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Abstract

The paper provides insight into legal issues of grey literature. Based on a short overview of recent studies on grey literature and intellectual property, it suggests a typology of copyright protection for grey literature, in particular for PhD and Master’s theses, reports, conference papers, working papers, datasets and preprints. New trends in copyright and scientific communication are mentioned in so far as grey literature is concerned: digital rights, creative commons, institutional repositories and mass digitization. The paper reflects also on the way legal issues impact the definition of grey literature.

Note on the author

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1. Introduction

What is the legal status of grey literature? How does intellectual property law protect grey documents? Does it? Only few publications on grey literature deal with legal aspects. This may have at least three reasons. Law and justice are complicated and fast moving topics, especially in the environment of new technology and Internet. Secondly, grey literature is not a homogeneous concept but covers a great variety of documents and situations. Third, responses in the current copyright law are often driven by commercial interests, which are often of lesser importance in grey works. As a result, the copyright law is often underdeveloped when addressing the issues unique to grey literature. Finally, because of the ubiquity and internationality of grey literature, we face different situations and legal traditions even if in the global village. Moral and economic author’s rights, copyright, fair use, private use and other exceptions are reshaped by technology and e-commerce, and while national traditions of law and justice are converging implementation of changes may not be uniform.

Processing grey literature requires knowledge and awareness of the national and international legal environment. This paper provides some elements that may clarify the situation. It is the result of a discussion that started in 2010, at the GL12 conference in Prague (Czech Republic) where we suggested a new “Prague definition” of grey literature with a legal dimension: “A digital object is grey literature if and only if it is an item protected by intellectual property rights. In other words, grey literature implies authorship and a character of works of the mind” (Schöpfel 2010).

Immediately, the question arose as to whether this definition also applies to U.S. grey literature since the legal context is different from that of France. In the aftermath of the GL12 conference, we confronted our ideas about the French and U.S. legal systems, as far as grey literature is concerned. Our intention was to improve mutual understanding and to share arguments and information.

The paper is a work in progress. It tries to provide if not an answer but at least a clarification of the problem. Our approach is to analyse and compare legal aspects for different types of grey literature (theses, reports, working papers, communications…) between the United States of America and France, with special attention to digital rights. The paper contains four sections:

1. A short overview of recent studies on grey literature and intellectual property.
2. A typology of copyright protection for grey literature.
4. A follow-up to the debate on a new definition of grey literature.

The paper concludes with some general remarks on copyright and grey literature.
2. Overview on studies on legal aspects of grey literature

Only a small number of papers address the legal status of grey literature as a specific category of documents. De Blaaij (1999) is one of the first to investigate how Internet and legal development impact the production and dissemination of grey literature. He considers digital production of grey literature as a model of scientific publishing as opposed to commercial publishing, and he distinguishes two modes of dissemination: grey literature in the public domain, and grey literature as "common property", introducing the principle of "creative commons".

According to Seadle (1999), the “ecological niche” of U.S. grey literature has changed for two reasons: the U.S. membership in the Berne Convention extended legal protection to all grey literature produced in the U.S., and also Internet created a great number of "virtual publishers (blurring), the dividing line between grey and non-grey literature". His idea is that the international access to and use of U.S. grey literature will, at least in the long term, increase awareness of its legal status. But as long as authors and producers rank impact and access higher than legal protection, (so) says Seadle, and until they decide to defend their rights, "copyright for grey literature is almost meaningless", at least in the U.S.

Is this really the case? Cornish (1999) describes the same reality of lack of awareness of legal protection but develops a rather different argument. "Because copyright is automatically bestowed on the creator of an original work, that creator has no say in what rights acquired or how s/he may wish to exercise them initially." Following Cornish most authors and institutions will defend their moral rights, e.g. acknowledgment of authorship and protection of the work's integrity, but will not necessarily defend the economic rights of the exploitation of grey literature. "If they really saw any economic benefit in releasing material presumably they would have opted for the commercial publishing route anyway."

