Open Content Licensing

Open Content Licensing

From Theory to Practice

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2. Towards a New Social Contract: Free-Licensing into the Knowledge Commons[1]

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'Cooperation is more important than copyright'. (Stallman 1994)

2.1 The Paradox: Free *and* Expensive

The knowledge commons rests on the fundamental paradox of information goods: They are privately created with the intent of being published but, once published, they become part of general knowledge and open for all to reproduce and modify. Society created the social contract of copyright, granting a temporary privilege to authors in return for the publication of their works, because of its vital interest in these creations and an assumption that less will be produced if investments cannot be recouped. Thus, a paradox arises, as a result of the two mutually conflicting natures of information goods: As *economic* objects they need to generate revenues, which implies that free-riding through unpaid access, redistribution and the creation of derivatives of creative *products* must be excluded. As *creative* objects they necessarily build on the prior works of others and inspire new works by subsequent authors, meaning that an unbounded flow must be enabled to ensure a continuous creative *process*.

   Copyright law acknowledges this tension and attempts to strike a balance by, on the one hand, enabling commercial exploitation through exclusive rights and, on the other, limiting the duration of these rights and exempting certain forms of copying and reuse. The rise of cultural industries during the twentieth century has tilted the balance in favour of viewing information goods as economic objects.

The digital revolution then reformulated the paradox on a new media-technological level: information wants to be free *and* it wants to be expensive.[2]

In terms of costs, the strategies for enforcing copyrights like DRM, internet filtering and excluding citizens from the internet are becoming increasingly extreme. Many people feel that the price society is paying within the social contract is too high. Many creatives feel that the mechanisms that allegedly protect their incentives to create are, in fact, stifling the creative process and do not benefit them, but rather benefit exploiters.

With regards to freedom, a countermovement at the very heart of the dynamics of the digital revolution carved out the freedoms necessary to sustain the creative process – starting with software, spreading to science, music, encyclopaedias and dictionaries, journalism and, indeed, to any cultural expression capable of being represented by bits. It did so, not by releasing its creative productions into the public domain, but by creating a commons – an alternative social contract in the form of licenses that are voluntarily adhered to but, because they are based on copyright and contract law, are no less binding.

2.2   The Bottom Line: The Right to Attribution

The decisive breakthrough came with Stallman's GNU General Public License (GPL 1989), which Stalder has aptly characterized as 'not just a license but one of the great political manifestos of the 20th century'.[3] The primary purpose of these licenses is to redress the law's emphasis on economics – to the detriment of creativity – by ensuring the continued flow of creativity. The earliest free licenses[4] achieved this by removing all economic rights to a work, almost releasing it into

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2. The phrase was coined by Stewart Brand in 1984 at the first Hackers' Conference and repeated in his 1987 book *The Media Lab: Inventing the Future at MIT* (New York: Viking, 1987): 'Information wants to be free because it has become so cheap to distribute, copy, and recombine – too cheap to meter. It wants to be expensive because it can be immeasurably valuable to the recipient. That tension will not go away. It leads to endless wrenching debate about price, copyright, 'intellectual property', the moral rightness of casual distribution, because each round of new devices makes the tension worse, not better'.

3. Stalder, F. (2008), '*Gesellschaftliche Potentiale des Open Source Modells*'. Unpublished paper. On file with the author.

4. Around 1939, Woody Guthrie released his lyrics under one of the first known free copyright notices (see the Museum of Musical Instruments website: www.themomi.com/museum/Guthrie/index_1024.html). Hoffman, spokesman of the 1960s US counterculture Yippie faction, published his best-known book under a title that is itself the license: *Steal this Book*, 1971. In 1972, Brazilian artist Artur Matuck, in the context of Xerox Art, devised his free license named Semion, the terms of which correspond to a CC Attribution-Non-Commercial-No Derivatives license (Matuck, A. (1993), 'Information and Intellectual Property. Including a Proposition for an International Symbol for Released Information: SEMION', *Leonardo* 26(5):405-413). The earliest free software licenses designed by the legal departments of universities, the BSD and MIT licenses, also permitted all uses, only requiring attribution (McKusick, M.K. (1999), 'Twenty

the public domain, save for the retention of the attribution requirement[5] that in real life – as in Mertonian ethics[6] – is an essential symbolic reward for authorship. Attribution is a non-waivable moral right under *droit d'auteur* and was made standard in all Creative Commons (CC) licenses after almost all users opted to have it as a requirement. 94% of free software developers mark their contribution to projects as their own.[7] Most current free licenses have detailed requirements relating to attribution, which often requires the inclusion of the names of all contributors to a collective work, publishers, title, identification of modifications and links to prior works.

For practical reasons, a convention for citations was established in the Gutenberg Galaxy (McLuhan) of movable type printing, in order to ensure that a reader can retrieve the source and look at the quoted passage in its original context. No comparable standard has yet emerged for the digital age. Both Concurrent Versions Systems (CVS) and Wikis record contributions automatically, if contributors are logged into the system. The ID3 metadata container format has emerged for MP3 audio files.[8] It has fields for artist, song title, album and other information, but not for the composer and there are no mechanisms for transferring the information from several sources into a remix. Digital still cameras record an extensive set of metadata including, if the option is chosen, the photographer's name, but again this information is not carried over into collective works. Giving attribution to individual modifications poses another issue. It is easily handled in source code and in the history stack of Wikipedia entries, but no comparable convention exists for changes to a musical recording or a photograph. This is, of course, not

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Years of Berkeley Unix. From AT M. Stone (eds.), *Open Sources. Voices from the Open Source Revolution.* Sebastopol: O'Reilly. pp. 31-46).

5. There are a few exceptions. From 1909 onwards, Austrian writer Karl Kraus published his magazine *Die Fackel* under the copyright notice 'Reprint permitted only without reference'. (Kraus, K. (1989), 'Nachdruck nur ohne Quellenangabe gestattet!'(1909) in K. Kraus (1989) *Schriften*, Frankfurt/M.: Suhrkamp, 4: 107-111. From 1958, the artists and political activists group Situationist International published their magazine under the notice 'All texts published in Situationist International may be freely reproduced, translated and edited, even without crediting the original source' (available (in French) at: www.lnalhooq.net/LNALHOOQ/SiteDebord/Jaaproposde/Heritagedebord.html; (in German) at: www.si-revue.de/t/).

6. Sociologist of science Robert Merton in *The Normative Structure of Science* (1942) based the ethos of science on communism: 'The substantive findings of science are a product of social collaboration and are assigned to the community. ... Property rights in science are whittled down to a bare minimum by the rationale of the scientific ethic. The scientist's claim to 'his' intellectual 'property' is limited to that of recognition and esteem'.

7. Ghosh, R. A., R. Glott, B. Krieger & G. Robles, (June 2002), *Free/Libre and Open Source Software: Survey and Study,* Final Report. International Institute of Infonomics. University of Maastricht, The Netherlands & Berlecon Research GmbH, Berlin, Germany. Available at: http://flossproject.org/report/index.htm: IV, ch. 5.2.

8. Website of ID3.org, available at: www.id3.org/.

a licensing issue, but rather, one of developing conventions and tools that support attribution in collective creation and reuse environments.

2.3   The Commons: The Requirement of Reciprocity

The GNU General Public License (GPL) introduced a new dimension by prohibiting the removal of freedoms and ensuring an ever-growing pool of free works by conditioning modification on reciprocity. The Open Publication License and, in its wake, Creative Commons introduced freedom of choice with regard to commercial use and modifications. While, in theory, the attribution clauses were enforceable in court, in practice they were never used to counter plagiarism. By contrast, the GPL and CC have been used with the full force of the legal system to counter other breaches of their terms, such as the requirement to release modifications under the same license and to include the license with the work. In this way, freedom became strengthened and defensible.

This fact is crucial for understanding a phenomenon which becomes incomprehensible when the terms 'commons' and 'public domain' are taken to be synonymous.[9] In *The Wealth of Networks*, Benkler provides us with a good description of what the commons are:

> The salient characteristic of commons, as opposed to property, is that no single person has exclusive control over the use and disposition of any particular resource in the commons. Instead, resources governed by commons may be used or disposed of by anyone among some (more or less well-defined) number of persons, under rules that may range from 'anything goes' to quite crisply articulated formal rules that are effectively enforced.[10]

Creative works are the property of their authors by default of copyright law. Their authors then move them into the commons by means of licenses that articulate the rules that apply inside the community of commoners, as well as towards the outside. In my understanding, an 'anything goes' rule would move them outside the commons into the public domain – outside the range of *res universitatis* and

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9. This is frequently the case in the Anglo-American debate, but also, e.g. by Liang in his *Guide to Open Content Licenses*: 'Why then do we say that the GNU GPL model is based on an innovative use, rather than an abandonment of copyright? The Free Software model is predicated on ensuring that the fundamental freedoms are not taken away or removed from the public domain'. (Piet Zwart Institute. 2004. http://pzwart.wdka.hro.nl/mdr/research/lliang/open content guide, 29 f.).

