’, management consultants, mainstream economists and what they describe as ‘gonzo journalists’. The appeal of this new economy were founded upon the possibilities of harnessing electronic networks, which promised to extend the geographical reach of companies at the same time as they reduced costs (French and Leyshon, 2002). Encouraged by the riches that e-commerce might deliver – and by the startling stock prices of the rash of dot.com start-ups (Cassidy, 2002) – being net-centric became the latest business fad (Feng et al., 2001; Williams, 2001). However, although exchange is one of the founding principles of the Internet, and has driven its development from its earliest years, efforts to import models of monetary and commodity exchange from the mainstream economy have run into difficulties because the kinds of exchange upon which the Internet has been founded have for the most part been non-pecuniary in nature. Indeed, not only is the Internet a difficult place for companies to do business but, according to Barbrook (1998), it actually poses a

equipment of personal computers. These technical deficiencies act as a deterrent for certain music consumers who place considerable importance on the ‘high fidelity’ reproduction of music.
significant challenge to the mainstream economy because it constitutes what he describes as a *hi-tech gift economy*. The origins of the Internet lie both in its initial foundation as a system for the US military and in its subsequent development within the academic community. Therefore, while the Internet found utility as a means of exchange, it was largely as a means of exchanging information within a peer-to-peer culture which was motivated more by the accumulation of cultural capital rather than economic capital. The basis of advancement within the academic community is generally through the building of reputation and esteem through the development of a body of work that is, to all intents and purposes, given away. In other words, academic outputs are gifts, given away in the anticipation that they will generate cultural capital for the giver. If accumulated in sufficient quantities, this cultural capital can be converted into economic capital through career progression, as academics are given promotions and receive job offers. However, the point is that much prestigious academic output is simply given away:

> Funded by the state or by donations, scientists don’t have to turn their intellectual work directly into marketable commodities. Instead, research results are publicised by ‘giving a paper’ and by ‘contributing an article’ to professional journals … academics acquire intellectual respect from each other through citations in articles and other forms of public acknowledgement. Scientists therefore can only obtain personal recognition for their individual efforts by openly collaborating with each other through the academic gift economy.

Although research is becoming increasingly commercialised, the giving away of

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7 Although not all of it is. The obvious exception is the publication of books, which can earn authors royalty income. However, books are bought by libraries, and there are available there free to borrowers.
findings remains the most efficient method of solving common problems within a particular scientific discipline (Barbrook, 1998, page 3).

In other words, the act of giving away is proliferative in this instance, for both the receivers and the givers of such gifts, as repeated and multiple acts of academic gift-giving ensure that there are greater resources to draw upon than if knowledge was restricted or made available only for a fee that reflected the costs of its production.

Structured as such, the academic model is predisposed towards a highly distributed system of knowledge diffusion that assumes, in turn – given the existence of appropriate institutions and media, such as libraries with up-to-date journals and books, for example – a distributed system of knowledge production. The architecture of the Internet is predicated upon the same model of proliferation, based as it is upon what Tim Berners-Lee – widely credited as bringing the World Wide Web into being – describes as ‘a decentralised technical architecture and a decentralised social architecture’ (Berners-Lee and Fischetti, 2000, page 220). The strong academic influence over the building of the Internet has meant that it too has been structured towards the free exchange of information based upon the norms of the academic gift economy:

… the founders of the Net never bothered to protect intellectual property within computer-mediated communications. On the contrary, they were developing

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8 However, as work on the sociology of scientific knowledge and its geography teaches us, knowledge is ‘stickier’ in some places than others, which reflects the fact that scientific knowledge is not only a relational achievement between academics, but is also a relational achievement between academics and non-human actors such as laboratories, equipment and suitable grant funding bodies (Latour, 1987; Latour and Woolgar, 1986). Therefore, the academic gift economy produces an uneven geography of academic knowledge production that, at a global scale at least, maps onto the geography of wealth and income. This is because this gift-economy requires that funds are available to ensure that a library does have up-to-date stocks of the latest journals and books, that academics work in environments that are sufficiently well resourced that facilitates their research, etc.
these new technologies to advance their careers inside the academic gift economy. Far from wanting to enforce copyright, the pioneers of the Net tried to eliminate all barriers to the distribution of scientific research. Technically, every act within cyberspace involves copying material from one computer to another. Once the first copy of a piece of information is placed on the Net, the cost of making each extra copy is almost zero. The architecture of the system presupposes that multiple copies of documents can be easily [transferred] around the network (Barbrook, 1998, page 3).

Thus, if Barbrook is correct, of all the branches of corporate capitalism threatened by the Internet, it is that which relies upon the exploitation of intellectual property rights that has the most to lose by the generalisation of a gift economy through the mediation of the Internet, because it supports the giving away of all kinds of creative, intellectual products.

However, although Barbrook’s is an interesting and provocative thesis it is weakened by the fact that it deals only superficially with the concept of the gift itself and makes little attempt to distinguish gift exchange from commodity exchange. Fortunately, definitions of gift exchange, and the qualities that distinguish it from commodity exchange, can be derived from a large body of anthropological writings on the subject (for example, Carrier, 1991; Gregory, 1982; Parry and Bloch, 1989; Schrift, 1997a). The first point to make is that gift and commodity exchange should not be seen as necessarily oppositional or mutually exclusive. Nor it is the case that gift giving is a purely altruistic and innocent activity whereas the exchange of commodities is purely instrumental and calculative (Parry, 1989, page 65). As numerous studies from Mauss onwards have pointed out, expectations of reciprocity and of ‘return’ mean that gift giving can be coercive and
socially damaging (for example, see Mauss, 1990; Parry 1989, Schrift, 1997b). The obligation that gifts bestow upon the receiver means that no gifts are ever really free (Douglas, 1990; Bourdieu, 1997). Moreover, systems of gift and commodity exchange have co-existed alongside and entangled with one another over a long period of time (Bloch and Parry, 1989; Curry, 1999; Carrier, 1994; Miller, 2001), while gifts have long been used to induce commodity exchange.  

Nevertheless, there are broad differences between the nature of gift and commodity exchange, and at least three of these are significant to the argument being developed here. The first distinction revolves around the alienability of the objects being exchanged, and the nature of the relationship between the transactors. In Gregory’s classic definition, gift exchange involves the exchange of inalienable objects between interdependent transactors (Gregory, 1982). Gifts are considered inalienable because their ownership is symbolic of the relationship between the transactors, so to subsequently transfer them to someone else would represent an undermining of that relationship. Gifts carry traces of the gift-giver, to whom the recipient is bound in some way until the gift is reciprocated.

