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Creative Commons as Conversational Copyright

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Abstract

Copyright law's default settings inhibit sharing and adaptation of creative works even though new digital technologies greatly enhance individuals' capacity to engage in creative conversation. Creative Commons licenses enable a form of conversational copyright through which creators share their works, primarily over the Internet, while asserting some limitation on user's right with respect to works in the licensed commons. More specifically, this chapter explains the problems in copyright law to which Creative Commons licenses respond, the methods chosen, and why the machine-readable and public aspects of the licenses are specific examples of a more general phenomenon in digital copyright law that will grow in importance in the coming years.

21

Creative Commons as Conversational Copyright

Michael W. Carroll*

Turn the clock back to September 21, 2004. The scene is Town Hall, New York City. The audience is relaxed and eager. The lights dim and out stalks Brazil's charismatic and cornrowed Minister of Culture, Gilberto Gil, electric guitar in hand, a distinctive call in his throat. As one of Brazil's leading musicians and cultural figures, Gil has taken the stage to kick off a celebratory benefit concert. The other half of the double bill is David Byrne, who leads the enthusiastic hometown crowd on a brief tour of his oeuvre, including a recap of his Brazilian-influenced work and a generous recitation of Talking Heads songs. The sponsor of this event is the self-styled chronicle of the cutting edge—*Wired* magazine. The beneficiary of its largesse is a young nonprofit organization called Creative Commons, Inc., peopled primarily by lawyers and technologists and known primarily for creating a set of standardized copyright licenses.

What is going on here? Famous musicians and cool publishers do not routinely raise money to publicize and to support the use of standardized legal agreements. When was the last benefit concert held to support the creation or distribution of do-it-yourself wills, standardized business incorporation forms, or do-it-yourself divorce papers? What is it about Creative Commons copyright licenses that could possibly attract this kind of attention and support?

The answer lies not in the legal and technological tools themselves, but in what the creative public is doing with the licenses and what they represent. Creative Commons copyright licenses enable a creator to signal that his or her

* The Author serves on the Board of Directors of Creative Commons, Inc. However, this Chapter expresses his personal views only and should not be read as representing the views of Creative Commons. Portions of this Chapter are drawn from his essay, *Creative Commons and the New Intermediaries*, 2006 Mich. St. L. Rev. 45. The Chapter is licensed under a Creative Commons Attribution Non Commercial 2.5 License, at http://creativecommons.org/licenses/by-nc/2.5/legalcode. Attribution should be to Michael W. Carroll as author and to Praeger as original publisher. Discussion and citations were current as of July 1, 2006.

work can be reused and republished as part of the robust cultural conversation taking place on the Internet so long as certain conditions are respected. Creators of all stripes who support interactive media have found these tools useful. Bloggers, filmmakers, journalists, scholars, and musicians, among others, have released works under a Creative Commons license. Indeed, Gilberto Gil and David Byrne were joined by fourteen other artists on a compilation CD sponsored by *Wired* on condition that each track be released under a Creative Commons license.[1]

Creative Commons licenses respond to the explosion of copyright events caused by the proliferation of digital technologies. I use the term "copyright event" to mean any action that entails the exercise of one or more of a copyright owner's exclusive rights to copy, distribute, perform, display, or adapt information. Some copyright events are infringing, and others are not. All implicate copyright law. Computers and other digital technologies must make copies to function, and some courts treat each of these copies as legally significant, thus causing copyright law to infiltrate almost every digital interaction.[2]

Explosions usually have violent consequences. The copyright explosion certainly has disrupted a number of industries and relationships that rely on copyright law. What is perhaps more interesting is how this radical expansion of copyright law's domain has not led to chaos. Instead, a number of implicit understandings have grown up around digital technologies, and these understandings have led to norms and implied licenses that serve important coordinating functions. As robust as these informal mechanisms are, however, greater clarity and coordination can often be had when copyright owners explicitly designate which copyright events they consider to be permissible. Enter Creative Commons licenses. This chapter explains the problems in copyright law to which Creative Commons licenses respond, the methods chosen, and why the machine-readable and public aspects of the licenses are specific examples of a more general phenomenon in digital copyright law that will grow in importance in the coming years.

COPYRIGHT

Modern copyright law presumes that one size fits all. To see why, consider how copyright applies. Historically, in the United States an author or publisher had to choose to apply copyright when publishing a work. If a work was published without a proper copyright notice, it was dedicated to the public domain. Not all authors chose copyright for their work, and the public domain was immediately nourished. In addition, the duration of copyright protection was divided into an initial and a renewal term, giving authors a choice about whether they needed continued protection. Given that choice, most copyright owners did not seek renewal.[3]

In 1976, Congress took away these choices. Now, the exclusive rights under copyright shower down upon an author as soon as he or she creates his or her work without any action on their part to seek protection. Copyright applies to any

original expression that is durable enough to be perceived or communicated in a fixed form. The standard for originality is quite low.