10. Benkler, Y. (2006), *The Wealth of Networks: How Social Production Transforms Markets and Freedom.* Yale: Yale University Press, p. 61.

into that of *res communes*.[11] It would refer to intellectual objects that are 'free as the air to common use' (Brandeis) rather than objects that are 'common in respect of some men, but not so to all mankind' (Locke). There are indeed people who release their works into the public domain, but the overwhelming majority do not. The minimum rule applied is attribution. A typical rule-set goes much further.

2.3.1   The Scarce Resource: The Willingness to Contribute

Why is this the case, especially if we consider that overuse of informational goods is not possible? Rules arise out of conflict. For example, the closure of AT they are outside its scope. The act of running the Program is not restricted'. GPLv3 states: 'This License explicitly affirms your unlimited permission to run the unmodified Program'. It does not grant the permission to simply use, but only affirms it. In fact, copyright law itself does not regulate reading, listening to, watching or running a work. These acts are outside its scope, even though exploiters try to use DRM to artificially create restrictions on them. The commoners are not users, but peer-producers. User, producer and distributor are not essentialist categories. The often-heard observation that the boundaries between these groups of people are blurring is misleading.[12] In fact, the terms refer not to people, but rather, to modes of activity. Someone who reads a Wikipedia article is a user. The moment

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11. Roman law formalized common property of a corporate group or a municipality as *res universitatis*. This included lands and other income-producing resources under joint ownership and public facilities such as theatres and racecourses maintained by a town for its citizens. This was in contrast to other forms of the general category of *res extra commercium*: *res communes*, things that by their nature cannot be appropriated, such as the oceans and the air; *res nullius*, things that are not owned because they have not yet been appropriated, such as wasteland, fish and game, as well as abandoned and enemy property; *res publicae*, things belonging to the state and open to all citizens, such as roads, harbours and bridges; and *res divini juris*, things that cannot be owned because they are sacred, such as temples and tombs (Comp. Rose, C.M. (2003), 'Romans, Roads, and Romantic Creators: Traditions of Public Property in the Information Age', in J. Boyle (ed.), *Duke Conference on the Public Domain. Collected Papers, Law and Contemporary Problems* 66 (1 & 2). The *universitas* is a group of people (*singuli*) that act as a collective legal subject. The nature of this fictitious corporate 'legal person' gave rise to an extensive debate, all the way into the modern age, about the relationship between unity and multity in the entirety (about the double character of the *universitas* as a canonistic concept of the institution and the Germanic concept of the cooperative. See Gierke in O.F. Von, (2003), *Das Deutsche Genossenschaftsrecht Iv. Die Staats- Und Korporationslehre Der Neuzeit*, Weidmannsche Buchhandlung, Berlin 1913. Facsimile Reprint, Boston: Adamant Media Corporation, 25 ff.) *Res universitatis* are owned by a corporate body and open for use by its members. The *proprietas* in these things belonged to the corporation, while its *usus* and the *commodum* derived from the fact that it might belong either to the *universitas* as a whole or to its individual members. Benkler does not make this distinction when he speaks about a commons being 'open to anyone', like 'the oceans, the air, and highway systems'. (Ibid.).

12. 'While some of the freedoms listed here are freedoms designed primarily for the producers, we are also talking about the consumers of content and working hard to blur the lines between the two groups'. See Freedom Defined, 'FAQ'. Available at: http://freedomdefined.org/FAQ.

she presses the 'edit' button and makes changes to it, she seamlessly switches into producer mode. Someone who downloads a GNU/Linux distribution via Bit-Torrent automatically also distributes it to others, unless she disables this default function. Even though we can easily switch between different modes of activity, they do remain distinct, constituting either input or output, and no blurring takes place. Free licenses – putting aside the strongly contested attempts by some licenses to prevent the use of the works under them in genetics, nuclear power plants, by neo-Nazis, football teams or in violation of a duty to the environment and humanity[13] – only regulate acts of production and distribution. For Weber, the commons is an organization for collective productive action.[14] For Benkler, the commons is one of peer producers.

Boyle continues: 'The remarkable thing is not merely that the software works technically, but that it is an example of widespread, continued, high-quality innovation. The remarkable thing is that it works socially, as a continuing system, sustained only by a network consisting largely of volunteers'. Here he comes close to the commons nature of the phenomenon, but then misses it. He calls free software a classic public good. 'Obviously, with a non-rival, non-excludable good like software, this method of production cannot be sustained; there are inadequate incentives to ensure continued production. E pur si muove, as Galileo is reputed to have said in the face of Cardinal Bellarmine's certainties, 'And yet it moves.'[15] He even briefly touches upon the debate on what motivates those involved in peer-production, but dismisses it as 'ultimately irrelevant. ... It just does not matter why they do it. In lots of cases, they will do it'.[16]

2.3.2   The Motivations for Commons Production

Since there are no economic incentives to produce these public goods, the question of why people do so is the key to solving the mystery of their existence. If we want to understand what encouragement free licenses foster or, perhaps more

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13. The *Licença de Uso Completo Re:combo* (LUCR) by Re:combo, a Brazilian collective of musicians, software developers, DJs, teachers, journalists and artists set up in 2001, prohibits the use of the work for purposes that have a prejudicial character with respect to gender, race, creed, sexual orientation, social class, ethnicity, language and species and in works of paedophilic character. It also reserves permission for use of the work in relation to politics, associations and football teams or for advertising or commercial advantages (formerly at: www.recombo.art.br/lucr/LicencaDeUsoRecombo_v1.0.pdf. On file with the author). The *Common Good Public License* published as 'Beta 1.0' in November 2003 also imposes restrictions on the applications of the covered work. In addition to the 'duty to share', it imposes a duty to the environment and to humanity (www.cgpl.org/).
14. Weber, M. (1995)., Wirtschaft und Gesellschaft. Soziologie' (1913: II §2), in: G. Simmel, *Schriften zur Soziologie*, Stuttgart: Reclam, pp. 77-302.
15. Boyle, J., (2003), supra note 11, p. 45.
16. Ibid., p. 46.

importantly, what potential discouragements they try to prevent, we must examine people's motivations for contributing to the commons. The digital product is public, an abundant resource that needs no protection. The process by which it is created – the project – is communal. The fact that communal rule-setting came to require the pain of agreeing to give additions and innovations back to the communal project indicates that there is a scarcity that needs to be dealt with. Benkler argues that the scarce resources, which social production allocates efficiently, are human creativity, time and attention.[17] Since participation is voluntary, I would hypothesise that the scarce resource that free licenses are protecting is, specifically, the willingness to continually contribute to the common process of creation.

Benkler approaches the question of motivation with the model of intrinsic and extrinsic incentives. '[F]or any given culture, there will be some acts that a person would prefer to perform not for money, but for social standing, recognition, and probably, ultimately, instrumental value obtainable only if that person has performed the action through a social, rather than a market, transaction'.[18] Monetary rewards, then, especially when obtained by others, have a negative effect on intrinsic motivation. Putting a work in the public domain or under an attribution-only license permits others to create a derivative and keep it proprietary. This derivative then competes with the original free work, which cannot benefit from its improvements. For this reason, Stallman argues that free software developers need to create advantages for each other.[19] It is the monopolization of chances by a community that, according to Weber's analysis, gives rise to the commons.

The commons is a collective organization of producers. Rose writes:

> In many intellectual and artistic endeavours, creativity may be synergistic less with the world at large than with communities of other artists, creators, and contributors. The university itself, sharing its root with the *res universitatis*, gives perhaps the quintessential example of the phenomenon: Creativity is exponentially enhanced by the free flow of ideas within a scholarly community. Here too there are opportunists, charlatans and zealots – and to some degree commercial users – who can disrupt the process.[20]

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17. Benkler, Y. (2006), *The Wealth of Networks: How Social Production Transforms Markets and Freedom*, Yale: Yale University Press, p. 107.
18. Ibid., p. 96.
19. 'Proprietary software developers have the advantage of money; free software developers need to make advantages for each other. Using the ordinary GPL for a library gives free software developers an advantage over proprietary developers: a library that they can use, while proprietary developers cannot use it'. (See FSF, 'Why you shouldn't use the Lesser GPL for your next library'. Available at: www.gnu.org/philosophy/why-not-lgpl.html).
20. Rose, C. (2003), supra note 11, p. 107.