Commodity exchange, meanwhile, is defined as the exchange of alienable objects between independent transactors (Gregory, 1982; see also Bloch and Parry, 1989; Schrift, 1997b). The second distinction revolves around the issue of time. Thus, for Bourdieu (1997), commodity exchange takes place within an economy based upon the instantaneous exchange of objects of equivalent value –that is, the exchange of commodities for their equivalent value, usually in money form – whereas within gift economies there is usually a time-delay before exchanges are equalised. The third and

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9 In the form of the free sample, the offer, and so on.
final distinction is that gift exchange is motivated less by the accumulation of economic
capital than the accumulation of cultural, or symbolic capital. As Bourdieu argues,

The gift economy, in contrast to the economy where equivalent values are
exchanged, is based on a denial of the economic (in the narrow sense), a refusal of
the logic of the maximization of economic profit, i.e. of the spirit of calculation
and the exclusive pursuit of material (as opposed to symbolic) interest, a refusal
which is inscribed in the objectivity of institutions and in dispositions. It is
organized with a view to the accumulation of symbolic capital (Bourdieu, 1997,
page 237).

It is this latter quality alone that Barbrook uses as the defining feature of the hi-tech gift
economy. This exercise in conceptual clarification makes it easier to identify the ways in
which the musical gift economies described below conform to conventional
understandings of gift economies, and the extent to which they might differ from
Internet-based commodity exchange. Therefore, the next section of the paper considers
the emergence of Internet-based gift economies founded upon the exchange of MP3 files.

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10 Such as Acme: An international E-Journal for Critical Geographies (http://www.aacme-journal.org/).
11 According to Ullman, ‘arrogance is a job requirement’ for software engineers and programmers,
because, ‘It is the confidence-builder that lets you keep walking toward the thin cutting edge. It’s what lets
you forget that your knowledge will be old in a year, you’ve never seen this new technology before, you
only have a dim understanding of what you are doing, but – hey, this is fun – and who cares since you’ll
figure it all out somehow’ (Ullman, 1997, page 98). Stallman would seem to have these qualities in
abundance, as well as a passionate commitment to the Free Software cause. At a conference on Open
Source software that I attended at Queen’s College Cambridge in April 2001, Stallman made his presence
felt not only through a keynote address, but also by a series of voluble asides during a number of the other
papers. He followed this by heckling a copyright and patent lawyer during his presentation, after which he
stormed out of the lecture theatre with the cry of ‘I’m leaving!’.
12 The distinction that Stallman makes is between free speech and free beer; free software is in the spirit of
the former.
IV The MP3 gift economy

During the 1990s, the Internet facilitated the development of a series of gift economies occupied by hobbyists and enthusiasts of various kinds. The exchange of digital commodities, in the form of picture and sound files, has been described by Don Slater as a ‘post-scarcity’ economy (Slater, 2000). These exchanges developed around Internet Relay Chat (IRC) networks that made it possible for users to transfer between one another digital files of all kinds. While not entirely costless – as Slater points out there are transaction and opportunity costs involved, including the cost of equipment, phone bills plus the time it takes to build and transfer such material – the material was free at the point of supply:

The material exchanged [via IRC] is indeed ‘free’ in the sense that there is no monetary value or payment involved: just dip into the sea and take what you want. There is also no effective property right: web sites pay lip service to copyright, but IRC circulates everything indiscriminately without reference to any ownership or authorial origins. It is a Sherwood Forest in its notion of the moral economy. [It] … employs a version of freedom located in an anti-commercial anarchism of the ‘property is theft’ variety. (Slater, 2000, page 128).

Users created the material for these exchanges by uploading files to their sites on the network, therefore making the material available for others to download. It is in this

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13 Or, ‘Given enough eyeballs, all bugs are shallow’ (Raymond, 1999, page 41). As Boyle has argued, this principle contains more than an echo of Popper’s notion of the Open Society (Boyle, 2001).
sense that these files constitute gifts, although it could be argued that a more accurate way of describing them would be as ‘takes’. They are unusual gifts in another sense too. They may be seen as proliferative gifts because the downloading of files from one computer to another creates a copy, so that the ‘giver’ does not experience a loss of the object, as happens in traditional acts of gift-giving. These are gift economies that operate beyond scarcity.

Moreover, as Slater observes, another unusual characteristic of these ‘take from the rich’ worlds is that, despite their relaxed approach to the use of copyrighted material, their inhabitants are ‘completely obsessed with property rights, with rules of exchange and with exchange ratios’ (page 130). Although nominally free from the regulatory gaze of governments or the commercial agencies whose copyright they are infringing, users nevertheless are expected to conform to a normative expectation of behaviour when conducting such exchanges.

This much is clear from Cooper and Harrison’s study of MP3 trading via IRC during the mid-1990s (Cooper and Harrison, 2001). Using the normative language of the music industry to demonise those who break copyright laws, they identify what they describe as an audio piracy subculture. They reveal a community that is organised around the search for (sub-) cultural capital, as participants earn ‘respect’ by providing diverse and up-to-date MP3 audio files. The community is exclusionary and status-driven, which is in

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Richard Stallman has drawn attention to the way in which copyright capital has used language to inflate the seriousness of acts of copyright infringement through the use of terms such as ‘copyright theft’ and ‘piracy’, where in the latter case the act of ‘sharing with your neighbour is the moral equivalent of attacking a ship. If you don’t believe in that, refuse to use the word “pirate”. There are plenty of neutral terms, such as ‘unauthorised copying’, that you can use, that will express no opinion about it. Or, as I do, you could describe it as ‘sharing with your neighbour’, and express positive opinion about it. But if you feel obliged to be neutral, be neutral, don’t use the other side’s propaganda word’ (Stallman, 2001).
part a product of the high level of computer knowledge required of users if they wish to be able to participate in IRC MP3 exchanges:

The audio pirate often uses several computerized tools simultaneously, sometimes with multiple and distinct windows open at any one time to different destinations in each. A typical ‘upper class’ audio-pirate might have open two FTP clients, an IRC client talking in four channels, a web browser and an FTP server. By rapidly multiplexing, which of these interactions to focus upon, the pirate will never run out of things to do, and can spin about for an unbounded amount of time, moving files from place to place, building social status and all the while continuously conversing with others. (Cooper and Harrison, 2001, page 77).