The one-size-fits-all approach applies to the scope and duration of copyright as well. With only a few exceptions, copyright law applies the same set of rights to any work, whether it is software, music, a motion picture, or the label on a shampoo bottle. In addition to the exclusive rights to make and distribute copies of the work, copyright law gives the author the exclusive rights to publicly perform, to publicly display, and to adapt the work. The renewal term is gone and the initial term lasts until seventy years after the author's death. This approach to copyright law assumes that all authors seek maximum legal control over their respective work.

The truth is far more complicated. Creators produce new works for a range of reasons, and they want different things from the law with respect to their creations. Some would like far more control over the use of their creativity than the law gives them. In contrast, other creators whose primary interest is in broad dissemination of their work, find that the automatic and far-reaching protection extended by copyright law impedes achievement of this goal because potential users or republishers are deterred by the need to seek permission for their desired use.

The emergence of the Internet greatly exacerbates the tensions caused by copyright law's one-size-fits-all approach. Digital technologies greatly expand the ordinary user's range of expressive power. One can now typeset and distribute one's book, record and distribute one's music, or direct, produce, and star in one's own film with relatively inexpensive and readily available tools. Younger users have embraced this power with gusto. According to a study conducted by the Pew Internet & American Life Project in 2006, about 21 million or 87 percent of those ages 12–17 in the United States use the Internet. Teens are eager to share their thoughts, experiences, and creations with the wider Internet population. Here are some of the study's key findings:

- 33 percent of online teens share their own creative content online, such as artwork, photos, stories, or videos.
- 32 percent say that they have created or worked on Web pages or blogs for others, including groups they belong to, friends, or school assignments.
- 22 percent report keeping their own personal Web page.
- 19 percent of online teens keep a blog, and 38 percent of online teens read blogs.
- 19 percent of Internet-using teens say they remix content they find online into their own artistic creations.[4]

Each of these works is subject to copyright. Indeed, nearly every Web page, graphic image, photograph, song, or video one encounters on the Internet is a work of authorship to which a number of exclusive rights are attached. These

rights are *owned*. Thus, in the eyes of copyright law, the Internet, and particularly the World Wide Web, is a space populated by property and its owners.

However, much of the creativity that digital technology enables is conversational in nature. Increasing numbers of Internet users take seriously the medium's interactive qualities. No longer does the user ask "what shall I read," or "what shall I listen to," or even "what shall I watch?" Increasingly, the Internet user asks "what shall I *do* with this?" As these users enter the Internet-mediated cultural conversation, they often want to do what they have always done. Comment on the news of the day, parody the politically and culturally powerful, and reinterpret the cultural texts that surround them. When done at the dinner table or among a circle of friends, these evanescent responses to contemporary culture draw no notice from the law. As this conversation finds its way to persistent and public form on the Internet, it enters copyright law's domain.

CREATIVE COMMONS

Creative Commons is a work in progress, an ongoing natural experiment. The experiment began with a simple premise: in copyright law, one size does not fit all. This means there exists a set of authors who do not want the full set of rights automatically showered down upon them by the law. From that premise follows this hypothesis: if such authors were given a tool that is easy to use and that licenses back to the public some of the power to control the work that the public gave to the authors through copyright law, these authors would use such a tool. Widespread use of such a tool would create a commons, a pool of resources open to all to use in conversation and self-expression.

Creative Commons Licenses

A Creative Commons license is such a tool. A Creative Commons license is a form copyright license that can be linked to via the World Wide Web. The principle of a Creative Commons license is to replace the default "all rights reserved" approach with a more modest "some rights reserved" approach that permits a variety of uses subject to one or more limitations that the copyright owner has placed on the work. In addition to the legal code, the license is described by a "human-readable" Commons Deed, which identifies the key terms of the license and machine-readable metadata that associate the Internet location of the licensed resource with the Internet location of the license document. From the user's perspective, the presence of a Creative Commons license answers the question, "what can I do with this" by assuring that, subject to the license conditions, the user can: (i) copy the work; (ii) distribute the work; (iii) display or perform the work; and (iv) make a digital public performance of the work (i.e., Web casting).

A copyright owner seeking to offer her work under a Creative Commons license can do so by visiting the Creative Commons Web site and selecting an appropriate license. Initially, the basic conditions that a copyright owner could choose to require from users were four: (1) Attribution (meaning the creator requires attribution as a condition of using his or her creative work); (2) NonCommercial (meaning the creator allows only noncommercial uses of his or her work); (3) NoDerivatives (meaning the creator asks that the work be used as is, and not as the basis for something else), and (4) ShareAlike (meaning any derivative you make using the licensed work must also be released under a ShareAlike license). These four options—when each is an option—produce eleven possible licenses.

However, early data showed that 98 percent of licensors chose the "attribution" requirement, so Creative Commons made attribution a required condition of all licenses, which reduced the copyright owner's choice to one of six core licenses:

(1) Attribution (use the work however you like, but give me attribution).
(2) Attribution-ShareAlike (use the work however you like, but give me attribution, and license any derivative under a ShareAlike license).
(3) Attribution-NoDerivatives (use the work as is, and give me attribution).
(4) Attribution-NonCommercial (use the work for noncommercial purposes, and give me attribution).
(5) Attribution-NonCommercial-NoDerivatives (use the work for noncommercial purposes, as is, and with attribution).
(6) Attribution-NonCommercial-ShareAlike (use the work for noncommercial purposes, give me attribution, and license any derivative under a ShareAlike license).