She cites Merges, who argues that researchers are often quite willing to share information and ideas with others in the same intellectual pursuits and that, as a result, they enjoy substantial creative synergies. However, they are very unwilling to share these same ideas with commercial entrepreneurs or others in the world at large, perhaps in part because of the lack of reciprocity.[21] Likewise, Elkin-Koren observes: 'The use of works for commercial purposes, without rewarding the original author, may impair the willingness of individual authors to share their works. Therefore, any attempt to create a commons would seek to prevent potential abuse by parties who did not contribute to the community effort and were taking advantage of efforts made by others'.[22]

2.3.3   Motivations in Free Software

These observations – that it is the community itself that creates the conditions for a free flow of ideas and for reciprocal synergistic enhancement within its boundaries, which motivates people to participate in the knowledge commons – are supported by empirical evidence. The FLOSS project, a large-scale global survey of free software developers, inquired specifically after respondents' motivation in contributing to free software projects.[23] The largest group that emerged, consisting of more than two thirds of the total sample, cited the wish to learn and develop new skills and share them with others as their motive. In the middle segment, encompassing about one third of respondents, reasons such as wanting to participate in a new form of cooperation associated with the free software scene and wanting to improve the software of other developers were given. The community itself and the cooperative creation it enables are clearly seen as the most important value that motivates people to join. About one third of respondents cited ethical and political reasons, stating that they think that software should not be a proprietary good and that they want to limit the power of large software companies. An equally large percentage is motivated by practical reasons (solving a problem that could not be solved by proprietary software, getting help in realizing a good idea for a software product). A significantly smaller group said that they are motivated by hopes of personal gain (improving job opportunities, gaining a reputation, making money).

Thus, free software commoners appear not to be driven by either selfish or altruistic motives, but rather, by the value they find in the community itself, the reciprocal learning and self-improvement it enables, the opportunity to cooperatively create something larger and better than one could create on one's own, and

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21. Ibid., p. 106.
22. Elkin-Koren, N. (2006), 'Creative Commons: A Skeptical View of a Worthy Pursuit', in: Guibault, L. & P. B. Hugenholtz (eds.), *The Future of the Public Domain*. The Hague: Kluwer Law International.
23. Ghosh et al. 2002. supra note7, Part IV.

the ethical and political dimensions of this cooperative knowledge environment. Copyleft expresses and protects these community norms against potential abuse and thereby ensures the continuing motivation of its members and a sustainable commons.

2.3.4 Motivations in Free Content

Unfortunately, no comparable research on the motivation of members of free content communities exists. The work of Cheliotis et al. on CC licensing behaviour gives only a rough, first impression. Not having surveyed authors, the research uses the CC options concerning commercial use and modification as a basis for making conjectures about possible motivations. For example, if someone permits commercial modifications, 'it follows that such an author must be motivated by the expectation of strong reputation gains, altruism, or ideological conviction, without the expectation of any immediate financial rewards'.[24] By contrast, if someone reserves commercial use, the researchers assume a utilitarian motive of enhancing her reputation and thereby increasing the chances for commercial licensing or sales of physical copies (Ibid.,: 9). From the licensing data they identified two different mindsets in the community of authors: the two thirds who reserve commercial use typically also forbid modifications and are, therefore, motivated by commercial expectations. The majority of those who permit commercial use also permit derivatives and are, therefore, motivated by ideology or altruism or have a low expectation of the commercial value of their work.

Obviously these are only preliminary indications. Conjectures about motivations based on observed licensing behaviour cannot be compared with data from surveys that explicitly asked after motivations. In addition, behaviour in a licensing space that enables prohibiting certain uses cannot be compared to one that does not. Furthermore, the closely-knit community of free software cannot easily be compared to the heterogeneous scene of free content. Nevertheless, the fact that in CC space more than two thirds of authors reserve commercial use and one third reserves modification raises the question of whether there might be a categorical difference between software and other kinds of works; a difference that affects incentives to invest creativity, time and attention in sustaining a knowledge commons, as well as the community norms around it. Or, to rephrase the question: why did it take nearly twenty years for the free software movement to inspire something similar for non-software works and nearly ten years for the canonical GPL to inspire the first free content license?

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24. Cheliotis, G. (2007), *Remix culture: an empirical analysis of creative reuse and the licensing of digital media in online communities*. School of Information Systems, Singapore Management University, 10 January 2007, p. 11. Available at: http://pml.wikidot.com/local–files/working-papers/Remix_Culture_Web_Version.pdf.

2.4 Functional vs. Expressive Works

Educational technologist Wiley designed the first proper free content license in 1998 – the Open Content License (OCL).[25] In an article on Open Source Content Development,[26] he started from the idea that peer production, which had proved so powerful in free software, should also be applicable to other kinds of works. He cited Linus' Law, which states that 'given enough eyeballs, all bugs are shallow'.[27] But, wrote Wiley, 'while we have seen huge quantities of content go open source since the inception of the Open Content project, the vast majority seem to be single author works licensed for use and re-use. Why are people not collaborating on content creation as they are on code creation?'

He muses that it might be because of a fundamental difference between code and content:

> While there are almost an infinity of ways to code a program so that it fulfils (sic) a specific purpose, whether or not it fulfils (sic) its express purpose is a rather objective matter. Even the subjective part of coding, decisions about specific implementation issues, can to some degree [be] compared objectively in terms of reductions in file size, memory footprint, or execution time. In other words, the improvement of a program is, pardon the term, a relatively objective matter. The betterment of a piece of prose is a different matter entirely. How do you compare one piece of prose with another? While there are some comparatively objective sides to prose, such as mechanics or accuracy of factual information, prose is a much more subjective matter.[28]

Introducing a change for the worse into a program, he argued, is readily evident when the code fails to perform its stated function. The same is not true of a piece of literature.

Stallman has also consistently argued for a distinction between one class of works that includes recipes, computer programs and their accompanying manuals, textbooks and reference works, such as dictionaries and encyclopaedias, and another class that includes memoirs, essays of opinion, offers to buy and sell

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25. The acronym comes from the original name of Wiley's project: 'Open Content Principles and License'. Version 1.0. 14 July 1998. See 'Open Content License'. Available at: http://opencontent.org/opl.shtml.
26. Wiley, D. (c.2000), Open Source Content Development. Available at: http://opencontent.org/bazaar.shtml.
27. Coined by Raymond, E.S. (2000), *The Cathedral and the Bazaar.* Available at: www.catb.org/~esr/writings/cathedral-bazaar/cathedral-bazaar/.
28. Wiley, D. (2000), supra note 32.

and catalogues of goods for sale, as well as aesthetic or entertaining works.[29] Functional works are both created and are used for the purpose of getting a job done, while those in the second category, which we shall term expressive works, are created for the purpose of expressing an opinion, judgement or feeling of the author and used for the purpose of enlightenment and enjoyment. Stallman considers modifiability essential for functional works, but not for expressive ones. This is why articles on the GNU website are under a copyright notice that only permits verbatim copying and redistribution and why the GNU Free Documentation License (GFDL[30]) allows for the modification of the functional sections of technical documentation, but allows for the prohibition of 'invariant sections' containing personal expressions.

2.5   The Freedom to Modify

Of course, contrary to Stallman's assumption, a large number of creators of expressive works do permit modification. Creative reuse is at the heart of the mass phenomenon known as Web 2.0 and 'user-generated content'.[31] At the same time, the fact that a third of CC licensors do not permit modifications indicates that there is a perceived difference.

Granting modifications means waiving the moral right to the integrity of one's work. This right is not only a protection against modifications in general,[32] but specifically against those that might be prejudicial to the prior author's reputation or honour. While such harm is highly unlikely in the case of functional works, the danger does exist for expressive works. The CC licenses attempt to address this issue. Another option would be to rely on libel law rather than copyright, in order to defend against the use of one's work by, for example, neo-Nazis.

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29. Stallman, R., *Copyright and Globalization in the Age of Computer Networks.* Speech at MIT in the Communications Forum on 19 April 2001. In fact, he called aesthetic or entertaining works a third category and suggested that further subdivisions might be needed, e.g. for computer game scenarios. This goes to show that we are far from a comprehensive ontology of knowledge. For the purposes of this article, it makes more sense to stay with two categories, acknowledging that the division is tentative and fuzzy at the edges, e.g. there is functional music like Muzak and personal expression in generative music, not to mention recipes. Referring to 'functional' and 'expressive' works also risks confusion with the standard distinction in IP law, where patents protect functional innovations and copyrights protect creative expressions or the distinction within copyright law, according to which only the expressive aspects of a work are protected, while the functional aspects common to a culture as a whole are in the public domain.
30. Free Software Foundation, 'GNU Free Documentation License'. Available at: www.gnu.org/copyleft/fdl.html.
31. An attempt by the content industry to essentialise roles, so that one is either a professional creator or a user. Consequently, it appears as a remarkable aberration when a 'user' 'generates' 'content'.
32. This exists largely on paper only. As a standard business practice, publishers' contracts require authors to sign away the right to oppose modifications to a significant degree.

There must be a difference in the nature of works in the two categories that leads to modifications taking on a different character. In the case of a functional work, everybody contributes to the same collective work – either in a continuous flow, as happens on Wikipedia, or sequentially, as is the case for software – until work on the next release has been concluded and it is published under a new version number.