Cultural capital was also earned by the roles that participants played within this community. According to Cooper and Harrison, there were at least three categories of participant, which commanded different levels of respect within the community. The least respected participant within IRC communities was the *leech*. Leeches took files but gave nothing back. As Slater has pointed out, despite the fact that obtaining a file does not deplete its source, ‘leeches are the lowest of the low on IRC, and leeching is probably the greatest insult to IRC as such’ (Slater, 2000, page 130). The refusal of leeches to recognise the unwritten rule of gift economies, that the receipt of a gift incurs an obligation to return it (Bourdieu, 1997), meant that many site operators imposed trading ratios, whereby files could be downloaded only in strict proportion to the number of files uploaded to the site. This feature may be seen to weaken the status of such sites as gift economies. The anxiety experienced by those who uploaded files to their sites about the unreciprocated taking of their gifts suggests that at times exchange resembled the transfer
of alienable objects between independent traders. However, Cooper and Harrison argue that the interdependence of transactors was reinforced through the requirement of many site operators to require potential transactors to present personal recommendations from other site owners before granting access to their files. Moreover, although many site owners did not insist upon an instantaneous exchange of equivalents, merely of exchange in proportion, the fact that these kinds of exchanges were made almost simultaneously makes them more closely resemble commodity exchange rather than gift exchange.

This form of behaviour was routinely practiced by the next category of user, the trader. Traders obtained files by exchanging them in reciprocal deals with other traders. The social community of MP3 exchange via IRC was completed by the citizen, who commanded the greatest amount cultural capital, and whose activities most closely resembled that of an archetypal participant within gift exchange. Citizens played a foundational role within these communities by making sufficient material available through uploading that could then be subsequently traded or leached by others. In other words, citizens provided the ‘liquidity’ that made the reproduction of these gift economies possible.

As the number of people exchanging files via IRC grew steadily over the 1990s, so copyright capitalism began to get concerned about the circulation of copyrighted material that was being made available without cost to consumers (Alderman, 2001), particularly as some of those using IRC to download MP3 files adopted a studied indifference to copyright law, as Cooper and Harrison (2001, page 87) revealed in their on-line interview with MP3 trader ‘dox’:
Copyright law doesn’t interest me. It doesn’t pertain to my existence in any way because it could never affect me. I buy the software I use for business, and steal the software I use for pleasure. I buy CDs that I want to listen to, but I download mp3 files of music that I don’t think is worth buying or that I can’t find for a reasonable price. It’s not like I can get caught, so why not? (in Cooper & Harrison 2001, page 87).

But the overall impact of these communities upon the total level of copyright infringement was relatively limited because, by the close of the 1990s, they remained relatively small. According to Cooper & Harrison, even on the largest IRC network there were only 135 channels devoted to MP3 file exchange (out of a total of over 17,000 channels), and at any one time there were an average of 20 users each (pages 74-5). The reason for their limited size, particularly in relation to the on-line models to be discussed in the next part of the paper, is that they had significant barriers to entry in the level of technological knowledge required to operate successfully within them. Therefore, while this early form of the MP3 gift economy generated concern within the music industry, and was a herald of the file-sharing models that would consume much of its legal energies in the future, in retrospect the MP3 gift economy of the mid- to late- 1990s can be interpreted as little more than a more efficient and ‘space-shrinking’ form of the small-scale copyright piracy suffered by the music industry since the advent of home taping technology (see Leyshon, 2001). Constituted as a hi-tech gift economy, it actually constituted a relatively minor threat to music as a commodity. However, things began to change when, as part of the dot.com boom, an attempt was made to convert these gift
economies into income streams. It is to this process of transformation and translation that the paper now turns.

V Capital will eat itself: improvising new business models

During the late 1990s, capital began to colonise the gift economies of the Net. Fuelled by the torrents of money made available by venture capitalists (Cassidy, 2002; Frank, 2000, Kenny and Florida, 2000, Thrift, 2001), a host of new start-ups began to explore the possibilities of harnessing the trade in MP3 to commercial ends. As has been argued elsewhere, making money from digital music had been part of the long-term strategy of the large music corporations since the early 1990s when these firms first recognised the possibility of delivering music directly to consumers through what was then being described as the ‘information superhighway’ (Alderman, 2001; Leyshon, 2001). However, industry concerns about copyright protection had meant that more money and effort had been invested in developing technologies that would make digital music ‘secure’ than in developing ways of delivering music on-line. Given that the record companies were strongly wedded to a price-per-unit business model, such reticence was understandable. As far as the music companies were concerned, until it was possible to develop a digital music format that would prevent consumers making multiple unauthorised companies then it would not be possible to develop a viable business model for the on-line delivery of music.

As the large corporations hesitated, the new economy start-ups began to pioneer new music business models. As Feng et al (2001) have argued, the ‘business model’ became
the predominant means of securing sufficient money from venture capitalists in order to attempt to realise the promises of e-commerce. The *raison d’etre* of such models was *knowledge transformation*; they made generic the highly specialised and technical knowledge previously the preserve of the hackers and hobbyists that dominated the MP3 gift economies. These models made it possible for those with lower levels of computer networking abilities to gain access to the MP3 economy. As with many new economy businesses, these were largely improvised, but three main variants emerged which marked these firms out from the conventional music industry business model. These were: *streaming and web casting; cyber lockers, and digital downloads*. Of these, streaming and web casting posed the least significant challenge to the music industry as it was then configured, for it operated as a form of ‘internet radio’, which played a continuous stream of music of various genres. The order of music could not be controlled by the listener, nor could individual pieces of music be downloaded, and the owner of the site derived revenue from selling advertising space on the site, and in return paid royalties to the copyright owners for use of the material. The remaining two business models are more interesting, for not only did they represent new ways of making money from music that threatened the revenues of incumbent music industry firms, but they also significantly extended the MP3 gift economy to from a constituency of several thousand to one of tens of millions.

These models will be explored through three brief case studies, which represent different variants of these models. Two of the models were choked off by legal action, followed by their incorporation into the sphere of copyright capitalism. However, in the third
case, incorporation has proved more difficult, and the networks of exchange produced here are both practically and ideologically more difficult to tame.