This leads Cornish to another approach to copyright protection. He argues for the adoption of "some kind of internationally agreed code of practice on copyright for grey literature" with a matrix that specifies rights and actions for personal use, internal distribution, commercial publishing or website use. Like de Blaaij (1999), Cornish develops an idea similar to the concept of the creative commons licences, with "a set of agreed symbols (that) would enable producers of grey literature to put a code on each document which could be understood internationally regardless of language, legal tradition or any other local circumstances." And he adds that this code would act "as a sort of proactive permission removing the need for users to seek unnecessary permissions and owners from having to handle requests in which they have no interest."

By the way, Cornish describes the situation of researchers working for a government agency or a company and the difference between industrial and intellectual property with two different regimes of protection (patent vs copyright). The same distinction is made by Pavlov (2003) in a completely different environment. Although the Russian law protects
commercial publishing and innovation, PhD theses and scientific reports are considered state-funded research results and as such are the property of Federal agencies, without any legal protection of the author(s). Thus, it was possible to develop a current research system with information on reports’ and dissertations’ sales. This is the opposite of sharing, creative commons licensing and open repositories.

Banks & de Blaaij (2006) observe that "copyright liberalization represents an enduring legacy of the open access movement (and) has encouraged the proliferation of (...) repositories". Here, the crucial question will be the inclusion and use of scientific data in documents, and in particular the intellectual property of datasets. The legal status of so-called "datuments", e.g. "hyperdocuments (capable of) transmitting and preserving the complete content of a piece of scientific work" (Murray-Rust & Rzepa, 2004) remains open.

Rabina (2008) analysed the inclusion of grey multimedia materials (i.e. educational materials, mainly movies, used by faculty in graduate LIS programs) in library catalogues from a legal viewpoint. Based on a detailed discussion of copyright and licensing in the U.S. and on survey on library catalogues, her conclusion is that "that Creative Commons is a barrier to access in traditional tools while traditional copyright is a barrier to access in Web 2.0 environments".

The most interesting recent contributions are from Lipinski (2008) and Polcak (2010). Lipinski (2008) describes developments in U.S. copyright law and policy with regards to grey literature, orphan works, Web-archiving and other digitization initiatives. His main issue is about the publication status. Is grey literature published or unpublished? Which impact does the publication status have on use and legal risk? His conclusion: "The expanded collection and dissemination of grey literature (...) through archiving and digitization is bolstered by recent case law establishing the circumstances under which such initiatives can be a fair use under U.S. copyright law. In addition legislative reform is under way (section 108 and proposed section 514) to increase the range of use rights available to institutions regarding protected content including grey literature. Moreover, the particulars of copyright enforcement may also work to minimize the legal risk in remaining circumstances."

Polcak (2010) analyses the use of grey literature under Czech law. Although this may seem marginal it isn’t, because the Czech concept of copyright is not different from that of other European states, in particular France. His paper distinguishes five different legal regimes related to specific purposes of grey literature related to study programs, research activities, or employment settings. His conclusion is that “licensing (...) of grey literature is in most cases multi-level and relatively complicated” and that “legal handling of grey literature in most cases relies not on contracted but on implied licenses”.

The Polcak paper is interesting in so far as it starts with some basic assumptions on functions and purposes of grey literature but then
describes the legal status for specific situations. His conviction is that “the concept of grey literature obviously does not have legal nature” because of the heterogeneity of grey documents.

Our own approach is more pragmatic, for two reasons: we study a limited number of usual types of grey literature instead of purposes or situations; our study is comparative, confronting French (European) and U.S. American legal regimes, and we put forward arguments that grey literature has indeed some legal nature.

3. Copyright in the United States and France

Before we describe the legal status of different types of grey literature, we need to understand some fundamental elements of U.S. and French copyright law.

In the United States the emphasis of copyright is property-based (economic), due in part to the historical Lockean origins of the Framers of the Constitution bearing the legal source of copyright (art. I, sec. 8. cl. 8.). While international obligations dictate the recognition of moral rights (see, 17 U.S.C. § 106A), such rights are limited in scope of work (applying only to the “author of a work of visual art”) and rights (vesting author with the right to control “distortion, mutilation, or other modification”) of the work.

Similar to French law there are three requirements before a copyright exists: the work must be original, it must be a work of authorship, and it must be fixed in a tangible medium. (See, 17 U.S.C. §102.) Copyright law does not protect the idea but rather the expression of the idea, thus the requirement of fixation.