With regards to expressive works, typically, a secondary author will take the existing work and create a derivative that stands on its own but alongside the unaltered primary work and any number of other derivatives. Alice Randall's *The Wind Done Gone* (2001) is not a substitutive improved version of Margaret Mitchell's *Gone with the Wind* (1936).[33] DJ Danger Mouse's *The Grey Album* (2004) does not substitute Jay-Z's *The Black Album* (2003) or The Beatles' *The White Album* (1968).[34]

By definition, a functional work should fulfil its function in the best possible manner. We do not want to use ten different operating systems, word processors or dictionaries, but ideally just one that does the job well. By contrast, ten songs, essays or recipes quickly become boring and 10,000 are much more fun to have. In the first situation, we want powerful tools with interoperating components; in the second, we want diversity and choice.

Functional works require iterative improvements and further development in order to remain up-to-date and useful as tools. This is Merton's idea of standing on the shoulders of giants – replacing a false idea with a better one. Small contributions, such as adding a reference link to a Wikipedia article, suggesting a translation option in the LEO dictionary[35] or locating and fixing a bug in a piece of software, can improve the overall work for all users. Benkler calls modularity and granularity decisive qualities for peer production. It allows for dividing tasks into segments that a large number of contributors can process independently and in parallel, and that can then be combined. Functional works consist of interoperating components that make up a functional whole.

Expressive works build on prior works by re-contextualizing and transforming them in order to create a new, solitary work. They make up an aesthetic whole that is not modular in the same way that functional works are. The overall structure is not created by consensus among a community of creators, but rather by the work of an individual or small group. Iterative edits – 'debugging' by many eyes – including parts from other works will rarely lead to an improvement.

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33. Since the 2005 settlement, Randall's book no longer infringes copyright (See Freedom Forum, 'Settlement reached over 'Wind Done Gone''. AP, 10 May 2002. Available at: www.freedomforum.org/templates/document.asp?documentID=16230).

34. See The Grey Album at: www.illegal-art.org/audio/grey.html.

35. See LEO. Available at: http://dict.leo.org/.

2.5.1 The Commons as a Coordinated Social Process

For distributed cooperation on the same corpus of work by a (potentially large[36]) group of participants coordination is essential. Free software projects use an elaborate tool set for cooperation and communication. Mailing lists and chat, bug trackers, CVSs and project management tools all help in planning, making decisions and resolving conflicts. Wikipedia has also developed a working environment consisting of history and discussion pages, bots and other automated tools, peer-approved 'roles' such as that of reviewer, vandalism and quality controller or administrator, mailing lists and chat and events, such as the annual global Wikimania conferences, that serve to establish the identity of the community and decide on policy issues.

At first glance, both collective and individual works are collected in repositories, for example software on Sourceforge and photographs on Flickr. In both cases you can browse the collection and download what you like. One difference is, of course, that in order to appreciate the software you have to install it first. This difference becomes more pronounced when it comes to modifying a work. With a photograph you can load the file into an editor and you are set to go. For software, the modifiable source code exists inside a CVS. You check out parts of the code, edit it, and commit your changes back into the CVS. The system then checks for dependencies and inconsistencies and informs the authors involved that they need to resolve them. As a composite work, software needs to maintain the consistency of its overall functional structure.

No coordination with others is needed to remix a song or a photo collage. Provided the license permits it, one does not have to communicate with the prior authors at all. One can simply take the work, create a derivative and (taking care of proper attribution, marking of changes and possible link-backs to prior works) publish it. Flickr and other similar repositories also offer tools for community interaction. There are forums, tools for rating and tagging photos, private and public groups where people with similar interests and tastes congregate with their pools of photos and discussion boards. However, the nature of the communication here is very different. Usually it consists of commentary after the creative fact. Rarely will collective creative action arise from it. Individual quality evaluations might be aggregated in various forms: as ratings on a scale from one to five, by 'Recommends' on ccMixter or through automated Amazon-style recommendations (users who like x also liked y and z), all the way to extensive peer reviews.

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36. While thousands of contributors work on Wikipedia, large-scale cooperation is the exception in free software. The Free/Libre and Open Source Software (FLOSS) study has shown that 'the majority of OS/FS projects is worked on by only one or two software developers. Still, a considerable number of projects consist of three to six authors [...] And we hardly find any projects at all that are performed by more than 20 software developers'. (Ghosh, R. A., R. Glott, B. Krieger & G. Robles. 2002, supra note 7, section V, ch. 1.5).

Here, collectivity is expressed not in joint creation of works, but in contextualization, grouping works by tagging them, or evaluating relevance or quality, which adds value because it makes the pool easier to navigate.

Quality evaluation, therefore, has a different character for the two categories. Imagining a distributed, albeit ultimately hierarchical, process of collective quality judgement for expressive works is a non-starter. Commonly agreed criteria regarding what is a more valid or valuable observation or judgement in an editorial, or a more beautiful, lucky or appealing expression in a novel, a song or a poem can hardly be imagined. There may be technical standards in a creative craft, there may be opinion leaders and schools of thought and taste, but none have anywhere near the same compelling character as the criteria that govern quality in functional works. Expression of quality assessment takes place after the fact.

In a software project, quality issues need to be decided, at the latest, before the final integration into a new release. Even if few programmers would find the criteria for what is and what is not an improvement as objective as Wiley posits, there is no doubt a qualitative difference. Creating a functional work starts by defining what function it is supposed to fulfil, and there are generally agreed criteria in the art of programming, encyclopaedia making or textbook writing as to what is more effective, efficient or elegant, in respect of 'what is good and who is better'.[37] In practice, there will always be arguments over edits of a Wikipedia entry or whether a particular piece of code should be included in one program rather than another one. In the end, a social mechanism such as voting or decision by a project lead is needed to keep the common project going.

Thus, functional projects need a much closer social cooperation between contributors than creative scenes and that will – egalitarian rhetoric aside – in most cases follow a hierarchical structure. In the end, a meritocratically selected core group will decide about the quality evaluation of alternatives. Torvalds has the last word on what goes into the Linux kernel. Copyrights have owners by virtue of the law. Projects also have owners, usually called 'maintainers', by virtue of community norms. Typically, this ownership rests with the initiator. Torvalds 'owns' the Linux kernel. O'Sullivan 'owns' Fudge.[38] Wales 'owns' Wikipedia. They are all respected in their roles by the community as legitimate project leads and, although they may be challenged at times, as long as they stay responsive to the community and can garner support for their decisions, they will stay on top. If not, the project will fork. If they want to move on, they can transfer ownership to

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37. Stalder, F. (2006), supra note 3.
38. FUDGE is a generic dice-and-rulebook role-playing game system created in 1992 on the rec.games.design newsgroup, released under a license that originally only permitted reproduction and, in a later version, also modification for non-commercial use (see O'Sullivan, S. (2000), *Fudge Designer's Notes*. Available at: www.panix.com/~sos/rpg/fud-des.html).

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a designated successor or, if they simply abandon the project, somebody from the community may well appropriate it and energize the community again.

The project may also fork if there is fundamental disagreement within the community. 'Participation is voluntary in a double sense. On the one hand, people decide for themselves (at least from the perspective of the project) if they want to contribute. Tasks are never assigned, but people volunteer to take responsibility. On the other hand, if contributors are not happy with the project's development, they can take all the project's resources (mainly, the source code) and reorganize it differently'.[39] In this way, the four freedoms provide a safety valve in case of escalating conflicts. Project owners have to garner support for their decisions lest their ranks take the code base or even Wikipedia[40] and start a competing project.[41]

Thus, two distinct modes of creation have emerged from Wiley's question regarding why people are not cooperating on content in the same way as they are on code creation: on the one hand, a commons-based peer production with an elaborate hierarchical social organization of division of labour for functional works; on the other hand, for expressive works, the romantic model of the lone creator seems to be confirmed, even in free culture. In the second mode, community does not take the form of the joint production of collective works, but rather, of commentary, filtering, quality evaluations and contextualizations.

2.5.2 Modification and Cooperative Creation in Expressive Works
While it is accepted that modifiability is a must for functional works, is it dispensable for expressive works? Certainly, Stallman's contested decision to allow for invariant sections in the GFDL presumes that it is. Lessig promotes a remix culture and a read-write society, but CC licenses enable authors to prohibit modification and one third of CC licensors make use of that option. Works of literature, music and visual art also build on prior works, if not in a continuous cumulative process of iterative improvements. Prohibiting modification contradicts the tool-enabled mass-cultural practices of remixing. It is hardly enforceable and it addresses ideological sentiments rather than real moral concerns about the integrity of a work or the reputation of an author. Free licenses have developed mechanisms to address these needs (requirements for retaining attribution of all prior

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39. Stalder, F., (2006), supra note 3.
40. At the Wizards of OS 4 conference in September 2006 in Berlin, Wikipedia co-founder Sanger announced that he would fork Wikipedia to create a quality-controlled version supervised by experts, called Citizendium.org (Wizards of OS, 'Quality Management in Free Content'. Available at: www.wizards-of-os.org/programm/panels/authorship_amp_culture/quality_management_in_free_content.html).
41. For a discussion on forking see Meatball Wiki, 'RightToFork'. Available at: www.usemod.com/cgi-bin/mb.pl?RightToFork.

contributors, changing the title, marking changes and linking to prior works). Thus, authors should have nothing to lose by permitting modification.