The ‘cyber locker’: MP3.com

MP3.com was established in San Diego in 1997 by Michael Robertson. A twenty-something graduate of the University of San Diego, he had already been President and Chief Executive of two other software companies before founding the company that eventually became MP3.com. The firm was initially created as an aggregator site that grouped together the formerly independent web sites of new and unsigned bands and artists that offered MP3 downloads of their own music. From this it evolved into something approaching a record company with an on-line capacity. While not signing artists to contracts as such, it nevertheless arranged to press CDs for them, which could be ordered from the MP3.com web site (Alderman, 2001). One or two tracks from each album would available as MP3 files that could be downloaded free from the site, and which acted as samples or tasters to prompt consumers to buy the album on-line. This low-cost and streamlined way of doing things no doubt also helped contribute to an additional novel feature of the firm, and that was the very generous (by industry standards) royalty rate of 50 per cent offered to artists. However, the fact that the company made little effort to market these acts meant that sales remained low (Alderman, 2001).

Swept along by boom in Internet stocks, the company was incorporated in 1998 and underwent an Initial Public Offering in July 1999. The stock was priced at $28 per share but, on issue, rose to over $60, so that during 1999 the firm was valued at over $740
million.\textsuperscript{15} This was achieved despite the fact that the long-term business model for the company at the time remained opaque.\textsuperscript{16} However, despite the vote of confidence placed in the firm by the capital market, the relative obscurity of the artists with whom the company had recording deals limited the number of users making repeat visits to the site. As Roberson himself admitted in a 1999 article in the Internet magazine, \textit{The Industry Standard}, ‘One of the complaints with mp3.com, and it’s a warranted complaint, is that people say, “You’re doing all these great things with music, but it’s not the music we like”. We need to have all the music’ (quoted in Rosen, 2000).

In 2000, the firm introduced a new service designed to overcome these problems based upon a free software package which the company gave away at its website. The service was called ‘My.MP3.com’, and it signalled the firm’s attempt to increase the number of visitors to its site, which would increase the likelihood of people listening to its artists and buying its music, but would also enable the firm to charge more in advertising revenue for space on the site. The service introduced the concept of the ‘cyber locker’; a virtual storage space where people could deposit their music that could then be accessed from a computer anywhere in the world. The system was based upon the company’s ‘Beam-it’ technology, another piece of software which, it was claimed, would be able to read the digital information contained on a music CD and transmit it to MP3.com’s central server. All the MP3.com user would then have to do is access the site, log in, and the listen to their music collection without having to have the CDs physically on them.

\textsuperscript{15} Market valuation calculated from MP3.com web site (Http://www.mp3.com/investor/index.html#management) and from NASDAQ data (http://quotes.nasdaq.com). At the time of writing (July 2001), the market value had fallen to just under £332 million.
It was this move which raised the hackles of the Recording Industry Association of America (RIAA), which became an increasingly important actor in the governance of the music industry during this crisis as it sought to come to terms with the emergence of software formats and Internet distribution systems. The main role that the RIAA took was to mobilise legal action against copyright infringement wherever it could be found which, given the number of cases they brought, was widespread. In 2000 the RIAA sent more than 7,400 copyright infringement notices to commercial sites offering downloads, and a further 2,500 notices to sites that linked to sites that were deemed to be infringing copyright (Borland, 2001). However, the RIAA’s actions against MP3.com, and later against Napster (see below), were pivotal to a strategy of protecting the profitability of copyright capital within the musical economy.

The RIAA complained that MP3.com’s new service was encouraging copyright infringement. Although MP3.com asked users of the Beam-it service to give a declaration that the CD about to be processed was owned by them, there was no way to ensure that this was the case. Making copies of purchased recorded material is considered as fair use, but it is prohibited to make copies of material that is not owned. As the legal action moved forward, and information about the system was disclosed, the RIAA’s lawyers discovered what they saw to be a considerably more serious infringement of copyright law. Despite its suggestive title, the Beam-it software programme did not actually transmit the sound files to the MP3.com server, but only the track listings. This information enabled MP3.com to copy the relevant tracks from MP3.com’s database of

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16 For example, according to Alderman (2001, page 79), when Robertson was asked what business MP3.com was in prior to the IPO his reply was ‘the IPO business’. This, it should be said, was not unusual form many of the dot.com firms of the time (see Cassidy, 2002).
45,000 copyrighted CDs, which they had bought to facilitate the service, to the user’s space on the server.

All five of the major music corporations – Universal, Sony Music Group, BMG Entertainment, Warner Music Group and EMI Recorded Music – sued MP3.com when the service was launched, claiming extensive copyright violations. The industry’s position was made clear in an open letter from the head of the RIAA to Robertson ahead of the case in 2000:

… your company’s violation of the copyright law is brazen on its face. Simply put, it is not legal to compile a vast database of our members sound recordings with no permission and no license. And whatever the individual’s right to use their own music, you cannot exploit that for your company’s commercial gain. MP3.com’s actions not only violate the rights of our member companies but also are an affront to artists, music publishers and writers, producers and other retailers. We regard MP3.com’s business choices to be in serious disregard of the law with serious consequences to the company and its shareholders (Rosen, 2000).

The company mobilised the concept of fair use, but the fact that it was MP3.com that made the copies, and not the owners of the CDs, placed it in a weak position, which prompted the firm to settle out of court for a figure of $170 million (Hu, 2000). Following such a capitulation, the firm had one of two choices. Firstly, it could have gone back to its original, if not entirely successful or coherent, business model. Or, secondly, it could throw in its lot with the large music corporations. It chose the latter
option. Having effectively broken the firm in its original form, the five major record companies agreed licensing deals on the back of the My.MP3.com service whereby registered users would be able to store up to 25 CDs on the service for free – despite the fact that prior to the case such storage was deemed to infringe copyright – and between 25 and 500 CDs for an annual fee of $50 (Luening, 2000). This process of incorporation was taken further in 2001 when the company agreed to be acquired for $372 million by Vivendi – owners of Universal – so that MP3.com could provide a technological platform for a new on-line music delivery service being developed as a joint venture by Vivendi and Sony (Learmouth, 2001). However, at about the same time as the interests of copyright capital were successfully quelling this particular challenge to their interests, a new venture capital-funded variant of the MP3 gift economy was emerging in the shape of Napster.