Once the three requirements are met, the work is protected. The list of works protected by copyright is found in 17 U.S.C. §102 (Subject matter of copyright: In general) and 17 U.S.C. §103 (Subject matter of copyright: Compilations and derivative works). Many of the works listed there are defined in 17 U.S.C. §101 (Definitions). Works protected include: literary works including computer programs, musical works (nondramatic), dramatic works (including music), pantomimes and choreographic works, pictorial, graphic and sculptural, motion pictures and other audio-visual works, Sound recordings, architectural works, compilations, collective and derivative works.

Generally the creator is the author (owner of the copyright), often creators transfer copyright to publishers or others upon public distribution. In employment settings, when a work is considered “a work made for hire, the employer or other person for whom the work was prepared is considered the author for purposes of this title [title 17 of the United States Code, where the U.S. copyright law resides], and, unless the parties have expressly agreed otherwise in a written instrument signed by them, owns all of the rights comprised in the copyright.” (17 U.S.C. §201(b).) Case law suggests that faculty of institutions of higher education retain the copyright of their work product such as scholarship
and teaching materials.¹ Section 105 indicates that “copyright protection [] is not available for any work of the United States Government.”

The French copyright law (author's rights) is defined by the *Code de la Propriété Intellectuelle* (CPI) with two different types of rights (see Benhamou & Farchy, 2009):

1. Moral rights: meant to protect the personality of the author/creator through his work (integrity, paternity etc.).
2. Proprietary (or economic) rights: the author/creator has the right to authorize reproduction and public performance, e.g. he has a monopoly of exploitation for financial gain.

The 2006 law (DAVDSI) that reformed the CPI implemented the 2001 EU Copyright Directive (Schöpfel, 2006).

The French copyright law (= intellectual property law) applies to any ‘œuvre de l'esprit’, e.g. work of the mind, with a human intellectual contribution to the work. A list of types of work which are protected is given in the CPI: drawings, paintings, architectural works, literature etc. The list is taken from the Berne Convention but is not limitative. The copyright protection starts with the first disclosure of the work which normally reflects a decision taken by the creator(s). Disclosure is part of the moral rights.

The positive criteria that define a work of the mind are (see Bruguière, 2005 and Edelman, 2008):
- Originality of the creation.
- The author(s) can be identified.
- The creation is an expression of the author's personality.

Works have to be distinguished from materialization (support) and from ideas. Works (= expressed ideas) are protected while ideas are common goods of humanity and as such, they are not protected by the CPI.

The law does not define precisely which kind of work or creation should be protected or not. This is the subject of several decisions by the French courts - they try to provide definitions of what originality or expression of personality means and so on.

A contrario, a work of the mind is not the application of a technique or procedure. And it is not work on commission; even if it may be created on demand. An administrative document written in a professional environment is not considered as a work of the mind. Yet, a report delivered to a Ministry is protected by the CPI - either as an individual creation or as a collective work. The latter is the intellectual property of the person or the institution that disseminates the work. A special case is the work of an author employed by a company or public officer.

"The term ‘author’ is used to designate the original creator(s) of any type of protected work, e.g., the artist, photographer, director, architect,

¹ See Lipinski, 2007, and the cases discussed therein.
etc. Where the author cannot be identified, e.g., for anonymous works and collective works, the copyright is exercised by the original publisher.\textsuperscript{2}

4. Legal status of some grey documents

Instead of studying legal aspects of grey literature as a whole, we prefer to analyse a representative but not exhaustive shortlist of grey documents, i.e. PhD theses, reports, conference papers, working papers, Master theses, datasets and preprints. For each document type, we provide a definition taken from DBpedia (Bizer et al., 2009). We then describe the legal status of this document type in the U.S. and in France, with comments on special situations or examples, for instance "published PhD theses".

4.1. PhD theses

Definition

A dissertation or thesis is a document submitted in support of candidature for a degree or professional qualification presenting the author’s research and findings. In some countries/universities, the word thesis or a cognate is used as part of a bachelor’s or master's course, and dissertation is normally applied to a doctorate, whilst, in others, the reverse is true.