What, then, do they have to gain? Science-fiction author Cory Doctorow provides a good example. He feels flattered by others creatively engaging with his work and collects remixes on his site.[42] Lessig and others have gathered compelling anecdotal evidence of the beneficial effects of allowing remixing; however, as yet, there is very little empirical research on how remix cultures function and what effects they have.

Once again, the work of Cheliotis proves to be an exception. In 'Remix culture: an empirical analysis of creative re-use and the licensing of digital media in online communities'[43], he presents preliminary findings from his study of ccMixter.[44] The site was created in 2004 by Victor Stone after Wired magazine published a CD with music from artists like Gilberto Gil, the Beastie Boys, David Byrne and Chuck D under either CC Sampling Plus or CC NC Sampling Plus licenses.[45] Stone heeded the call of the CD's title – *Rip. Sample. Mash. Share.* – and started the ccMixter site in order to hold a remix competition for the material. Out of this grew a community, which at the time of Cheliotis' study had 1,850 active members (18% of total registered users). It had produced 7,484 music items, more than half of which were remixes. His analysis showed that about 60% of the initial uploads never got remixed, while some were reused many times. Rarely were several initial pieces of music used in one derivative. 'We believe this will be a key characteristic of any re-use network, as it is generally more common and perhaps also easier to re-use one work in multiple contexts than it is to combine multiple sources into a new coherent work'.[46] The maximum number of consecutive remixes was five, with most people creating first-generation remixes. Remixers seem to be very selective and most wish to remix original works. Cheliotis views this as part of the nature of modularity and reusability: 'The more 'derivative' a work is, either because it is the product of many subsequent re-uses, or because it is itself reusing many sources, the less likely it is that this work will be re-used in future generations'.[47]

With respect to licensing, Cheliotis found an interesting dynamic. Unfortunately, he does not present the data on the various CC licenses used on ccMixter. However, a look at the site shows that most of the samples are CC BY or CC NC,

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42. See 'Little Brother' remixes. Available at: http://craphound.com/littlebrother/category/remixes/.
43. Cheliotis, G. (2007), supra note 30.
44. See ccMixter website. Available at: http://ccmixter.org/.
45. See Creative Commons website, 'The Wired CD: Rip. Sample. Mash. Share.'. Available at: http://creativecommons.org/wired.
46. Ibid., p. 6.
47. Ibid., p. 7.

very few use NC-SA, Sampling Plus or NC Sampling Plus. Most of the remixes are BY, NC, NC-SA, Sampling Plus or NC Sampling Plus, none are SA or PD. This shows that derivatives are licensed more restrictively than initial works. Cheliotis explains: 'This narrowing may be voluntary on the part of the authors of the derivatives, where such an author may choose to be more protective of his/her work than the author of the original was, or may be involuntary, in cases where the re-use of multiple source works in one derivative work forces the derivative's author into more restrictive licensing'. ccMixter's system supports license selection. 'Every author of a remix must state the sources used in the derivative work. As the license of each source work is stored in a database, the website will automatically select an appropriate license for the remix. Thus license compliance is ensured'. It does rely on the users' correct and honest declaration of their sources, however.

By applying social network analysis, Cheliotis mapped the network of authors linked by the act of reuse. He also mapped the communications network of the community members based on forum contributions and found it to be very different. This research opens up an exciting field of study on the constraints on the depth and breadth of reuse, on the interaction between different licensing options and on how people relate to each other through their creative work, as compared to direct communications. Clearly ccMixter is a music community where people find it rewarding to provide modifiable works and see how others engage in creative reinterpretation.

As fascinating as ccMixter is, it still belongs to the vast majority of what Wiley observed to be single author works. This is also true of the tagging and rating in repositories like Flickr and YouTube that are aggregated into the navigational infrastructure of a site. The same is true of the citations and links that turn the blogosphere into something larger than the sum of its parts. Even a more closely-knit global network with a common political outlook, such as Indymedia, consists of single author works, though here collective action outside copyright space regularly arises from the member's communications.

Multi-author co-operations on content projects did, of course, occur before the internet and continue to take place in the digital environment. Books have been written by small groups of authors, both non-fiction (e.g. *Wireless Networking in the Developing World*[48]) and fiction (e.g. the novel *Q*[49]), and there are attempts to use

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48. This guidebook on wireless networking was written by a core team of seven people with contribution and feedback from the community. It is published under CC BY-SA and has been translated into Spanish, French, Arabic, Indonesian and Portuguese. Available at: http://wndw. net/.

49. Q was written by four members of the Italian writers collective Wu Ming and published in 1999 under the collective pseudonym Luther Blissett and under a copyright notice that permits

Wiki-based systems for cooperative writing.[50] Some categories of expressive works are inherently cooperative, for example, films, plays or computer games. They are modular and, like a free software project, require a division of labour, but usually they are more director-centred than these.

In the world of role-playing games, players began to develop their own games and they were supported in this endeavour by companies that license their products in such a way that permits this. The same happened in relation to online games, starting in the early 1990s with games such as *Duke Nukem* and *Doom*. In the world of 'modding' players create not only their own modified game levels ('mods'), but also the editors necessary for doing so. In 1997, in a move as spectacular as that of Netscape, the company *id* released the source code for *Doom*, encouraging 'modders' to intervene in the innards of the game. Some modders have set up game companies; others were hired by existing ones. Some mods became commercially very successful, as was the case for *Counter-Strike* (2000), which sold more than one million copies even though it was available for free download. Modding finds itself somewhere between software and content, as it involves both programming and artwork, text, landscape and decorative objects. Recently, mod projects have become similar to commercial game development with larger teams and longer development times. The need for free licenses is recognized by many; partly because, in some cases, the mods link to game engines that are proprietary; partly because mods are often abandoned by their authors without them giving any indication of how they wish issues of copyright to be handled.[51]

The organizational complexity of software and game development projects can be compared to that of filmmaking. *Elephants Dream*[52] is the world's first open movie, made entirely with free graphics software, such as Blender, and with all production files freely available to use. This short animation film was produced by the Blender Foundation and the Netherlands Media Art Institute Montevideo and released in May 2006 under CC BY. By June of that year there were already a number of remixes.

Steal this Film[53] (The League of Noble Peers & J.J. King, 2007) is a documentary on media history, copyright and remixing. Distributed via BitTorrent and seeded at the Pirate Bay, it had been downloaded six million times by October 2008. The

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non-commercial reproduction. Available at: www.wumingfoundation.com/italiano/downloads.shtml.

50. At OpenTheory.org a number of texts on common goods and an alternative society have been written in this way.

51. Examples include the OpenUnrealModLicense (available at: www.wiki.beyondunreal.com/Legacy:OpenUnrealModLicense) and the Wrye Modding Licences 1.0 (available at: http://wrye.ufrealms.net/WML%201.0.html).

52. 'Elephants Dream'. Available at: http://orange.blender.org/.

53. "Steal This Film II". Available at: www.stealthisfilm.com/.

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complete footage of most of the interviews with Eisenstein, Darnton, Rheingold, Moglen, Prelinger, Benkler and others is also available. The film is released under a note that says 'Remix, redistribute, rejoice! © League of Noble Peers – so you can still steal it'. A number of remixes have been produced.

While the two films mentioned so far were produced by directors with conventional film teams, at best inviting remixing after the release, two ongoing projects solicit cooperative input during production. *A Swarm of Angels*[54] calls itself the first peer production movie. Starting in 2006, the sci-fi feature film is being produced by a core team around film producer and author Matt Hanson and participants from Spain, Belgium, England, Japan and Russia. They aim to attract 50,000 individual subscribers (the 'Swarm of Angels'), each contributing £25 to the production. Members can participate by voting on major decisions, contributing to writing the script[55] and creating the materials, being part of the distributed film crew, debating on the forum and eventually sharing the film, which will be released under CC NC-SA, and sampling project visuals for their own work. 'Our vision is to bring filmmaker and fan together into entertainment communities. ... A Swarm of Angels is a third way between the top-down approach of traditional filmmaking and the bottom-up nature of user-generated content. A way for anyone to influence the creation of a professional £1 million+ feature film'.