The centralised peer-to-peer network: Napster

Napster was established in Redwood, California 1999 to explore the commercial possibilities of a software programme written by Shaun Fanning during his undergraduate course in computer science at Northeastern University. Dropping out of university to found the firm, Fanning’s company quickly began to extend the MP3 gift economy from a few thousand people to a community of tens of millions. Fanning had been an avid user of IRC and of the informal gift economies that grew up around it as an undergraduate, and developed the Napster software to make it easier for him and his fellow students to exchange MP3 files over the Internet (Alderman, 2001).
Napster is a file-sharing programme that utilises the distributed capacity and power of personal computers attached to the Internet. It is the best-known example of a category of computer applications which has been described as peer-to-peer, because such networks take ‘advantage of resources – storage, cycles, content, human presence – available at the edges of the Internet’, and that exist in ‘an environment of unstable connectivity and unpredictable IP addresses’ (Shirky, 2001, page 22). These contingent technological assemblages, made up of human and non-human agents, are formed through the temporary connections forged between the machines running the peer-to-peer programme at any same time. Peer-to-peer networks are made up of

[t]iny endpoints on the Internet, [that] sometimes without knowing each other exchange information and form communities. There are no more clients and servers – or at least, the servers retract themselves discreetly. Instead, the significant communication takes place between co-operating peers (Oram, 2001, page ix)

Thus, peer-to-peer networks are radically decentralised systems that use the Internet to take advantage of the potential of under-utilised computing power and capacity distributed across space and time. In particular, they bring together the individual power of personal computers with Internet connectivity to form a much more powerful collective (Levy, 1997) which, in Shirky’s suggestive phrase, harnesses the ‘dark matter of the Internet’ (Shirky, 2001, page 24).
Napster was not the first example of a peer-to-peer programme – the earliest was the SETI@home programme which was set up in 1998\(^\text{17}\) – but it has been by far the most successful. By downloading the free Napster software, users were able to exchange MP3 files held on the hard disks of their PCs, which was co-ordinated through a central server that provided a search facility enabling users to find songs by particular artists of with particular titles. One of the keys to the success of Napster was its ease of use, which meant that even those with relatively limited levels of computer literacy could gain entry to the formerly arcane and exclusive world of MP3 file exchange. However, unlike the world of IRC, there were no normative rules about the amount of files one could take in relation to the number uploaded. To be sure, users no doubt fell into the categories of leech and citizen identified by Cooper and Harrison in their analysis of IRC-based file exchange. There were no traders as the nature of the system made it impossible for user to negotiate terms of exchange with other users: the files were either available to be downloaded, or they were not. There was no space in this system for users to negotiate about the relative use value of different files. But even leeches acted as citizens of a sort because although they may not have actively made new material available for uploading, everything they downloaded was available for other users to access, thereby increasing the ‘liquidity’ of the system and increasingly the likelihood of finding files in searches. Thus, by logging onto the system users were offering up as gifts all the MP3 files they had previously downloaded from Napster and any others that they made accessible from other parts of their hard disk.

\(^\text{17}\) SETI@home set about enrolling the computing power of PCs to assist the Search for Extra-Terrestrial Intelligence, a project to detect intelligent life beyond the Earth, which began in the late 1950s. The programme has been downloaded by over 2 million people. By using the collective power of so many PCs, SETI@home is able to outperform the world’s largest super computer, located in the US Department of
Napster accumulated users at an extraordinary rate. In just 18 months, without any advertising, it had attracted 38 million users; in two years, this number had risen to almost 60 million. With over 500,000 people logged into the system at any one time in 2000 (Alderman, 2001), the system demonstrated the efficiency and capacity of a distributed gift-system as it became the richest and most active musical archive in the world. Nevertheless, it was hard to discern what the logic of the Napster business-model actually was. One conclusion is that, much like MP3.com, the long-term purpose of Napster was to ride the wave of interest in the new economy and secure an IPO, thereby leveraging money form the financial markets into the hands of its owners and venture capitalists. The software was free, as were the downloads of music files, while the site did not carry advertising. However, the company did vigorously assert its copyright over the Napster name and logo, which in a short period of time gained global recognition, and which no doubt could be exploited though clothing and other products. As Alderman (2001, page 134) observed, ‘when it came to protecting its intellectual property, Napster was … clearly bullish’ (emphasis added). It was perhaps appropriate, then, that Napster soon came under legal attack from the representatives of copyright capital. The RIAA took action against Napster for ‘contributory and vicarious copyright infringement and related state law, alleging that the system enables and encourages piracy, either by downloading pirated songs or by sharing illegal files’ (Carey and Wall, 2001, page 45).

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Energy. This machine works at a peak rate of 12.3 trillions of floating-point operations per second (TFLPOS); SETI@home operates at a rate of 20 TFLPOSs (Anderson, 2001).
In addition, the RIAA were joined in their action by the records companies it represented and even by number of individual artists.18

Napster lost the action, and was ordered to remove all copyrighted material from its system. As it did so, the appeal of the system declined and the numbers of users visiting the site declined precipitously, which by March 2001 had fallen to 12 million (Reuters, 2001). However, the future of the firm had been secured even before the case had been settled through the intervention of Bertelsmann Media Group (BMG). Having undertaken market research that indicated that 80 per cent of Napster users would be prepared to pay a $15 monthly fee to use the system, the firm entered into an alliance with Napster to convert the system into a fee-based subscription service (Reuters, 2000). In return, BMG would the make its entire catalogue available to Napster users. The objective of this deal was to adapt the distributive capacity of Napster to ends that will nevertheless protect the income of copyright capitalism. As Carey and Wall put it,

The aim of the membership system will be to obtain a balance between keeping in place the existing user-base and creating a system that is acceptable to the record industry. BMG hope achieve this solution by providing Napster members with a high quality file sharing system, with added convenience and features, that will preserve the Napster experience, while at the same time providing payments to the copyright holders (2001, page 46).

18 Most notably by Metallica and Dr. Dre. The irony of the latter’s action is signified by the fact that a musician who began his career with Los Angeles ‘gansta rap’ band NWA (Niggaz With Attitude) which included as part of their repertoire the song, ‘Fuck da police’, should call up the powers of law enforcement so readily to protect his copyright (see Alderman, 2001, for a discussion. Not all artists were so hostile, and many welcomed the ability of Napster to distribute their music to new audiences. Indeed, the LA-based Rage Against the Machine issued an apology to their fans on their web-site after their management
However, whether it is possible to reconcile these two aims remains to be seen. For one thing, as was indicated above, the number of Napster users fell rapidly as copyright material was removed. Moreover, the system closed down altogether in the middle of 2001 to be reconfigured ahead of its conversion to a subscription service, so the service will not only have to convert users to subscribers but win them back again. This might be more difficult than BMG suspects, for there have emerged a number of media within which MP3 gift economies can proliferate and which, as we shall see below, may be more difficult for copyright capitalism to subdue or co-opt.

