

*Evaluating the Scope of the Rights under Title 17  
(with a particular focus on question 3(b))*

Much of the dialogue now underway concerning the application of the rights under Title 17 U.S.C. in copyright works in the digital environment would be greatly simplified with a more focused understanding of the form of expression involved and how such form is structured. While it is generally agreed that works fixed in physical form such as paper or plastic are deemed “copies” for purposes of copyright protection to attach, where operations are performed on works of a dynamic nature such as computer programs, what constitutes a “copy” requires some clarification. Often there are one or more derivative works created in the process of providing access to pre-existing works. Computer programs that are based on or incorporate what is sometimes loosely called “data” are playing an increasingly important role in the copyright-dependent industries; and the interface between copyright and patent remains problematic.

**a. Some Basic Concepts**

There has been much investment in recent years on technology and software that abstracts information in digital form from the physical fixation notions of the past and provides new ways to structure such information. Terms like virtual machine, software defined networking, cloud computing and big data are often used to describe new areas for research and business development. In copyright-dependent industries, work has been going forward on the deployment of identifier/resolution systems where copyright works in digital form are represented as or converted to machine-independent data structures known as “digital objects” (or more abstractly “digital entities”) that can help to advance a basic understanding from both a technical and legal perspective and thus serve to inform the analysis of rights under copyright in this context.

Definition of terms is often the most interesting and challenging aspect of reaching an understanding of what is being regulated from a legal perspective; and copyright law is no exception. To take an example: when broadcasting technology was first introduced, many laws both national and international were developed and approved to regulate this new form of communication. Concepts such as broadcasting-satellite service were formulated in order to assist in providing a basis for regulating broadcasting

activities. The *Convention Relating to the Distribution of Programme-Carrying Signals Transmitted by Satellite* (Brussels; May 1974) was later developed. For purposes of this Convention, a “programme” was defined as: “a body of live or recorded material consisting of images, sounds or both, embodied in signals emitted for the purpose of ultimate distribution.” Considerations of neighboring rights and communications law, not just copyright, were considered with respect to the broadcasting, cable and satellite industries; and over the years, patent concerns have entered the equation.

Another basic international function is the management of mail delivery between nations that has been regulated by the Universal Postal Union (UPU) with its headquarters in Bern, Switzerland. A recent workshop held at the ITU discussed how best to accommodate new digital delivery services such as certified mail in digital form. Here the issue was not just a matter of agreeing on a process for signing to accept delivery; but it involved the ability to tightly bind, by an assured association, the certification document with the document being certified for purposes of processing in the Internet. Here the notion of a unit of information in digital form and structured as a digital object having an associated unique identifier was recognized as being helpful for purposes of transacting business in the Internet.

A similar issue arose for a Hague Convention initiative a few years ago that focused on the development of a system for associating an apostille (which is today a type of manual certification) with a legal document as might occur in a cross-boundary child adoption situation. CNRI proposed the use of Handle System technology and software (see <http://www.handle.net>) in that case to associate an identifier with an apostille in digital form. The apostille would be represented as a digital object and associated with the actual document to which the apostille is associated.

A more basic issue that arises for doing business in the Internet is how best to represent legal instruments such as contracts, wills, deeds of trust, bills of lading, bearer bonds, medical records and other entities (see generally R.E. Kahn and P.A. Lyons, “Representing Value as Digital Objects: A Discussion of Transferability and Anonymity,” [http://www.jthtl.org/content/articles/V5I1/JTHTLv5i1\\_KahnLyons.pdf](http://www.jthtl.org/content/articles/V5I1/JTHTLv5i1_KahnLyons.pdf)).

In a copyright context, management of information that represents a legally enforceable value fixed in digital form arises when entering into contracts for access to and use of data stores; and this would include access to a wide variety of copyright works in digital form. In this context, multiple entities may be involved. Payment for communications services, performance of specific computational processes, and provision of technical support resources would likely come into play to name but a few. It is important to know the identity of the parties one is dealing with and to provide for the integrity and authenticity of the data subject to copyright being accessed, as well as the authenticity of the results of any processes or other operations being performed.

The implementation of a secure, trusted identity management service, such as by use of a PKI-based system that provides for identity validation not just for information associated with persons, but also for the information in digital form more generally, is an essential component for establishing a basis for legally enforceable copyright-related transactions. If each entity in this mix of computer programs, persons, services, processes and other related information in digital form is represented as or converted to a machine-independent data structure, it can serve to facilitate the discovery, processing, aggregation and integration of the information. This is particularly important from a systems perspective. Once there is agreement on basic terminology, it may be possible to manage information more uniformly, particularly across interoperable systems and where issues relating to the interaction of copyright and patent laws may arise. For further details, see P.A. Lyons, “Managing Access to Digital Information: Some Basic Terminology Issues,” <http://www.asis.org/Bulletin/Dec-97/Lyons.htm>; and see also Comments submitted to the U.S. Copyright Office & National Telecommunications and Information Administration, Report to Congress Pursuant to Section 104 of the Digital Millennium Copyright Act, <http://hdl.handle.net/4263537/section109>.