RiP: A Remix Manifesto is an open source documentary about copyright and the remix culture. Created by director Brett Gaylor over a period of six years, the film features the cooperative remix work of hundreds of people who have contributed to its website.[56] The film's protagonist is Gregg Gillis, a Pittsburgh biomedical engineer better known as the mash-up artist Girl Talk. It includes interviews with Lawrence Lessig, Bruce Lehman, Cory Doctorow and Gilberto Gil. A call was put out on ccMixter for the soundtrack.[57] A beta version was launched in October 2008. All materials are under CC BY-NC. Gaylor explains the NC thus: 'Along with my partners, I need to be the only person making money from this film. I'm expecting a baby. I owe others. Therefore my partners and myself should be the only ones allowed to sell the DVD to stores or to license the film. As for other uses, I have no problem sharing it with others, especially knowing that people will be doing it anyway'.[58]

Since Wiley posed the question in 2000, people have indeed begun to cooperate on content creation. Cooperative creation and reuse in the area of expressive

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54. 'A Swarm of Angels'. Available at: http://aswarmofangels.com/.
55. This activity takes place at: www.plotbot.com/screenplays/the_ravages/.
56. Open Source Cinema. Available at: www.opensourcecinema.org/.
57. See CCMixter website. Available at: http://ccmixter.org/rip.
58. Canada.com, 'RiP: A Remix Manifesto: review', *Montreal Gazette* 16 October 2008. Available at: www.canada.com/montrealgazette/news/arts/story.html?id=e88e2492-f6cb-4059-ba2a-17e79 ed736b7.

works is still in its infancy. The cultural practices, the tools for cooperation and the social norms are still emerging. This much has become clear: There is no principal reason to assume that an expressive commons is less feasible or less beneficial than the one that exists for functional works. They might have different effects, but the four freedoms are essential for both modes of creative production.

2.5.3 The Four Modes of Peer Production

On the basis of the above analysis, we can now further differentiate the initial distinction made between functional and expressive works into four different modes of creation. The basic distinction that has now emerged is that between commons-based peer production of collective works – like software, encyclopaedias and films – and a commons-based sequential production of individual works – like musical remixes. Software and film projects require meritocratic hierarchical groups with a differentiated openness: 'Everyone is free, indeed, to propose a contribution, but the people who run the project are equally free to reject the contribution outright'.[59]

1. **Free software projects**, such as the Linux kernel, require, in principle, eternal continuous development and, therefore, a stable community.

2. **Film projects**, such as *RiP* and *Swarm of Angels*, create self-contained works that, while having a long production time, are concluded with their final release. They may spawn independent follow-up creations and the temporal community ('the swarm') may continue on the next project or it may disperse.

3. **Encyclopaedias**, such as Wikipedia, have an open modular structure. There is a common framework and criteria for each component. However, the number of components is unlimited and they do not need to be integrated into a functionally interoperating whole. This creates a community with egalitarian undifferentiated openness: 'Everyone can have a say and the most tenacious survive'.[60]

4. **Remix communities**, such as ccMixter, do not create a single collective work, but rather, a multitude of interlinked but independent works. At the same time, because the creation process requires no coordination, the community is a loose organization of independent actors referring to each others' works and communicating: Everyone can create and publish and everyone can attach their comments and value judgements afterwards.

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59. Stalder, F. (2006), supra note 3.
60. Ibid.

2.5.4 Conclusions on Modification, Interoperability and Reciprocity

Before turning to the important issue of the economics of free culture and how licenses deal with this, we can now sum up our findings on the motivations and incentives in free culture communities. Why do people join such communities? Are those aspects of the ethics of free culture communities that are codified in licenses intended to protect the scarce resource that is the willingness to continually contribute creativity, time and attention to the common creation of public knowledge goods?

Participation in free culture communities is voluntary. Members cannot be anything other than intrinsically motivated. No one is coerced or lured by direct payment into participating. They do it because of the opportunity for reciprocal learning and self-improvement, for gaining recognition and reputation. This leads to social goals, a caring for the ecosystem of the community and the creative process itself, including global issues such as the digital divide.

First of all, this implies lasting access to the common knowledge resources. It also implies modifiability for both functional and expressive works. Given safeguards against possible abuse (requirements on attribution, clearly indicating in the title that it is a derivative work, linking to prior works), there is no good reason why authors would want to prohibit modifiability and why licenses (like the GFDL or CC ND) would enable them to do so. Looking at the issue from within the ecosystem of the emerging remix culture, restrictions on modifiability of otherwise free items create undesirable and unnecessary barriers. For the same reason, other forms of closure against modification must be prevented, including patents, trademarks,[61] personality rights,[62] DRM and closed data formats. Most of these issues are addressed by the current versions of software and content licenses.

Issues of interoperability between items with mutually exclusive licensing terms in integrated systems first arose in GNU/Linux distributions and were most consistently addressed by the Debian project.[63] A similar awareness of an interacting knowledge ecosystem – not of individual items but of flows, aggregations,

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61. For example, the Empire State Building is trademarked. A photograph of the building cannot be published under a free license permitting commercial use, because that requires a property release by the trademark owner. (See Imagecatalog, a royalty-free stock photography merchant, for a list of motives it does not accept because of possible trademark and patent issues at: www.imagecatalog.com/copyright_and_trademark.php).

62. The use of images of living or recently deceased individuals is, in some jurisdictions, restricted by laws pertaining to personality rights, independent of their copyright status. (See Wikipedia's disclaimer on this and on trademarks at: http://en.wikipedia.org/wiki/Wikipedia: General_disclaimer).

63. Resulting in the *Debian Social Contract*, which consists of the *Social Contract with the Free Software Community*, itself made up of self-commitments that Debian will remain 100% free, that it gives back to the free software community and does not hide problems, and of the *Debian Free Software Guidelines* (DFSG), which consist of the criteria that a license must fulfil in order for

integration and reuse, of 'connecting the dots' – is only just beginning in the greater free culture world. An example of unintended consequences was the CC 'Share Alike' provisions that initially required a derivative to be under the same license as the original work. This implied that a work under one CC jurisdiction license could not be combined with one from a different country. Once this problem had been identified, it could be easily fixed by requiring that a derivative be licensed not under the exact same license, but under one with the same terms. Combining works under different licenses into a single interoperable pool will remain an issue among the free culture world as a whole and its major institutions, the Free Software Foundation (FSF), Debian, Wikipedia and Creative Commons. A major step in this direction was the release of the GFDLv1.3 in November 2008, which now permits Wikipedia and other Wiki-based content that is under the GFDLv1.2 or any later version to be re-licensed under CC BY-SA.[64]

Finally, the reciprocity requirement of Copyleft and makes sense from the perspective of the knowledge ecosystem. It ensures expansion of the common pool and prevents drainage and (provided the different Copyleft licenses are interoperable). It also prevents fragmentation and the narrowing of the licensing space, from the viewpoint of the community, because it ensures advantages for each other, short of common ownership, and also from the viewpoint of the individual creators, because it prevents the frustration of seeing others build on your work without contributing back to the common pool. Thus, it sustains the willingness to continually contribute creativity, time and attention. This is not only crucial for communities maintaining collective functional works, but also for remix communities, as one moves from the single item view to that of an interoperable pool. The fact that only half of the CC licensors are choosing the Share Alike option indicates that, while there is a growing readiness to participate in free culture, the awareness of its complex workings and of the consequences of individual licensing decisions on the whole ecosystem is only just beginning to grow.

2.6   The Controversy over Reserving Commercial Use

This brings us to the issue of commons and commerce. Even if participants are not incentivized by pecuniary gains, money matters, even in a culture that is free (in the sense of freedom, if not in the sense of beer). Free licensing creates a realm of non-monetary exchanges within an essentially capitalist economy. In theory, the economic right of the author to profit from her work is at the core of copyright law. In reality, however, copyright does a very bad and increasingly

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Debian to consider it free (See Debian, 'Debian Social Contract', available at: www.debian.org/social_contract).

64. Free Software Foundation, 'FDL, 1.3 FAQ'. Available at: www.gnu.org/licenses/fdl-1.3-faq.html.

worse job in enabling authors to make a living from their creative work, as the empirical research by Kretschmer and Hardwick[65] has proven.

The desire to earn a living from one's creative work is unquestioned in the world of free culture. What is challenged, however, is the idea that this requires proprietary closure of the creative works. In *Why Software Should Not Have Owners*,[66] Stallman discusses and refutes various arguments as to why it should be proprietary. The only argument he does not refute entirely is that software having owners leads to production of more software. 'It is empirically clear that people will produce more of something if they are well paid for doing so'. This, of course, does not justify taking away people's freedom to copy, study and modify the software and helping their neighbours with such tasks. Stallman concedes, however, that 'the economic argument for owners is erroneous, but the economic issue is real. Some people write useful software for the pleasure of writing it or for admiration and love; but if we want more software than those people write, we need to raise funds'. He goes on to enumerate several ways of how this is done.

For years, Stallman himself made a living from custom enhancements of the free software he had written. Clients paid him for adding features they wanted, which then became part of the free software. Other companies, like Intel and Motorola, or institutions, such as the US Air Force, had their employees or outside programmers work on free software as well. Other free software developers make money by selling support services.