These options are layered on top of a basic template license. That template assures that the creator (1) retains his or her copyright; (2) affirms that any fair use, first sale, or free expression rights are not affected by the license; and (3) gives the user a set of core freedoms to use the work so long as the user respects the conditions the creator has imposed. The license also requires the user to get permission for any uses outside of those granted, to keep any copyright notices intact, to link to the Web page on which the license is found, not to alter the license terms, and not to use technology (i.e., digital rights management) to restrict a licensee's rights under the license.

The standard set of conditions appeared to meet the needs of most adopters of Creative Commons licenses, but certain communities of copyright owners asked for additional options. In response, Creative Commons created licenses tailored to these requests. Musicians asked for a "sampling" license, which permits commercial uses involving creation of derivative works through digital

sampling. The sampling license comes in three flavors.[5] The Developing Nations license differentiates permission by geography, granting an Attribution license for uses in developing nations, while reserving default copyright protection for uses in developed nations.[6] Creative Commons has also coupled its metadata with the preexisting legal code from the Free Software Foundation for those who wish to license their software under the GNU General Public License (GPL) or Lesser General Public License (LGPL).[7] Finally, to give back to authors the choice that Congress took away in 1976, Creative Commons offers a service through which copyright owners can dedicate their works to the public domain.[8]

When the Creative Commons experiment was launched in December 2002, it was unknown how large the set of authors interested in the some-rights-reserved approach would be. Available data do not enable precise measurement, but it is beyond question that the premise and hypothesis of this experiment are true. Within one year after launch, one could find more than 1 million "link-backs" to the Web pages containing the Creative Commons licenses.[9] At eighteen months, that number was more than 1.8 million. At two years, the number had risen to about 5 million, and the pace of expansion then increased even more rapidly. In June 2005, the number was just over 12 million. A year later, in June 2006, the number had climbed to 145 million. It should be noted that "link-backs" are not really a count of how many objects are licensed under Creative Commons licenses—a single license could cover 100,000 songs in a music database, for example, or a single blog might have multiple instances of the license. But the growth does measure something: The uptake of Creative Commons licenses is growing fast.

Creative Commons International

This growth in Creative Commons licensing is international in scope. Although Creative Commons licenses were launched in the United States, it was inevitable that adding choice to copyright law on a global medium would require a global response. Technically, Creative Commons licenses were designed to work anywhere in the world, but numerous requests were made to adapt the licenses linguistically and legally for many jurisdictions. This led to the creation of a project now known as Creative Commons International (CCI).

Headquartered in Berlin, the initial aim of the project was to coordinate with volunteers around the world to develop versions of Creative Commons licenses that would take into account legal features specific to a country's copyright law. The goal was and is to build an infrastructure of free licenses internationally so that creative work can move from jurisdiction to jurisdiction while preserving the freedoms that the creator chose. Japan was the first jurisdiction to successfully "port" the licenses, developing a license based in Japanese law that could also be used anywhere in the world. These localized licenses would then link to

a translated "Commons Deed" and then to metadata that makes the essential license terms interpretable by computers.

The CCI Project grew quickly. In short order, volunteers from more than seventy countries had expressed interest in porting Creative Commons licenses to match their local law. By June 2006, the process of translation and adaptation was complete in thirty-two countries, with another ten actively in process. Once ported, the licenses are supported by a local organization that explains the licenses and highlights their use.

iCommons

The international response to Creative Commons licenses was not limited to calls for legal and technical interoperability. The licenses provide a facility for building a commons, a pool of creative and scholarly expression that can be drawn from by all members of the public. The CCI project provided new channels of discussions for social movements around the world that have been making ethical and political claims in support of the commons.

In June 2005, nearly one hundred volunteers from more than forty CCI jurisdictions gathered in Boston for the first iCommons Summit. Much of the discussion focused on legal and technical issues, but an important conversation began about the relation between the licensing project and these social movements. A seed planted by one participant grew to fruition, and a distinct organization was formed to provide the leaders of these movements with greater autonomy.

This organization, iCommons, is a separate nonprofit group. Its board of directors is comprised of a wide range of activists from around the world. While iCommons continues to support the use of Creative Commons licenses, it engages in a broader range of activities built around the commons. Institutionally, iCommons has become the core of a federation of movements that argue in favor of broader user rights to enable creativity and the spread of knowledge and culture internationally. Creative Commons seeded this movement with financial and organizational support, which enabled the second Summit to be held in Rio de Janeiro in June 2006. As iCommons becomes its own movement with its own voice, the role of Creative Commons in this federation will be just one of many.

Science Commons

At the request of a variety of stakeholders, Creative Commons has extended its some-rights-reserved experiment to "science," a term to be construed broadly to include all forms of scholarly research. The work of Science Commons includes using the Creative Commons approach of standardized, royalty-free copyright licenses in scholarly publishing as well as analogous tools crafted for other branches

of information law, such as patents and database controls. Space does not permit a full discussion of current and future Science Commons projects, but suffice it to say that these hold great promise for the creation of licensed information commons for use by researchers around the world.