Legal status U.S.

In a recent study examining the documentation surrounding the acquisition and dissemination of dissertations either by deposit or through microfilm G. Clement & M. Levine (2011) concluded that "content analysis of written communications by members of this community indicates that both forms of dissertation dissemination were considered to be legal publication under the 1909 Copyright Act." Prior to the effective date of the 1976 Copyright Act particulars mattered in U.S. copyright law. For works published from 1923-1978 the duration of copyright is 95 years from publication (28 years, plus renewal of 47, plus 20). Thus works published (or dissertations deposited or distributed in microfilm) before 1923 are in the public domain. Dissertations and other works published from 1923 through 1963 would still be protected until 2018, assuming no further extensions enacted by Congress, if published with notice and renewed. For those works published from 1964 through 1977 notice upon publication was again required but renewal was automatic. It is hypothesized that many deposit dissertations were not then published with notice and thus under the law of the time fell into the public domain and out of copyright upon publication, \textit{i.e}. deposit. Those dissertations released in microfilm if distributed by a commercial entity likely contained notice but may or may not have been renewed. If current protection

\textsuperscript{2} http://en.wikipedia.org/wiki/French_copyright_law#Protected_works
depended on proper renewal, studies suggest that a majority of works may be the public domain, due to a lack of proper renewal.\footnote{See, e.g., Copyright Investigation Summary Report (2008), available at www.oclc.org/programs/publications/reports/2008-01.pdf}

Whether still protected by U.S. copyright or not, such works fall within the subject matter of copyright, and depending on genre or discipline are likely in the category of literary works, others might be musical or dramatic works or works of visual (pictorial, graphic or sculptural) art, perhaps in disciplines of fine or performance art. Depending on discipline, it should be noted that literary works from the sciences may be “thin copyright” for purposes of a fair use analysis as such content is “informational or factual in nature”. See, e.g. \textit{Stern v. Does}, 2011 WL 997230 (C.D. Cal.) unpublished. So if a thesis from a science discipline is still under copyright protection the second of four fair use factors would lean towards subsequent uses being fair.


A work released (posted on a website) through the internet is considered published at least under one district court opinion. \textit{Getaped.com v. Cangemi}, 188 F.Supp.2d 398 (S.D.N.Y. 2002): Posting a web site on the Internet constitutes publication for purposes of triggering ownership rights, i.e., in order to receive statutory damages and attorney fees registration must occur before infringement of unpublished works, or registration must occur within three months of infringement for published works. As a result, report literature first disseminated on websites would be published and while under the 1976 Copyright Act does not impact copyright status it would impact enforcement for subsequent uses made of such works, with registration required before legal proceedings could commence and with registration required within 3 months of publication in order to secure an “award of statutory damages award of statutory damages or of attorney’s fees.” 17 U.S.C. § 412.

\textit{Legal status France}

The legal situation in France is rather complicated: "Considered as scientific publications, French doctoral theses constitute an important part of scholarly communication (...) At the same time they are an administrative document necessary to obtain the doctoral degree. In some disciplines they are regarded as a result of teamwork and appear in the list of publications of the research laboratory" (Paillassard et al., 2007).

Thus, a PhD thesis is seen as a work of the mind and as an administrative document, with a double protection, by the French CPI and by the French administrative law.
Internet modified the situation, especially with regards to dissemination: "In the 1980's a thesis was considered a university document that should be disseminated as widely as possible. According to their examination regulations, the universities considered the jury’s authorization sufficient for dissemination. With the appearance of ETDs and the evolution of the author’s rights, a thesis is no longer seen as a "university document" but as a work subject to intellectual property rights. Today the explicit authorization by the author of the thesis (= copyright holder) is necessary for the electronic dissemination, in addition to the jury’s decision."

Three parties are considered as right holders:

The author: he/she owns all moral and proprietary (economic) authors’ rights protected by the CPI. In particular, he/she can authorize or forbid digitization or dissemination of the thesis.

The head of institution, e.g. the president of the university that delivers the PhD: in particular he/she can restrict the dissemination of the thesis (confidentiality), at least for a defined time period, forbid reproductions or ask for modifications. The decision is taken by the PhD commission.