The shift from payment for a product to payment for a service is crucial for understanding the economics of free software. 'Around three quarters of professional programmers (meaning people who are paid to write code) work for companies that use software but do not sell it. Commodity software (à la Microsoft) has always been only a small aspect of all software that is produced and the overall sector has always been oriented towards providing services'.[67]

A services-based economy also works well for some non-software works and some of the creatives involved. For example, in electronic dance music artists make a living from live performances. They want their music to circulate as widely as possible because it helps them to become known and booked by clubs. This has led to the emergence of a lively and diverse net-label scene in which music is regularly released under permissive licences.[68] As Doctorow has pointed

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65. Kretschmer, M. & P. Hardwick (2007), *Authors' earnings from copyright and non-copyright sources: A survey of 25,000 British and German writers.* Centre for Intellectual Property Policy & Management, Bournemouth University, December 2007. Available at: www.cippm.org.uk/publications/alcs/ACLS%20Full%20report.pdf.

66. Stallman, R. (1994), *Why Software Should Not Have Owners.* Available at: www.gnu.org/philosophy/why-free.html.

67. Stalder, F. (2006), supra note 3.

68. For a good starting point see Phlow. Available at: http://phlow.org/ and http://phlow.net/.

out, writers may also offer certain services in exchange for pay, such as speaking engagements and commissioned articles.[69] Photographers, too, can also provide services, for example, they may take on assignments and give exhibitions.

However, there are other types of creators to which this model is less easily applied. It would not be feasible for a composer or a playwright who does not perform her work herself to release it under a free license, permitting anyone to play and record it commercially without paying the author. Movies typically have high production costs and it is difficult to imagine how these could be recouped if third parties were allowed to commercially screen them and sell DVDs without the producer participating in the revenues. This also seems to be true for commons-based peer-produced movies. As we have seen, Gaylor, the director of *RiP: A Remix Manifesto*, wrote: 'Along with my partners, I need to be the only person making money from this film'" The fact that even *A Swarm of Angels* – both peer-produced and peer-funded, and aiming to collect more than a million pounds – will be released under a non-commercial license is another matter. Even Doctorow reserves the right to the commercial use of his books.

It is this kind of income generation that Creative Commons wants to support by introducing the NC option. The CC+ framework further complements the sharing option with easy licensing of commercial uses. It caters for a new paradox that has emerged in the internet economy: giving works away for free helps to sell them. Doctorow and Paulo Coelho (2008) have experienced the effect this has had on their book sales; Radiohead and Nine Inch Nails have seen similar effects with regards to their music.[70] Doctorow explains the effect: 'For me – for pretty much every writer – the big problem isn't piracy, it's obscurity (thanks to Tim O'Reilly for this great aphorism). Of all the people who failed to buy this book today, the majority did so because they never heard of it, not because someone gave them a free copy'.[71]

As clear as the term 'non-commercial' appears at first sight, it has given rise to considerable confusion and heated debate. The CC licenses define it thus: 'You may not exercise any of the rights granted to You ... in any manner that is primarily intended for or directed toward commercial advantage or private monetary compensation'.[72] This is followed by an explanation that file-sharing, provided no money changes hands, is not considered a commercial use even though cur-

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69. See: http://craphound.com/someone/000363.html.

70. 'Nine Inch Nails Gets Creative With Radiohead-Style Release', *WIRED Magazine*, 3 March 2008. Available at: http://blog.wired.com/music/2008/03/nine-inch-nails.html); 'Nine Inch Nails and Radiohead Dominate Amazon MP3 Chart', *Wired* 10 March 2008 (http://blog.wired.com/music/2008/03/nine-inch-nai-1.html).

71. See: http://craphound.com/littlebrother/about/.

72. See Creative Commons Attribution Noncommercial 3.0 Unported. Available at: http://creativecommons.org/licenses/by-nc/3.0/legalcode.

rent US law views it as such. A recent addition to the CC FAQ further elaborates that 'material under any of the Creative Commons Non-Commercial licences cannot be included in a collection that is going to be used commercially'.[73]

Therefore, a computer magazine that includes a CD with free software and documentation may not contain NC content. But what about a blog that has Google Ads on its site? Or a service that offers subscriptions that turn off advertisements? Are these 'primarily intended' for commercial advantage, or are they just trying to recoup their costs? What about a community service that is 'primarily intended' for social or cultural purposes, but unexpectedly becomes commercially successful, e.g. by T-shirt sales taking off or a sponsor wanting to support them? What about a web designer who builds a site for a public institution like a school and receives 'private monetary compensation' for her work? Can she use NC-licensed graphics or not?

In April 2005, the then General Counsel of Creative Commons, Garlick, explained, in a note posted on the CC education list, that: 'The drafting of the license was intended to avoid any distinctions based on whether money changed hands or a profit was actually made. The relevant factor to consider is whether the entity making use of the work has profit as its primary motive'.[74] This was followed by a further posting by Garlick in January 2006 introducing a discussion draft for guidelines on the meaning of NC.[75] What is surprising in both the (now withdrawn) draft guidelines and Garlick's earlier explanation is that the definition of 'non-commercial' focuses not on the nature of the use, but on that of the user. This includes non-profit organizations and individuals, as well as service providers such as copy shops and internet service providers that act on behalf of the 'allowable NC user'. Asking for an optional contribution (e.g. a tip jar, donations, membership drive) is considered to be non-commercial use. If the legal concepts of 'non-commercial', 'non-for-profit' and 'non-profit', as well as the practical consequences of the CC non-commercial option are unclear, then so are the in-

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73. See Creative Commons FAQ. Available at: http://wiki.creativecommons.org/FAQ#I.E2.80.99m_collecting_a_number_of_different_works_together_into_one_resource._Can_I_include_Creative_Commons-licensed_material.3F.

74. Garlick, M. Garlick, (2005), 'Intended Meaning of 'Non-Commercial''. Available at: http://lists.ibiblio.org/pipermail/cc-education/2005-April/000278.html.

75. See Creative Commons website, 'Discussion Draft – NonCommercial Guidelines'. Available at: http://creativecommons.org/weblog/entry/5752. The draft guidelines, as well as the Wiki discussion have since been removed from the CC site. The discussion page now points to the study focused on understandings of 'non-commercial use', which will be made publicly available in 2009. However, the draft guidelines are still available in the archive of the CC licences mailing list: Proposed Best Practice Guidelines to Clarify the Meaning of 'Noncommercial' in the Creative Commons Licenses, posted by Mia Garlick on 10 January 2006. Available at: http://lists.ibiblio.org/pipermail/cc-licenses/attachments/20060110/02d7a271/attachment.pdf.

tentions of the people using it. A study commissioned by CC on the NC clause has only clarified some of these issues.[76]

However, is an NC option actually necessary for selling free cultural artefacts? Another possibility, mentioned by Stallman[77] and used by the FSF in order to raise funds, is the selling of GNU CD-ROMs, manuals, deluxe distributions and T-shirts. It can sell software without asking for every contributing author's consent precisely because the GPL permits it. The Free Software Definition and the Open Source Definition expressly require commercial use to be allowed for a license to be considered free. This raises the question, why would anybody pay for a CD with GNU software or a Nine Inch Nail's album that they can get for free? Convenience, fandom, especially if there is added emotional value,[78] and goodwill, as well as a desire to give back to the creators and encourage them to go on, have all been shown to be effective incentives. Direct donations is another way in which people show their appreciation, as Stallman has pointed out in relation to the FSF and listener-supported radio in the US. Wikipedia also relies on donations.[79]

Even if an author of free software waives the exclusive right to commercial use, he can, of course, provide commercial distribution, support, training and warranty services. Via the GPL he allows third parties to do the same and to compete with him, safe in the knowledge that being the author or co-author of a software programme gives him a comparative advantage. That is not to say that he automatically has the opportunity or the business skills to profit from this advantage. Stallman's reasoning is a balance between what a commercial use reservation might enable an individual author to gain and which uses, desirable for users and society, it would prevent.

In many cases choosing the NC option has undesirable and often unintended consequences. Möller, in *The Case for Free Use: Reasons Not to Use a Creative Commons -NC License*,[80] makes a strong argument against using it. 'Prohibiting commercial use except by special permission ... puts you on the fringes of the free content

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76. In order to get empirical data on how the two options are used, how they are understood among various communities and in connection with different forms of content, CC launched a survey in September 2008. The results, published in September 2009, indicate that a significant number of respondents view the use of NC licensed works for personal use, by not-for-profit organizations and non-tuition educational institutions as compliant with the terms (see Mike Linksvayer, Defining Noncommercial report published, 14 September 2009, available at: http://creativecommons.org/weblog/entry/17127).

77. Stallman, R. (1994), *Why Software Should Not Have Owners*. Available at: www.gnu.org/philosophy/why-free.html.

78. 2,500 copies of a Nine Inch Nails 'ultra-deluxe', limited edition album, priced at US $300, sold out on the first day of release.