Distributed peer-to-peer networks: Gnutella and Freenet

The legal victories of the RIAA and its clients over the likes of MP3.com and Napster were made possible, in part, by the geography of their computer networks. Both firms operated central computer servers, located at their headquarters, which co-ordinated the networks of users that drew on their services. To use the terminology of actor-network theory, the servers were *obligatory passage points* that users had to pass through to gain access to the services provided by the companies. Therefore, by exerting power over the company to shut down or modify the actions of its server, the state, acting on behalf of the RIAA and the large music corporations, was able to exert control over the entire networks centred on MP3.com and Napster. However, more recently there have emerged a set of new computer networks that are truly decentralised and which do not rely upon the intervention of a central server. These systems may be described as *decentralised*, or *true peer-to-peer networks*.

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company forced Napster to remove users downloading the band’s songs from its system, and the band then sought – unsuccessfully – to get the users reinstated (Borland, 2000)
The Napster system was actually a hybrid peer-to-peer system, for although users downloaded files directly from each other’s hard disks, the directory of files at the heart of the system was centralised, and the system required the central servers to broker search queries in relation to the distributed inventory of files (Minar et al., 2001). True peer-to-peer networks abandon server-client hierarchical relations to create flatter, decentralised systems. Indeed, the operation of these networks carry more than an echo of Deleuze and Guattari’s figure of the ‘rhizome’ which they deploy as an biological metaphor to oppose the ‘principle of foundation and origin which is embodied in the figure of the tree’ (Marks, 1998, page 45). Thus,

The model of the tree is hierarchical and centralised, whereas the rhizome is proliferating and serial, functioning by means of the principles of connection and heterogeneity. In simple terms, any line can be connected to any other line (ibid.)

Decentralised peer-to-peer networks are truly ‘acentred’, and operate as software that exists within the multiple nodes of the Internet to which it has been downloaded. Once set in motion, these systems are in a constant state of flux and ‘emergence’. The development of such systems has direct relevance to the proliferation of MP3 gift economies for they are both substantively and philosophically opposed to conventional ideas of copyright protection. I will deal briefly with two of the most important of such systems, Gnutella and Freenet.

**Gnutella:** Given the significant challenge that Gnutella poses to copyright capitalism, it is surprising to note that it was written by software engineers within a subsidiary of AOL, (Nullsoft) which at the very same time – spring 2000 – was lining up a merger with Time
Warner to create the world’s largest rights-driven organisation (AOL-Time Warner).

However, the project was quickly shelved by AOL, being declared an ‘unauthorised freelance project’ on the part of the engineers that devised it, as its potential to undermine digital copyright protection was immediately recognised (Kan, 2001, page 96).

The inspiration for the project is revealed in its name. The appellation GNU betrayed Gnutella’s links to GNU and the free software movement, which by the late 1990s had evolved into a distributed, global community of programmers and software engineers mobilised around the concept of Open Source (DiBona et al., 1999, Himanen, 2001, Moody, 2001, Raymond, 1999, Wayner, 2001. Open Source is based upon software programmes where the source code – that part of computer programmes that is readable by humans – is kept ‘open’ and so modifiable by subsequent users, and has produced a continuous and decentralised process of development and improvement of programmes. It was this community that salvaged Gnutella, reproducing it through a process of ‘reverse engineering’ and the publicising it on a GNU website.19 From there, the programme spread rhizomatically, as users downloaded the software, enabling hosts to interact with one another and permitting users to search for digital files. These included MP3 files but, unlike Napster, also included other media such as picture files.

Thus, Gnutella does the same kind of work as Napster, but supports all kinds of digital media, not just MP3. Moreover, as far as its users are concerned, Gnutella has an advantage that Napster did not. Its advocates claim that it is beyond the regulatory reach of the RIAA and its agents. Gnutella effaces place: it exists only as a relational entity
between points of the Internet, between those PCs that are running the programme at any particular time.

To join the network, you simply download one of [the] software packages from the Web. This turns your computer into a “servent” (sic) – both a client and server. Once you’ve done that you’re ready to find some other servants – their locations are publicised on websites and chat rooms – and make contact with them. The connections are made over the Internet, and all the computers are identified by their Internet Protocol (IP) addresses, the basic numeric addresses that identify computers on the Internet. But Gnutella is not the World Wide Web. Your computer communicates directly with the servent it knows about, and those servants pass messages back and forth to yet more servants, which do so in an ever expanding net (Fox, 2001a, page 32)

In this sense, it has no ‘location’, which has implications for the control of copyright infringement:

In a decentralized world, it’s tough to point fingers. No one entity is responsible for the operation of the Gnutella network. Any number of warrants, writs, and summons can be executed, and Gnutella will still be around to help you find recipes for strawberry rhubarb pie and … MP3s … Gnutella doesn’t have a mailing address, and, in fact, there isn’t anyone to whom to address the summons (Kan, 2001, pages 99 and 1999).

19 Although Richard Stallman, the creator of GNU, has cast doubts on whether Gnutella is really part of the free software or Open Source movement as it is not clear whether its source code is modifiable by users (see Vaidhyanathan, 2001, page 225).
However, the system is perhaps not as invulnerable as it advocates claim. It is well recognised that the number of users actively uploading files to such systems – the ‘citizens’ of such communities – are relatively small, with about 50 per cent of all files being provided by about one per cent of users (Fox, 2001a, Carey and Wall, 2001). The RIAA are planning to go after this one per cent of the Gnutella community by seeking out their IP addresses, identifying their Internet Service Provider (ISP) and then writing ‘a threatening letter or writ [that] can have the user kicked off or force the ISP to reveal a name that can be pursued through the courts’ (Fox, 2001a, page 34). However, even if such actions are successful in shutting Gnutella down, there exists an alternative and more resilient decentralised peer-to-peer system in the form of Freenet.

**Freenet:** Developed by University of Edinburgh undergraduate Ian Clarke, the system has been expressly designed in opposition to copyright capital and the total freedom of information. Clarke justifies the system in overtly political terms:

> Freenet is … a means by which information can be shared without censorship of any kind … [and] was designed to permit free distribution of information, even under a government which is intent on preventing that … Freenet has been specifically designed to withstand attack by a government, [and] even … by its own developers. So, really, Freenet … [is] immune to any kind of judicial attack. Sure, they might try to sue me, for example – I’m an individual, and I can be sued. But it would get them nowhere, because it would have no impact whatsoever upon Freenet (Clarke, 2000).