CONVERSATIONAL COPYRIGHT—THE LICENSED COMMONS

As should now be clear, Creative Commons copyright licenses embody a vision of conversational copyright. Within this vision, creators or copyright owners seek to facilitate use of their expression for purposes such as dialog and education. A personal anecdote may bring the point home. I had been invited to participate in a panel discussion at an annual meeting of scholarly publishers. My fellow panelists were copyright lawyers, publishers, and others with a professional commitment to respect copyright law. The topic for discussion was the future of copyright law, and the panel agreed that it would be useful to show a topical eight-minute flash movie, available on the Internet and created by Robin Sloan and Matt Thompson, with music by Aaron McLeran.[10]

Within the eyes of U.S. copyright law, showing the entire video at a professional conference would be considered a public performance that requires a license. One might argue that the authors had granted such a license impliedly by placing the movie on the Internet. But the matter was not entirely clear. Indeed, in a preparatory conference call, one panelist asked about clearing the rights to show the video. Another panelist quickly rejoined, "Not a problem. It's released under a Creative Commons license." No further action was required to comply with the law. In this way, Creative Commons licenses enable creators to reach a wide audience and save busy audience members the time and effort of seeking permission to share the creators' work. And, as it turned out, showing the video helped stimulate a very active and engaged dialog among the panelists and between the panel and the audience.

Cataloguing the numerous kinds of creators who embrace the vision of conversational copyright through Creative Commons licenses is well beyond the scope of this chapter, but the curious reader understandably would like some sense for who the millions of license adopters might be. Here are a few examples.

Education

At a time when numerous institutions of higher education looked at teaching materials produced on campus as a potential revenue source through distance education, the Massachusetts Institute of Technology (MIT) launched OpenCourseWare, a free and open educational resource for faculty, students, and self-learners around the world. As of May 31, 2006, the program contained 1,400 courses from thirty-four departments. To participate in the project, MIT professors agree to use a Creative Commons license for nearly all of their content. The

license has enabled people from all over the world, who have Internet access, to obtain, informally, many of the benefits of an MIT education. MIT hopes not only to spread its educational material, but also to promote the concept of opencourseware in general. At least ten other universities from the United States, Japan, and Viet Nam have launched opencourseware programs, indicating the concept's attraction.

Connexions from Rice University represents another educational use of Creative Commons licenses.[11] Connexions disaggregates learning materials by using small "chunks" known as "modules" as the basic unit of course material. These modules can be organized and linked into courses. Learning need not be linear, and the use of modules can show "relationships both within and between topics" and that "knowledge is naturally interconnected." The goal of Connexions is to create a commons of high-quality diverse content through grassroots collaboration, facilitated by use of a Creative Commons Attribution license. As of June 2006, the site hosted 3,242 modules and 162 courses developed by authors in fields ranging from computer science to musicology. Because of the open nature of Connexions, quality control is handled by allowing third parties to review the content, presented in the form of "lenses" that include ratings based on popularity, feedback by universities and other reliable sources, and peer assessments.[12] The modules are also being translated into several languages. This shows how Creative Commons facilitates not only dissemination, but also collaboration and community building in the educational context.

Finally, Berklee Shares is a collection of music lessons prepared by the faculty of the Berklee College of Music licensed under Creative Commons licenses. The goal is to provide free music lessons for the musical community around the world and to promote the Berklee College of Music. While not as broad in scope as MIT OpenCourseWare or Connexions, the Berklee use stems from the same philosophy that learning should be more widely available. It also demonstrates the potential to use content offered under a Creative Commons license for promotional purposes. Berklee Shares specifically states that one of its reasons for making its content available is "to reach interested students and make them aware of the possibility and potential of a Berklee education."

Music

In addition to music education, a number of other music-related uses of Creative Commons licenses have proliferated. The *Wired* CD mentioned in the opening of this chapter is one use of the licenses by professional musicians. Others include a second *Wired* compilation that will feature a host of new artists and the band Pearl Jam's release of one of its music videos under an Attribution-NonCommercial-NoDerivatives license. Platinum-selling guitarist Ottmar Liebert has adopted Creative Commons licenses for his music, explaining, "I find that the act of creating is like throwing a pebble into a still lake to watch the ripples. Being able to share my work via a CC license enables me to

experience more ripples. Sometimes the ripples can inspire more work in me."[13] Finally, to seed a musical conversation, the musical elements of the band Fort Minor 's hit song "Remember the Name" and two tracks from Brian Eno's and David Byrne's 1981 album "My Life in the Bush of Ghosts" were licensed for remixing on CC Mixter.