79. The most recent fundraising drive at the end of 2009 raised more than US$8 million.

80. Möller, E. (2007), *The Case For Free Use: Reasons Not To Use A Creative Commons -NC License*. Available at: http://freedomdefined.org/Licenses/NC.

movement, where the beer is free, but the philosophy is shallow'. He points out that an NC option makes a work incompatible with both Wikipedia (and similar free content projects) and with free software. Without the need for dual licensing, these have indeed brought forth a range of beneficial commercial uses. Möller mentions the German DVD version of Wikipedia:

> Produced by a company called Directmedia, it has quickly become a bestseller in Amazon.de's software category. Yet, to make that DVD, Directmedia had to cooperate with Wikipedians – who helped to prepare the data by making it searchable and sortable, and to weed out articles not ready for publication. Directmedia has, in return, donated a substantial percentage of the profits from the DVD to Wikipedia's mother organization. The monetary donation, while not required, does help to maintain goodwill with the community. It has also made a separate 'donation' of 10,000 reproductions of public domain paintings to the Wikimedia Commons. The Wikipedia DVD was a working business model because it provided added value... It also showed that beyond the copyleft principles, any highly successful cooperation with commercial entities around free content is likely to depend on mutual goodwill.

Möller points to governments and educational or scientific institutions to illustrate another unintended consequence: 'Content which is of high cultural or educational value should be made available under conditions which will ensure its widespread use. Unfortunately, these institutions are often the most likely to choose -NC licenses'.

'Worse still are the effects that -NC licenses can have on people in the developing world, where entrepreneurship represents an opportunity to overcome poverty and the digital divide'. Where internet access is limited, people redistribute materials by means of photocopying or CD burning for a small profit. An NC option makes this desirable use illegal.

Another unintended effect of NC licenses, indicated by Möller, is that those licenses that allow modifications can lead to a narrowing of freedoms in a pool of works. As Cheliotis has observed in respect of ccMixter, 'The people who are likely to be hurt by an -NC license are not large corporations, but small publications like weblogs, advertising-funded radio stations, or local newspapers'. Even if a large corporation uses an NC-work in violation of the license the author is not necessarily able to sue them. 'Ask yourself whether you are truly willing and able to enforce violations of an -NC license. Otherwise, the only people you punish with the restriction are those who are careful to respect your wishes – people who are likely to be amenable to friendly cooperation anyway'.

Möller explains that much of the intended effect of the NC option can actually be achieved by choosing another option:

The Creative Commons 'Share-Alike' licenses require any work derived from your own to be made available as free content, as a whole. (The licenses without a share-alike clause only guarantee that the part of the work created by you remains free.) Any company trying to exploit your work will have to make their 'added value' available for free to everyone. The company does not, however, need to share the income from the 'added value.' Seen like this, the 'risk' of exploitation turns into a potentially powerful benefit depending on the value added to the content.

Free licenses attempt to draw lines to nurture and protect free culture. That said, the line the CC Non-Commercial option attempts to draw is clearly fuzzy and controversial. The CC study helped to clarify some of these issues, but also showed that some ambiguities remain.

What is uncontroversial is that new ways of funding free culture need to be developed. Artur Matuck has stated that ensuring the free flow of information should be accompanied by research into new means of financing and rewarding intellectual endeavours. The Freedom Defined group, initiated by Möller, stated: 'Once we have challenged ourselves to produce and consume content and expression more ethically, it becomes our responsibility to find ways to do so that are economically sustainable'.[81]

This includes ways for creatives to earn a living. Considering the precarious financial situation often faced by these people, finding ways to prevent them from having to work in non-creative jobs would greatly enhance our common culture. This means finding ways to fund common project resources. Selling physical media, like books or CD editions of Wikipedia content, or advertising that pays for servers and connectivity, should not be excluded. As it stands now, most of the current open contribution content repositories and social networks are operated by companies that make large profits from advertising, premium service subscriptions and, in the most controversial cases, from selling data-mined user profiles. It also includes ways to enable commercial enterprises to participate in the spread, uptake and utility of free culture, especially in bringing it to populations excluded from broadband internet access, as is common in most developing countries. Collective rights management organizations also have a role to play. It is a sad irony that a system that started as collective action by authors in the nineteenth and twentieth century should become a hurdle for the collective movement of the twenty-first century, preventing authors from free-licensing their works. The emerging compromise is that permitting commercial use means waiving remuneration from collective management, while the NC provision means that the

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81. See Freedom Defined FAQ. Available at: http://freedomdefined.org/FAQ.

licensor retains the right to collect royalties.[82] What is lacking is a way to express the wish to permit commercial use and abstain from direct revenues, while simultaneously not foregoing a fair share of indirect collective revenues. The need for such a possibility will become especially relevant if a culture 'flat-rate' – a levy on legalized file-sharing – is established. Finally, there is an important role for public and civil society support for the arts and sciences. This includes public funding, scholarships, residencies, fellowships and prizes, but also infrastructure funding, such as that received by the Internet Archive. Knowledge created with public money should, by default, be free to distribute and reuse.

The above analysis has shown that the issue of a sustainable economy of the knowledge commons cannot be addressed by licenses alone. A new social contract is emerging between those who create and those who appreciate culture. There is clearly a widespread willingness to both contribute knowledge to the commons and to reward those who do so, by donating or by buying works that are also available for free. What is needed is a framework in which these two forms of willingness are optimally supported and a new form of redistribution of cultural and monetary wealth can be organized on a societal level. An emerging model for such a framework – the aforementioned culture flat-rate – is evaluated in the conclusion below.

2.7 Conclusion: The Great Debate on a New Social Contract has Only Just Begun

'The underlying assumption is that if intellectual property rights remain the same, but rights are being exercised differently by their owners, free culture would emerge'[83] (Elkin-Koren). While this certainly seems to have been the case, Elkin-Koren questions the assumption, arguing that CC licenses actually strengthen the hold copyright has over our everyday life. She asks us to see our email correspondence, photographs and online comments as commodities. 'They all may be viewed as separate, identifiable pieces which are subject to exclusion. We may think of our writings as economic assets, and view our own expression as chips to be traded, rather than ideas to be shared. Reliance on property rights may weaken the dialogic virtue of information that is a key to individuals' participation in the creation of culture'.[84] These are important concerns that need to be consid-

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82. See Creative Commons FAQ. Available at: http://wiki.creativecommons.org/Frequently_Asked_Questions#I_am_a_member_of_a_collecting_society.2C_can_I_use_Creative_Commons_licenses.3F.

83. Elkin-Koren, N. (2006), 'Creative Commons: A Skeptical View of a Worthy Pursuit', in: L. Guibault & P. B. Hugenholtz (eds.), *The Future of the Public Domain*, The Hague: Kluwer Law International.

84. Ibid.

ered with respect to options that restrict freedoms, like those of modification and commercial use. On the other hand, it cannot be denied that the free software movement and free licenses have led a large number of people to see an alternative to the iron law of wages and commodities, to make their creations the subject of sharing rather than exclusion, to nurture the dialogic virtue of information and to participate in the creation of free culture.

Free culture has emerged suspended, as it were, in thin air. The revolution did not attempt to overthrow the capitalist order or even confront it outright. Nevertheless, it is changing the ways in which we distribute wealth. It is not directed against the old, but simply cold-shoulders it and creates the new in its midst. Free culture is being built wholly from voluntary contributions by its participants. A free project is based on the magic trick of starting a node and attracting an open, distributed community of self-motivated peers. Because the means of production – a computer and an internet connection – are owned by each of the peer producers, no worker-owned culture factory needs to be erected. All that is needed is the tacit agreement and the actual practice of working together and sharing the results in common. It truly allows all to take according to their desires and contribute according to their capacities.

What strings these seemingly fragile, yet robust constructs together is a set of common interests, the joy of creating and sharing, learning from and teaching others – and the free licenses that ensure that the common creations will remain free to all. Participants are not hired or drafted, but join an open community simply by starting to modify or distribute its creations in adherence to the conditions of the license attached to them. If a participant infringes these conditions then they are excluded. As the exploration of the sociology of peer production has shown, the nature of a given community depends on the nature of the works that are jointly created. Communities, of course, bring forth a variety of more or less outspoken norms and rules for their interactions. But the most important rule-set refers to the common object that unites them, their raison d'être: the creative work or pool of works. That rule-set is the free copyright license.

Free-licensing is a grand social experiment taking place in the midst of real society with real works and real authors putting their livelihoods and careers at stake and with millions participating. It has become the laboratory for the dimensions in which freedom can be framed and free culture becomes the test-bed on which the intended and unintended consequences can be observed. It is the ongoing Great Debate in which the new social contract between creatives and society is being negotiated. What evolves in the petri dish of private ordering needs to inform legislative rule-setting on copyrights as well. Issues of remixing, of community rights and of remunerating authors for file-sharing cannot be solved in licensing space alone. The debate has only just begun.