For many years, CNRI has been developing an architecture for managing digital objects; and it has deployed reference software implementations of three components of this architecture, namely, the Handle System, the DO Repository, and the DO Registry. An important early deployment of CNRI’s technology and software was made by the publishing industry in the mid-1990s in establishing the International DOI Foundation (IDF) (see <http://www.doi.org>); and today the IDF has broadened its participants to

include representation from the movie and cable industries to name a few. Growth of this endeavor may assist the copyright-dependent industries in moving forward with commerce in the Internet and provide real-life experience that may inform the discussions concerning possible copyright law revisions not just of the rights in question, but other basic issues such as the meaning of “copy” in the digital environment.

**b. Identification of Works and Copyright Notice**

Let us consider an Internet example where a sensor-net in the Pacific Ocean may continually be generating information for an archive of data on storms in the region. Several information systems may be involved here: one may use of RFID tags affixed to the sensors along with other means of accessing the sensor data; another may involve the identifiers associated with the sensor information collected including time and location data, an identifier for a specific data set, or the identifier for the process requested by an identified researcher. It is likely that many separately identifiable copyright works may be generated and made available or disseminated to the public in such a system; and the system as a whole may be viewed as a complex computer program that users or programs operating on their behalf may access either publicly or privately or some combination thereof (see generally P.A. Lyons, “Managing Information in Digital Form,” *Information Security & Privacy News* (Winter 2014), ABA Sec. on Science & Tech. L., [http://meetings.abanet.org/webupload/commupload/ST230002/sitesofinterest\\_files/INFORMATION\\_SECURITY\\_PRIVACY\\_NEWS-volume5\\_issue1.pdf](http://meetings.abanet.org/webupload/commupload/ST230002/sitesofinterest_files/INFORMATION_SECURITY_PRIVACY_NEWS-volume5_issue1.pdf); see also P.A. Lyons and R.E. Kahn, "The Handle System and its Application to RFID and the Internet of Things", *RFIDs, Near-Field Communications and Mobile Payments; A Guide for Lawyers*, Ch. 13, edited by Sarah Jane Hughes, Cyberspace Law Committee (2013, at 257-270), <http://hdl.handle.net/4263537/5046>).

In this context, the existing copyright notice requirement in Title 17 appears inadequate to accommodate the management of information in digital form; and a new notice system specific to copyright that relies on agreed information in digital form may be more appropriate. Various metadata registries in the copyright-dependent industries may useful in facilitating the implementation of such a new form of notice. A helpful starting point would be to consider the possibility of revising Article 15 of the Berne Convention on standard representations of information relevant to copyright claims.

At this point, let us consider why a sensor-net example would be relevant to the “making available” study. This relates to the general set of issues raised in connection with various “Big Data” initiatives. One or more cloud computing resources may also be involved in a given project. There is lack of clarity where pre-existing data sets that may be viewed as “statements” for purposes of the definition of “computer program” under Title 17 U.S.A., are included in an information management system. In this context, issues such as the application of the public performance right to computer programs and how the patent law may come into play merit analysis. A better understanding of the fundamental technical characteristics of the developing marketplace for copyright works in the Internet may inform recommendations about whether or not there is a need to amend the U.S. copyright law, and, if so, what course of action is advisable.

**c. A Standard to Consider**

Individual countries often formulate new legal structures to regulate what they perceive as new technical developments, and, subsequently, they try to coordinate these various legal measures internationally. But technology continues to evolve very quickly in the Internet, and it is desirable to reach national and international understandings on terminology and related data models, if possible. For example, the new international standard ITU-T X.1255 Recommendation (available free of charge in the six official U.N. languages at: <http://www.itu.int/rec/T-REC-X.1255-201309-I>) provides a framework for enabling new business models to emerge that may require discovery, access, processing, performance, integration and other use of information subject to copyright. This approach is based on the use of machine-independent data structures that have an existence apart from the information or other entity in digital form that is represented as or converted to such a data structure; and it may facilitate interoperability across heterogeneous information systems where the legal structures and definitions involved may not yet exist or be wholly apparent.

The concept of a “digital object” (or more abstractly a “digital entity”) can provide a basic building block for the formulation of many laws and regulations over time. This is of particular interest in the copyright-dependent industries where copyright works may not be “made available” or “communicated to the public” in the Internet as a physical object.

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