CC Mixter is one of a number of music-related intermediaries that rely on Creative Commons licenses. CC Mixter invites users to upload samples or full-blown musical tracks under a Creative Commons license, and others can use these files to create their own works. Other music-related intermediaries include Magnatune, an online record label that incorporates Creative Commons licenses into a profit-driven business model. Magnatune markets its catalog through free Internet radio streams and royalty-free downloads under a Creative Commons Attribution-NonCommercial-ShareAlike license. Revenues come from listeners who pay for digital downloads or for physical CDs. A last example, Opsound, is something of a hybrid between CC Mixter and Magnatune. Like CC Mixter, Opsound contains an open pool into which all artists are invited to contribute music under a Creative Commons Attribution-ShareAlike license by placing the music in the public domain. Opsound also has a record label through which participants can release their work.

"User Generated Media"

In addition to the professional creators who have found Creative Commons licenses useful, the largest group of license adopters has been the bloggers, video artists, and photographers who collectively produce what popular press calls "user generated media" (a.k.a. social media). Web sites such as Flickr, OurMedia, and YouTube have sprung up to host these creative works. Labeling these creators "users" is in my view a misrepresentation because they are creators in their own right. I prefer to think of this group as "because-I-can" authors for whom copyright law's one size definitely does not fit. Ask these creators why they use digital technologies to create and to share their work, and most will not respond that it is "for the money," or "for fame," but "because I can."

Within this group, the growth of photographs hosted on Flickr.com and released under a Creative Commons license has been perhaps the most remarkable. Flickr, now owned by Yahoo! hosts digital photographs and gives its members two essential choices. They can limit who sees the files, and they can choose to attach a Creative Commons license to their work. Given these choices, a significant number of photographers share their work with the entire Internet community under a Creative Commons license. In June 2005, Flickr hosted more than 2 million photographs released under a Creative Commons license.[14] In June 2006, that number had grown six-fold, to 12 million.

In terms of sheer numbers, the largest group to embrace the Creative Commons vision of conversational copyright is naturally those most active in the global conversation on the Internet: bloggers. As of January 2005, there were about

32 million Americans who read blogs regularly.[15] Since the blogosphere includes blogs that respond to, cite, and quote other blogs, Creative Commons licenses allow bloggers to build the community conversation with the legal convenience provided by those licenses. It is difficult to measure the number of blogs offered under a Creative Commons license, but rough estimates put the number above 5 million.

COPYRIGHT AS A DIMENSION OF RELEVANCE

What explains the rapid proliferation of Creative Commons licenses on the Internet? Among those who choose the licenses, the explanations almost certainly are varied, for indeed one size does not fit all. From the user's perspective, however, the growth of the licensed commons points up a new dimension for measuring relevance—the use value of information found on digital networks.[16] Imagine, for example, that you are an independent filmmaker in need of some music to accompany a montage in your film. You have no time or budget to clear the rights to the music. If you search for "Chopin," you will sort the results not only by topical relevance—whether there is information, such as a music file, accurately associated with your search term—but also by "use relevance"—whether that information is available to you on terms that permit your desired use.[17]

This query into information's use value is comprised largely of two components—one technical and the other legal. The technical question relates to whether the information is in a file format that permits the desired use, including whether the information is subject to technological protection measures. The legal question focuses on the copyright status of the work and whether a desired use is permitted. For those seeking to use information drawn from the Web, works available under a Creative Commons license have greater use relevance because the legal terms of use over and above fair use are clearly specified. Recognizing the importance of finding licensed content, Creative Commons developed its own search engine, and the Firefox Web browser provides a toolbar link to this engine.[18]

Some of the largest Internet companies now recognize the role that Creative Commons licenses play in signaling use relevance. Among search engines, Yahoo! released the beta version of the Yahoo! Search for Creative Commons on May 23, 2005. The site allows a searcher to choose among four criteria. The searcher can type in keywords to find any topically relevant Creative Commons licensed content, or the searcher can specify, "Find content I can use for commercial purposes," or "Find content I can modify, adapt, or build upon," or both. Yahoo! has extended this technology to include a separate engine to search Flickr's database of Creative Commons licensed photographs. Google has also enabled searches for Creative Commons content by using its "advanced search" feature and selecting among the "license terms" indicated. Those who provide content

creation tools also are embedding a Creative Commons option in their software. Significantly, in June 2006, Microsoft released a plug-in that permits users of the Microsoft Office suite to attach a Creative Commons license to their PowerPoint, Word, and Excel files.

MACHINE-READABLE LAW

As exciting as these developments are, more can be done to improve searches in the licensed commons. The reason is that content under a Creative Commons license on the World Wide Web and in certain file formats is marked in a machine-readable form, but most search engines currently ignore this metadata. This section explains why the machine-readable layer of Creative Commons licenses serve as a use case for the "Semantic Web" and concludes with some thoughts about Creative Commons licenses as a species of machine-readable law on the Semantic Web.

The power, indeed the wonder, of the World Wide Web is the ease with which it works. This ease of use is a feature born out of the frustrations felt by the Web's inventor, Tim Berners-Lee, when he was a researcher at CERN, the European particle physics laboratory. Berners-Lee had worked on using hypertext to link documents that were marked-up according to a standard protocol, and he extended this work to the Internet by promulgating the hypertext mark-up language (HTML) and other protocols that are the foundation for the World Wide Web.[19]

The power of the Web is interoperability. A user "travels" from one site to another almost seamlessly because the content of each of these sites has been marked-up according to simple, open standards that any Web browser can interpret. Having achieved document interoperability, Berners-Lee and his colleagues at the World Wide Web consortium (W3C) share a vision of a next-generation Web that takes interoperability to a higher level, a Web in which machines mine mountains of metadata (data about data) in order to automate a wide variety of transactions. They call this the Semantic Web.