A third party: in some specific cases, a third party may have protected rights related to the thesis. For instance, if the thesis reproduces a published article, a protected image or photo and so on.

The minimum right is access (view) to the PhD thesis on the campus where the PhD was delivered. All other usage (or restriction of usage) needs explicit authorization or prohibition (interdiction).

"Electronic theses present new challenges: segmentation may be necessary to restrict access to confidential parts; it is necessary to distinguish archival versions and versions for dissemination." (ibid) This is a challenge for metadata as well.

Comments

The double legal character in France with three right holders has a direct impact on handling PhD theses and metadata.

The digital format allows for different versions, with different rights. For instance, the complete version of a PhD thesis may include protected photos from a third party without authorization of reproduction, dissemination etc. Another version without these photos may have a clause of confidentiality for one year (administrative law) but no other restriction with regards to copying, downloading, etc. A non-validated (author’s) version may be available via an open repository. If PhD theses are published by a commercial publisher they leave the grey landscape and enter the scientific information market. Such a publishing project may incite authors not to allow digital dissemination, especially in social sciences and humanities.

4.2. Reports

Definition
A technical report is a document that describes the process, progress, or results of technical or scientific research or the state of a technical or scientific research problem. It might also include recommendations and conclusions of the research. Unlike other scientific literature, such as scientific journals and the proceedings of some academic conferences, technical reports rarely undergo comprehensive independent peer review before publication. Where there is a review process, it is often limited to within the originating organization. Similarly, there are no formal publishing procedures for such reports, except where established locally.

Legal status in the US

Technical reports would again be treated similarly to dissertations, falling within the subject matter of copyright as literary works, but also subject to a similar status of current protection depending whether published or not and the particulars surrounding that publication. Section 101 defines publication as “the distribution of copies or phonorecords of a work to the public by sale or other transfer of ownership, or by rental, lease, or lending. The offering to distribute copies or phonorecords to a group of persons for purposes of further distribution, public performance, or public display, constitutes publication. A public performance or display of a work does not of itself constitute publication.” Again those works being information, factual or scientific in nature would be considered thin copyright for purposes of the fair use analysis and so subsequent use might favor fair use.

Report literature may be produced under the auspices of the federal government, which would render it in the public domain per section 105, unless the author retained copyright which the report should indicate. Some funding agencies require publication and designation as public domain content, i.e. a work of the federal government. In the absence of contractual terms nothing in section 105 “prohibit[s] copyright protection for federally commissioned works.” Schnapper v. Foley, 667 F.2d 102, 108 (D.C. Cir. 1981), cert. denied, 455 U.S. 948 (1982). It may also be that the work is not governed by section 105, but was later assigned to the federal government, who then becomes the copyright owner. There is no prohibition on the federal government from owning an intellectual property right or from enforcing such right. See, U.S. v. Washington Mint, LLC, 115 F. Supp. 2d 1089 (D. Minn.): Federal government sued to enforce its copyright and trademark rights where it held valid copyright and trademark registrations in the Sacagewea dollar coin design assigned to it by the citizen who created it.

Report literature sourced from state or local governments can be protected by copyright by either the governmental unit or if funded or commissioned possibly by the creator depending on the terms of the contract. Building Officials & Code Adm. v. Code Technology, Inc., 628 F.2d 730 (1st Cir. 1980).

4 See, U.S. Copyright Office, Circular 3: Copyright Notice, p. 3 Available at http://www.copyright.gov/circs/circ03.pdf
Legal status in France

Fundamentally, the French copyright fully applies to reports - of course, only if the report can be considered as work of the mind.

Yet, we have to distinguish at least four different cases:

(1) Individual and independent author(s): If the report is signed by one or more individual author(s), the exclusive moral and proprietary rights remain with the author(s). If the report has been issued, funded or ordered by an institution (Ministry, corporate company...), the proprietary rights may be transferred by explicit (written) agreement to the institution while the moral rights stay with the author. This is the case with public reports funded by the Ministries of Culture, Research or Ecology disseminated by the former Documentation Française (now DILA).