His opposition to copyright capitalism is equally clear:
I do think that copyright is a bad thing, but my initial motivation was not copyright. First, people started saying to me, "Hey, this could be used to distribute stuff without enforcing copyright". Then people started to say, "This can be used to distribute material without enforcing copyright, therefore, it shouldn’t be allowed". And that put me in the situation where I had to justify what Freenet did. So yes, I did come to the conclusion that copyright was a bad thing, but that was not the initial motivation behind Freenet. (Clarke, 2000, emphasis added)

Freenet is a more sophisticated system than Gnutella, being a self-organising, learning network. Whereas Gnutella sends out thousands of requests in response to a search command, Freenet sends out just one message, which moves across the network from computer to computer. When the material is found, the source is stored on ‘nodes’ within the network, so that the system becomes more intelligent and becomes more efficient at moving information in the future (Learmouth, 2000). But it also works akin to underground or guerrilla cells, in that each node in this network only knows about a limited number of other nodes, and there is no way of individual notes tracing the route that files took following a search request. This has important consequences for the ability of regulatory authorities to trace acts of copyright infringement:

If the powers that be request a file from a node, they’ll get a copy. If they seize that node they’ll definitely find a copy. But it would be impossible for them to prove that the file was there before they requested it, so the exercise amounts to entrapment … And because documents are stored in encrypted form, the node’s owners can argue truthfully that they had no idea any particular document is held
there. What’s more, as the act of requesting a document generates new copies, censorship is self-defeating (Fox, 2001a, page 32)

Both systems are maintained by volunteers operating across several continents, in the Open Source mode. This movement has produced a successful computer operating system – GNU Linux – which is now seen as a viable alternative to the Microsoft operating systems which currently dominate the market. Indeed, the success of the Open Source movement has caused Microsoft to rail against the project, implying that it is destructive of intellectual property, and therefore ‘un-American’ (Naughton, 2001).

While the Open Source movement is a highly political project, it is in fact neither strictly of the left nor of the right, but is a curious mixture of both. Thus, the Open Source movement conforms to what Barbrook has described as the ‘Californian ideology’, an alliance of New Left and New Right ideas that ‘simultaneously reflects the disciplines of market economics and the freedoms of hippie artisanship’ (Barbrook, 1996). Thus, this movement is not opposed to capitalism per se, but just big, corporate capitalism, which is seen to be too powerful and influential within civil society. These ideas have been expanded at length by Eric Raymond, a leading figure in the Open Source movement, who promotes the idea of the gift economy as a way of introducing a different kind of market, not as a way of replacing the market altogether. A black belt in karate and a believer in the Wicca religion, he advocates an economy made up of a self-correcting system of selfish agents:

… Raymond believes that “the techniques and attitudes that I’ve learned from Zen and neo-paganism are very much part of what makes me publicly effective”. They
are also completely consistent with the other beliefs that are central to his life: free software, no gun control - or “an armed and self-reliant citizenry”, as Raymond prefers to put it - and libertarianism, which he explains as “the original individualist-, small-government, free-trade, rely-on-the-market-not-on coercion ideology”. More specifically, he describes himself as belonging to a group called “market anarchists” who “would like to abolish government altogether” (Moody, 2001, page 153)

Therefore, this vision of the hi-tech gift economy is certainly not a utopian alternative to capitalism, but is seen by some of its influential participants as a precursor to a more distributed, more efficient market economy, with a strong libertarian edge. As Barry Fox has observed, while Freenet provides the means to support gift economies in the face of regulatory authorities that would attempt to close them down, and also provides a vehicle for voicing criticism without fear of punishment or retribution, it can also act an uncontrollable medium for the circulation of child pornography or for instructions to make weapons of mass destruction (Fox, 2001a). Thus, technologies such as Freenet are morally ambivalent; they appeal both to a progressive sensibility that welcomes its capacity to undermine the ability of large corporations to maintain monopolies over certain kinds of knowledge, but they also appeal to a libertarian impulse that would enable the circulation of material considered profane and offensive within the existing norms of society.

VI Discussion
This paper has sought to examine the extent to which Internet-based gift economies have developed in the face of the opposition from what I have described as copyright capitalism. The paper has paid particular attention to the musical economy, and the emergence therein of MP3 trading networks from their earliest incarnation via IRC networks to their development through new economy start-ups and peer-to-peer networks. In so doing, the paper has at times deployed a descriptive, narrative style to reflect ‘a close attention to the present’, which has been identified by commentators such as Thrift as a means of documenting the twists and turns of ‘capitalism's ceaseless experimentation’ (2001, page 379).

The paper has sought to determine the veracity of Barbrook’s argument that the growth of the Internet during the 1990s brought into being a series of hi-tech gift economies. Barbrook’s original thesis did little to actually distinguish between gift and commodity exchange, a deficiency that this paper has sought to rectify. To recap, gift and commodity exchange may be distinguished by: the relative alienability of the objects being exchanged and the interdependence of the transactors; the timing of the exchange of equivalences, and; whether exchanges are motivated mainly by the accumulation of economic or cultural capital. Having outlined the evolution of systems of MP3 exchange from IRC exchange onwards, we are now in a position to determine the extent to which these systems may accurately be described as gift economies.

It would appear that none of the systems described above qualify as gift economies on the first criteria alone; that is, the exchange of inalienable objects between interdependent transactors. Even in the case of IRC-based exchange, where access to files often had to be negotiated within interdependent on-line communities, once the files had been secured
Their willingness to do so is perhaps understandable given the special qualities of digital files as objects, in that the process of giving them away involves giving away a copy, so that the givers stock of objects is not denuded. But it would appear that because these communities are relatively impersonal and anonymous that these object circulate more like quasi-commodities than gifts.

These systems of exchange resemble gift economies more strongly in relation to the second criteria, which is the temporality of the exchange of equivalents. Although, as both Slater and Cooper and Harrison report, some IRC site owners enforced trading ratios, which necessitated some simultaneous exchange of objects, these exchanges were usually not directly equivalent and for the most part files were made available to be taken without any thought of immediate reciprocity. This delayed reciprocity was institutionalised within peer-to-peer networks.