The idea is to add logic to the Web so that computers can be more powerful tools. Imagine you have to schedule a dentist's appointment. Currently, you have to consult your schedule, contact someone at the dentist's office, who will consult the dentist's schedule, and then the two of you have to communicate to identify a mutually convenient date and time. With a Semantic Web, you could simply tell your computer to schedule a dentist appointment (according to time and date criteria that you would have established), and the computer will report back with your appointment after having communicated with the dentist's computer.

For this vision to be realized, two developments must occur. First, data must be rendered in digital form and be marked-up according to machine-interpretable standards from which meaning (semantics) can be derived. (As we shall see momentarily, the machine-readable layer of Creative Commons licenses

complies with such standards.) In the example just given, this information would include your calendar, the dentist's schedule, and any blackout dates or other conditional criteria you each impose on your respective availability. (For example, your computer could know that Wednesday afternoon at 3:30 p.m. will work for you if Sheila can pick up your daughter from dance class.) Even if both your calendar and the dentist's schedule are stored on computers, chances are these are not in mutually intelligible file formats. To realize the Semantic Web vision, we have to mark-up our calendar data using a standardized and open format. The second step in the Semantic Web project is to write rules to process this data by enabling machines to make inferences, choose courses of action and answer questions in relation to marked-up data.[20]

There is a great deal more to the Semantic Web initiative, but a detailed discussion is beyond the scope of this chapter. The essential point is that with the right kind of metadata, machines can do a much more effective job of finding, indexing, and acting on information available on the Web. Creative Commons supports the Semantic Web by providing those who adopt a license with metadata that enables a computer to recognize that a digital object (1) is subject to a copyright license; (2) that the license is a Creative Commons license; and (3) the identity of the applicable Creative Commons license.

As of June 2006, there were not many computer applications that processed the form of metadata used in relation to Creative Commons licenses. But there is reason to expect these to be developed. If the growth in interactive use of materials on the Web continues, demand for metadata that indicates the use relevance of information should also grow. The machine-readable feature of Creative Commons licenses can be used to greater effect to aid searchers in finding information available for reuse and republication.

More generally, if realized, the Semantic Web vision has profound consequences for the law itself. These consequences run deeper than the now-familiar concerns about electronic agents[21] and machine-enforceable rules.[22] Creating machine-interpretable and machine-actionable concept maps of the law is likely to alter our understandings of the concepts being mapped. Creative Commons licenses are just the tip of this particular iceberg. Efforts to create a "policy aware" Web, appear to be a next step that lawyers should keep an eye on.[23] Although developers imagine the policies of which the Web should be aware to be private policies adopted by those who provide Web resources, the technologies also could be adapted to reflect public policies as well.

To be fair, not all knowledgeable observers and participants agree that the Semantic Web is plausible or desirable. Some see the project as fundamentally flawed.[24] These critics charge that the vision requires too much complexity and demands that users adapt to the needs of machines instead of adapting machines to the needs of users.[25] Machines use rules to process information, and rules require classification of information to be useful. People may use rules to classify information, but we often use different rules depending on context, and we may not agree about which rule to apply in any given situation. In a well-argued

essay Clay Shirky writes that semantics are in the users, not the system, and that ontological classifications, such as those required for the Semantic Web, work in certain limited domains, but will not work for the Web at large.[26]

Shirky and other critics, influenced by recent thinking about complex systems, argue that simple technologies like Really Simple Syndication (RSS) and "social bookmarking" better enable user-defined complex organization and classification.[27] RSS enables users to automatically check to see if Web pages marked with the appropriate XML tags and to aggregate results. Used by millions of bloggers and now most mainstream news sites, RSS has been one of the most rapidly adopted Internet technologies in recent years.[28]

Social bookmarking is a development destined to warm every postmodernist's heart. Social bookmarking and tagging enable quick publication and aggregation of metadata about resources, such as Web pages, available on the Internet. Tagging theoretically enables us to forgo hierarchical classifications—such as "organizing your favorites" into folders—and the habits of mind associated with such classification. I say "theoretically" because even though tagging does away with the need for visual representations of conceptual hierarchies—such as a file folder organization scheme—most people use conceptual hierarchies to make sense of the world and we should expect to see those hierarchies reflected in their tags.