(2) Collective author: In French copyright law, the collective work is defined by the Code of Intellectual Property as "created on the initiative of a natural or legal person who edits, publishes and discloses it under his direction and name and in which the personal contributions of the various authors participating in its production are merged in the overall work for which it is designed; it is not possible to assign each of them a separate right." The collective work is defined by two criteria:

- The work must be created on the initiative and under the direction of an individual entrepreneur or legal entity. This does not apply to the editor who provides guidance, requires a plan, a presentation or editorial features.

- The work must present a fusion or merger of the individual contributions in a way that these individual contributions cannot be attributed to individual authors.

The French courts interpret this clause often in a very liberal or large way, which is favorable to employers.

(3) The author is an employee of the publishing body: The French law generally protects an employee's work of the mind even if it was created in the professional context. This is quite different from the patent law (industrial property). The law considers that the author keeps his exclusive moral rights even if he has leased or transferred his work to this employer, for example as a service. Some court decisions give an opposite interpretation (= implicit transfer of rights to the company) but this interpretation has not been confirmed by the French Court of Cassation (= Supreme Court) so far. The only exceptions (= automatic transfer of copyrights to the employer) are for journalists and software developers (Bruguière, 2005). The other employees keep their rights as long as they do not sign an agreement on the transfer of proprietary rights. The moral rights can not be transferred.

(4) The author is a civil servant (public officer): The legal tradition in France considered the work of the mind created by an employee of the government (civil servant) as intellectual property of the public service, without attributing any moral or economic rights to the author. The reason was not to block/impede the public administration because of intellectual
property claims. The 2006 DADVSI law changed the situation. Today, a government agency can only claim the rights of an intellectual work if the work has been created as part of an explicit "mission" or if the civil servant explicitly transferred these rights to the agency. In this case, the moral rights stay with him. An example: the audit report written by an inspector of the French Ministry of Finance on a government agency will not be considered as work of the mind of this civil servant because it is part of his job function.

NB: The last condition does not apply to public researchers (= civil servants in government research agencies, universities etc.).

Comments

Some years ago, the international grey literature steering committee suggested that issuing organizations “should make their position on copyright clear to authors and to others who might be interested in using editorial content from their documents.” (GLISC, 2006)

The committee admitted that copyright laws may be different from country to country, even if the copyright of an institutional report usually belongs to the issuing organization. GLISC required that in this case, “(the copyright) must be clearly identified in the report with the symbol © followed by the name of the issuing organization and the year of publication.”

GLISC continued that the existence of copyright does not imply that the document may not be freely reproduced, “but it represents a declaration of intellectual ownership (the employees of an organization are as authors the voice of their institution). The issuing organization may decide that information contained in a report is of public domain, and declare it in the report, only in this case it is possible to reproduce the document or parts of the document without asking for permission. The copyright may also be held by a funding organization. In this case, it should be mentioned clearly in the funding contract.”

“A non-exclusive rights agreement may offer an alternative to copyright. It provides a guarantee to the publishing body that the content is not in breach of earlier copyright, while at the same time it allows the authors to use other means of publication and distribution for their work (e.g. institutional repositories, federated repositories, etc.).”

Could Creative Commons licensing be a solution for reports?

4.3. Conference papers

Definition

Conferences are usually composed of various papers. They tend to be short and concise, with a time span of about 10 to 30 minutes; presentations are usually followed by a discussion. The work may be collected/assembled in written form as academic papers and published as the conference proceedings (source: Wikipedia 25 June 2011).

In academia, proceedings are the collection of academic papers that are published in the context of an academic conference. They are usually
distributed as printed books either before the conference opens or after the conference has closed. Proceedings contain the contributions made by researchers at the conference. They are the written record of the work that is presented to fellow researchers. The collection of papers is organized by one or more persons, who form the editorial team.

**Legal status in the US**

A conference proceeding would be a collective work, with the copyright vesting either with the editorial team or perhaps the sponsoring organization. A collective work is defined in section 101 as “a work, such as a periodical issue, anthology, or encyclopedia, in which a number of contributions, constituting separate and independent works in themselves, are assembled into a collective whole.” Each individual paper may also be protected by copyright as a literary work. “Copyright in each separate contribution to a collective work is distinct from copyright in the collective work as a whole, and vests initially in the author of the contribution.” 17 U.S.C. § 201(c). Depending on the content of the presentation other categories of works might also apply. The owner of this copyright may reside with the creators, with their employers under the work made for hire provisions or it may have been assigned to the proceeding editors or organizing entity.