A third criterion of gift exchange is that it is driven by the accumulation of cultural capital. This quality would seem to apply to IRC exchange and the distributed peer-to-peer systems of Gnutella and Freenet, but certainly does not apply to either MP3.com or Napster. The former exist as loose, self-organizing networks held together by the actions of hobbyists and hackers, while the latter are firms with ownership structures, brought into being through venture capital and so firmly linked to the accumulation of economic capital.

Therefore, of the examples we have considered in this paper, it is IRC-based systems of exchange and distributed peer-to-peer networks that most strongly resemble gift
economies, as they are traditionally understood. However, even these are unusual gift economies to the extent that the objects that are exchanged are alienable and were exchanged among independent transactors. Moreover, they operate according to a dynamic that is the inverse of most other gift economies, for within these hi-tech gift economies objects are not actively ‘given’ by one actor to another; rather, they should be seen as institutional arrangements that enable actors with needs or desires are able to ‘take’ from those with resources, albeit at no cost to the latter due to the nature of digital reproduction.

Thus, this paper gives qualified support to Barbook’s claims for the emergence of hi-tech gift economies. While the systems of exchange that this paper has identified may perhaps be more accurately described as ‘weak’, or ‘inverse’ gift economies, there is little doubt that they are of wider significance because they constitute considerable challenges to modes of governance and regulation across the range of industries that make up copyright capitalism. This is not least because there is the libertarian challenge to copyright that is embedded within networks such as Freenet, which are activity supported by advocates of the gift economy in the global community of hackers and programmers in the Open Source movement. The ability of such ‘virtual’ networks to efface space by existing on top of the Internet pose a significant challenge to corporations and regulators who would wish to close such gift economies down. By not being in place, and by

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20 For example, so-called ‘Naspter-clone’ Aimster – a similar hybrid peer-to-peer service – was sued by the RIAA in May 2001.
21 Indeed, a system introduced in July 2000 for DVD-Audio players to make them reject copied disks was revealed during a demonstration to produce an audible sound trace when all discs were played (NEW Scientist, 2000).
22 Hatch’s support for on-line providers in the face of opposition from copyright capital is particularly significant as he played a leading role in the passing of the Digital Millennium Copyright Act in 1998, which sought to harmonise copyright laws with on-going technological changes in digital technology.
covering its tracks, it is difficult to know how traditional legislators would begin to tackle such a viral and rhizoid entity, despite all the efforts made by commercial interests to impose individual digital identities upon the Internet (Lessig, 1999, Sassen, 2000).

The advance of these networks across the Internet holds out the prospect of an even greater extension of gift economies than hitherto. In so doing, it poses some intriguing questions about the ability of creative industries that, to date, have been reliant upon the marginal costs of large-scale production to reproduce themselves. At this juncture, it is useful to return to the argument made at the start of the paper that the shape of music industry – like every industry – is socio-technologically contingent, which has mutated at various moments in its history. It is perhaps presently at one such moment. Thus, as a gift economy, music listeners are faced with the prospect of a post-scarcity economy, where all music of all kinds is immediately available at a marginal cost. But if this were the case, how would the industry reproduce itself? How would artists be paid to ensure that they could make a living within this field?

It would seem that the most likely way would be through a revalorisation of live performance. The abundance of recorded material would inversely increase the value and novelty of co-presence, of the ‘human attention’ that is produced through face-to-face interaction (Rifkin, 2000), which would generate more in the way of both cultural and economic capital (Thrift and Dewsbury, 2000). Indeed, this is already a strategy employed by artists who are not really that creative any more, and whose material is abundant in the sense that their fans have already purchased most of what is worth buying. Such acts, like the Rolling Stones for example, earn more money from touring and performing than they ever do through sales of Compact Discs, because they have
sufficient ‘brand recognition’ to ensure that their touring income is boosted by considerable corporate sponsorship (Klein, 2000). Performance is also the modus operandi of musical economies such as Jamaica where the nature of civil society means that copyright law is only ever partially and fitfully enforced. The lack of copyright protection has produced a high-speed musical economy where ideas and styles are ‘borrowed’ without impunity, thereby placing much greater emphasis upon live performance to differentiate one act from another (see Vaidhyanathan, 2001, Power and Hallencrantz, 2002). Thus, music might become a multi-media product, which is bundled up with other services. Appropriately, this is also a business model developed within the Open Source software movement, where the software is often given away but enables income to be earned through the sale of additional services or products that enhance or develop the software, often delivered in person.

However, the generalisation of such a model has some way to go, and perhaps its greatest problem is the enduring allure of corporate capitalism. Although networks such as Freenet have the potential to extend gift economies across time and space in new ways, their use nevertheless requires a degree of computer knowledge that constitutes a barrier to entry that is almost as difficult to overcome as that which kept the size of the IRC gift economies down so that they did not pose a serious threat to copyright capital. The success and appeal of MP3.com, Napster and the numerous other similar firms that followed in their wake and that are currently being pursued through the courts is that they developed services that were easy to use, even for those with only a rudimentary knowledge of computers. Part of the reason for this is that their ultimate aim was the accumulation of capital, so that through the attraction of outside investment, the creation
of shareholders and management structures they quickly assimilated the discourse of marketing that focused upon attracting mainstream users and which emphasised ease of use.

Freenet, and even Gnutella, were produced under a very different aesthetic. They are services that were created not for the accumulation of profit, but for the accumulation of cultural capital among fellow hackers and software engineers. This they have earned for their creators in substantial volumes. But such systems also assume a level of knowledge and a commitment to the cause of the gift economy that is beyond the average user or consumer. Indeed, there are strong asymmetries of commitment among the communities that participate in gift economies enabled by Napster, Gnutella and Freenet, as indicated by the fact that only a very small proportion of users perform the role of ‘citizens’ which means that, in the absence of traders, the majority of participants perform the role of leeches. There are clear parallels here to the weaknesses in other projects to develop alternative economies, such as Local Exchange and Trading Systems for example, which also rely other heavily upon a small core of activists who disproportionately bear the burden of reproduction on their shoulders (see Leyshon, et al., 2003). Therefore, it could be that, to paraphrase Oscar Wilde, that while the idea of the high-tech gift economy is capable of gain wide support and appeal, for the majority of people, like socialism, it just ‘takes too many evenings’.
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Figure 1: Networks of the musical economy (Source: Leyshon, 2001, page 61)
Figure 2: The Geography of MP3 file trading: users of AudioGalaxy, by country at 17.00 GMT 13 July 2001 (Source: AudioGalaxy web site, http://www.audiogalaxy.com/user/onlineusers.php?).