Moreover, the technology enables probabilistic classifications that democratize and make explicit the social construction of meaning. A probabilistic classification asserts that Z percent of users think that X is relevant to Y, rather than asserting that X *is* relevant to Y. It is much easier to give a computer the authority to make the former statement than the latter. By publishing the list of Web pages that you have bookmarked in your Web browser, you implicitly make a statement that of all the resources available on the Web, these are relevant to you in some way. Social bookmarking sites, such as http://www.deli.icio.us, offer to host a user's bookmark file—thereby making the file available to the user on any Net-connected computer—and to publish the file, or parts of it, to all, or selected, Web users.[29]

These sites also permit users to associate "tags," that is, keywords, with these Web addresses and make more explicit the ways in which these sites are relevant. Flickr's photohosting site, discussed above, is one of the fastest-growing uses of social tagging, enabling searches for photographs along the topical dimension by popular tags,[30] or along the copyright dimension for photographs available under a Creative Commons license.[31]

Much of the opposition to the Semantic Web is misdirected. The spread of these simple technologies is not antithetical to the Semantic Web. Indeed, the Semantic Web vision requires that there be rich metadata associated with information available on the Web. The creation of metadata is costly. It may well be that simple technologies that supply incentives for the creation of such metadata are prerequisites to realization of a Semantic Web. RSS tags give you the news of the day, social bookmarks can influence what you read, and Creative

Commons metadata tells you about the copyright status of the information you encounter.

Moreover, the first mission of the technologies deployed as part of the Semantic Web project is to enable interoperability. As various social bookmarking and tagging systems emerge, these technologies can serve as a bridge between these systems. Similarly, as machine-readable licensing becomes more common, these technologies can be used to identify equivalence relations between licenses and/or license terms. When applied to public law, these technologies could also be used to identify equivalence relations between the legal codes of various jurisdictions—taking international legal harmonization in a new direction. In many ways, Creative Commons licenses are a test case for the possibilities of machine-readable law, and this development is worth following.

CONCLUSION

The number of copyright events occurring in our daily lives continues to grow as our collective use of digital media continues to expand. Creative Commons licenses, which reflect a vision of conversational copyright, facilitate coordination and regulation of these events by enabling end-to-end copyright transactions and by fueling the growth of a licensed commons. Like the Internet, this vision and these licenses are global phenomena. A wide range of creators from around the world already has contributed to, and has drawn from, this commons. The surprisingly rapid growth of this commons demonstrates the importance of marking information on the Internet in a way that signals use relevance as well as topical relevance. In particular, the set of Creative Commons licenses can be used to mark the copyright status of a work to enable others to quickly ascertain whether a desired use is permitted, and if so, on what conditions. In the future, the machine-readable layer of Creative Commons licenses should become more important in signaling use relevance as the Semantic Web develops.

NOTES

1. See Creative Commons, *The WIRED CD: Rip. Sample. Mash. Share*, http://creativecommons.org/wired/ (last visited June 9, 2006).

2. See, e.g., *MAI v. Peak*, 991 F.2d 511 (9th Cir. 1993) (holding that every copy written to the Random Access Memory of a computer is a copy for the purposes of the Copyright Act).

3. Fewer than 11 percent of copyrights registered between 1883 and 1964 were renewed. See William M. Landes & Richard A. Posner, The Economic Structure of Intellectual Property Law 212 (2003).

4. See Pew Internet & American Life Project, Teen Content Creators and Consumers (2005), available at http://www.pewinternet.org/PPF/r/166/report_display.asp.

5. See Creative Commons, *Publish: Choose Your Sampling License Options*, http://creativecommons.org/license/sampling (last visited June 9, 2006) (including "Sampling," which allows sampling for nonadvertising purposes, "Sampling Plus," which is the same, but allows noncommercial copying of the entire work as well, and "Non-Commercial Sampling Plus," which allows only noncommercial sampling and copying).

6. See Creative Commons, *Commons Deed: Developing Nations 2.0*, http://creativecommons.org/licenses/devnations/2.0 (last visited June 9, 2006).

7. See Creative Commons, *Publish: Creative Commons GNU GPL*, http://creativecommons.org/license/cc-gpl?lang=en (last visited June 9, 2006); Creative Commons, *Publish: Creative Commons GNU LGPL*, http://creativecommons.org/license/cc-lgpl?lang=en (last visited June 9, 2006).

8. See Creative Commons, *Public Domain Dedication*, http://creativecommons.org/licenses/publicdomain (last visited June 9, 2006).

9. A "link back" is a Web page that contains a hyperlink that points to the Internet location in question. Because use of a Creative Commons license requires a hyperlink to the Web page at which the license resides, "link backs" provide a rough measure of license usage.

10. The movie, which is available at http://www.robinsloan.com/epic/, posits a future in which the dream/nightmare of an Internet that serves up the "Daily Me" becomes reality. See Nicholas Negroponte, Being Digital 153 (1995) (coining the term "Daily Me"); see also Cass Sunstein, Republic.com 3–22 (worrying about implications of "Daily Me" for democracy). But see Dan Hunter, *Phillipic.com*, 90 Cal. L. Rev. 611 (2002) (explaining why concerns about thoroughly personalized media are misplaced).

11. See Connexions's Web site at http://cnx.rice.edu.

12. See *Connexions, Tour: Quality*, http://cnx.rice.edu/aboutus/tour/10.html (last visited June 9, 2006).

13. Interview by Mia Garlick with Ottmar Liebert (November 2005), http://creativecommons.org/audio/ottmar-liebert.

14. When searched on June 29, 2006, flickr, which is available at http://www.flickr.com, hosted 15,006,967 digital photographs available under a Creative Commons license. For current figures, please visit http://www.flickr.com/creativecommons/.