In some disciplines it is quite common to have more than one creator of a paper. Under U.S. law a joint work is “a work prepared by two or more authors with the intention that their contributions be merged into inseparable or interdependent parts of a unitary whole.” The general rule is that each joint author owns an interest in the copyright and may unilaterally dispose of the interest in the entire work. The majority view is that each contribution of a joint author must be independently copyrightable. *TMTV, Corp. V. Mass Productions, Inc.*, 645 F. 3d 464 (1st Cir. 2011) (Actor responsible for suggesting general plot ideas and stock characters to those writing post-pilot show scripts was not co-author unless evidence of actual participation scripts composition). A minority position exists. In a telling exposition, the Seventh Circuit observed: "Here is a typical case from academe. One professor has brilliant ideas but can't write; another is an excellent writer, but his ideas are commonplace. So they collaborate on an academic article, one contributing the ideas, which are not copyrightable, and the other the prose envelope, and ... they sign as coauthors. Their intent to be the joint owners of the copyright in the article would be plain, and that should be enough to constitute them joint authors within the meaning of 17 U.S.C. § 201(a)." *Gaiman v. McFarlane*, 360 F.3d 644, 659 (7th Cir. 2004).

With a joint work each author has an undivided interest in the copyright of the work and dispose of his or her rights to the work. However the “[c]onsent of all joint owners is required to issue an exclusive license, because it would preclude further issuance of non-exclusive licenses by the joint owners. Another limitation on the issuance of licenses by a joint owner is the prohibition on licenses that would cause the destruction of the copyright... For example, if a co-author permits a joint work to be
licensed under a Creative Commons license, for no compensation, could that be construed as destroying the value of the copyright? While a joint author is accountable to the other joint authors for their prorata share of profits from licensing a joint work, a joint author may assign her entire interest without any obligation to share with her co-authors the revenues received in consideration of that assignment. This can lead to some creative deal-making. The rights of joint copyright owners under the U.S. Copyright Act are not followed by all countries. Thus, a domestic licensee securing a non-exclusive license from less than all of the joint owners of copyright may rely on U.S. copyright law when exploiting the work in the United States. But if the work is intended for international distribution, consent of all the joint owners is necessary.\textsuperscript{5}

A final issue is whether a paper distributed at a conference is published or not. If further dissemination to a broader public is not anticipated such distribution may not be considered publication.\textsuperscript{6} Under U.S. law a publication “is the distribution of copies or phonorecords of a work to the public by sale or other transfer of ownership, or by rental, lease, or lending. The offering to distribute copies or phonorecords to a group of persons for purposes of further distribution, public performance, or public display, constitutes publication. A public performance or display of a work does not of itself constitute publication.” In light of the Compendium comment and the statutory definition, if the proceedings were made available to attendees with the intent that each attendee could further distribute such works, through deposit in the library of their home institution, circulating among colleagues or students, etc. then the proceeding is considered published.

In light of these considerations, knowing the circumstances of article or paper acceptance in the proceedings would be required to determine who in fact owns the copyright on such work, though it is clear that content of proceedings falls within the subject matter of U.S. copyright law. Previous issues discussed regarding publication and current copyright of theses and report literature would likewise apply to conference papers as well.

Legal status in France

Unpublished conference papers are protected by the French copyright law because they are work of the mind. Prepared by one or more author(s), they are presented by the author(s) during a conference, seminar, workshop, etc. We can distinguish two cases (see table below):


\textsuperscript{6} See, U.S. Copyright Office, Compendium II, U.S. Copyright Office Practices, § 905.01 (1984) (leaving copies in a public place for anyone to take is a publication, but distributing text at a seminar for use only by the recipients is ordinarily not a publication).
If the paper is published in the proceedings, either it enters the normal commercial dissemination or it remains grey literature if the proceedings are not published and disseminated in a way "where publishing is not the primary activity of the producing body" (New York definition). This means that a conference paper may exist in two, three or four versions, for instance as a draft posted on a personal website or deposited in an open archive, as a PowerPoint presentation, as a validated print version of the communication, and as a published version.