15. See Lee Rainie, Pew Internet & American Life Project, The State of Blogging (2005), available at http://www.pewinternet.org/pdfs/PIP_blogging_data.pdf.

16. The idea of "relevance dimensions" is familiar to many who undertake quantitative study. See, e.g., Initiative for the Evaluation of XML Retrieval, INEX Relevance Assessment Guide (2003), available at http://qmir.dcs.qmul.ac.uk/inex/Papers/INEX02_Relevance_Assessment_Guide.pdf.

17. Of course, there are also many others searching the Net for music files for personal use who consider the copyright status of the works to be irrelevant.

18. For those who use Firefox, the upper-right corner defaults to a Google toolbar, but it is a pull-down menu that permits use of other search engines, including those provided by Yahoo!, Amazon, and Creative Commons.

19. See Tim Berners-Lee (with Mark Fischetti), Weaving the Web (1997).

20. Tim Berners-Lee, James Hendler & Ora Lassila, *The Semantic Web*, Sci. Am., May 2001, at 3 (contemplating a future Web where Web-connected devices will use "agents" to communicate and perform tasks). The site that claims to be the first site on the Semantic Web is Mindswap (Maryland Information and Network Dynamics Lab Semantic Web Agents Project). It is available at http://www.mindswap.org/.

21. See, e.g., Anthony J. Bellia, Jr., *Contracting with Electronic Agents*, 50 Emory L.J. 1047 (2001); Stephen T. Middlebrook & John Muller, *Thoughts on Bots: The Emerging Law of Electronic Agents*, 56 Bus. Law. 341 (2000); see also Margaret Jane Radin, *Humans, Computers, and Binding Commitment*, 75 Ind. L.J. 1125 (1999); Margaret Jane Radin, *Online Standardization and the Integration of Text and Machine*, 70 Fordham L. Rev. 1125 (2002).

22. See generally Dan L. Burk & Julie E. Cohen, *Fair Use Infrastructure for Rights Management Systems*, 15 Harv. J.L. & Tech. 41 (2001); Julie E. Cohen, *Lochner in Cyberspace: The New Economic Orthodoxy of "Rights Management,"* 97 Mich. L. Rev. 462 (1998); Symposium, *The Law and Technology of Digital Rights Management*, 18 Berkeley Tech. L.J. 487 (2003).

23. See, e.g., *Policy Aware Web*, http://www.policyawareweb.org/ (Feb. 7, 2006); Daniel J. Weitzner, Jim Hendler, Tim Berners-Lee, and Dan Connolly, *Creating a Policy-Aware Web: Discretionary, Rule-Based Access for the World Wide Web*, in Web and Information Security (Elena Ferrari & Bhavani Thuraisingham eds., 2005). I thank Hal Abelson for this point.

24. Berners-Lee reminds that many also saw the vision for the World Wide Web as fundamentally flawed. See Tim Berners-Lee, *An [sic] Parenthetical Discussion to the Web Architecture at 50,000 feet. [sic] and the Semantic Web Roadmap*, http://www.w3.org/DesignIssues/RDFnot.html (Sept. 17, 1998).

25. See, e.g., Eric Nee, *Web Future Is Not Semantic, or Overly Orderly*, CIO|INSIGHT, http://www.cioinsight.com/article2/0,1397,1817758,00.asp (May 5, 2005) (quoting Google cofounder Sergey Brin as saying "I'd rather make progress by having computers understand what humans write, than by forcing humans to write in ways that computers can understand").

26. See, e.g., Clay Shirky, *Ontology Is Overrated: Categories, Links, and Tags*, http://www.shirky.com/writings/ontology_overrated.html (last visited Sept. 29, 2006).

27. See *id.*; Nee, *supra* note 25 (promoting the technology of Google and Really Simple Syndication (RSS) as pragmatic alternatives to the Semantic Web theory).

28. Made popular by bloggers, RSS feeds are now provided by nearly all major news sites. See, e.g., Bill Flitter, *While Web Publishers Slept*, http://news.com.com/2010-1071_3-5813384.html (Aug. 3, 2005) (stating that "RSS has been adopted by major publishers such as *CNET*, the *BBC*, *Yahoo*, *Motley Fool*, *InfoWorld*, *The New York Times*, *the Christian Science Monitor*, *Wired News*, *The Wall Street Journal*, and many others, including a rapidly growing number of local and regional newspapers").

29. As scholarly research continues to migrate to the Web, some scholarly publishers see the value of social bookmarking for communities of researchers as well. The Nature Publishing Group's Connotea site (http://www.connotea.org) targets scientific researchers to signal to each other which Web resources, such as online articles, they deem to be most important or relevant.

30. See Flickr, *Hot Tags*, http://www.flickr.com/photos/tags/ (last visited June 9, 2006).

31. See Flickr, *Creative Commons*, http://www.flickr.com/creativecommons/ (last visited June 9, 2006) (grouping photographs by license terms).