We exclude here the registered video version which should not be considered as (grey or white) literature.

### 4.4. Working papers

**Definition**

A working paper may refer to: A preliminary scientific or technical paper. Often, authors will release working papers to share ideas about a topic or to elicit feedback before submitting to a peer reviewed conference or academic journal. Sometimes the term working paper is used synonymously as technical report. Working papers are typically hosted on websites, belonging either to the author or the author’s affiliated institution.

**Legal status in the US**

As observed, the term working paper may apply to the preliminary expression of a future proceeding or it may apply to a governmental or organization draft of a future more formal report. In either case the rules discussed thus far apply. Such works would qualify for copyright protection in the U.S. as long as the there is a tangible expression, i.e. saved in the word processing files in the computer of the creator(s), printed out in paper, saved to a removable disk, etc. The current status of such protection may depend on whether the work is published and the circumstances of that publication. There may be issues with joint ownership as well as whether the work is a product of the federal government or not that would be resolved consistent with the previous discussion.

**Legal status in France**

Unpublished working papers are protected by the French copyright law because they are work of the mind. Written by one or more author(s), they are disseminated by the author(s) or by the institution, most often...
on a personal or institutional or other website. We can distinguish three cases:

<table>
<thead>
<tr>
<th>Cases</th>
<th>Moral rights</th>
<th>Proprietary rights</th>
<th>Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>One author</td>
<td>Author</td>
<td>Author if not transferred by agreement to institution, service provider etc.</td>
<td>Even if author is civil servant (public research organisation), his rights are recognized and protected.</td>
</tr>
<tr>
<td>Multiple</td>
<td>Authors if individual contributions can be identified. If not (collective work), disseminating institution or person.</td>
<td>Authors if individual contributions can be identified and if not transferred by agreement to institution, service provider etc. If individual contributions can not be identified (collective work), disseminating institution or person.</td>
<td></td>
</tr>
<tr>
<td>No author</td>
<td>Disseminating institution or person.</td>
<td>Disseminating institution or person if not transferred by agreement to institution, service provider etc.</td>
<td></td>
</tr>
</tbody>
</table>

**Comments**

Our observations made in the table above refer to a draft or preliminary version of scientific work (conference paper, monograph, report...). That means that a working paper is always a work of the mind. “Unpublished” means not published by a publishing house but disseminated by the author, his laboratory and so on.

### 4.5. Master’s theses

**Definition**

A dissertation or thesis is a document submitted in support of candidature for a degree or professional qualification presenting the author's research and findings. In some countries/universities, the word thesis or a cognate is used as part of a bachelor's or master's course, and dissertation is normally applied to a doctorate, whilst, in others, the reverse is true.

**Legal status in the US**

The same rules would govern master’s theses as govern PhD theses, while the circumstances may dictate other conclusions. Such work may less likely be considered published, however bearing this in mind such works clearly fall within the scope of copyright protection. Content created by students is owned by the student-author. A recent appellate decision concluded that use of student papers without permission in a plagiarism detection database is fair use. A.V. v. iParadigms, Ltd., 562 F.3d 630 (4th Cir. 2009). However, use of student papers without permission on a term-paper-for-sale website is not. Weidner v. Carroll, 2010 WL 310310 (S.D. Ill.) (unpublished). It could be argued that absent formal articulation indicating the assignment of ownership to the institution or an expression of non-exclusive uses through institutional policy imply that license is granted to the institution, to related faculty member(s), the library, [et al] in providing limited public distribution of the work. Whether this would
include the uploading and public display on the institution’s website would depend on the circumstances.  

Legal status in France

An individual creation with an identified author, an original and innovative character, quality content, a disclosure (dissemination) under the name of the Master’s student - all of which are elements that come together to characterize the Master's thesis as an intellectual work protected by copyright. Unlike doctoral theses, master’s theses are not subject to legal deposit or to another obligation to record and store. So there is no need or obligation to assign a part of the exclusive rights. But uploading a master’s thesis on an OA platform requires explicit permission (authorization) from the copyright holder.

In other words, one cannot, without explicit prior consent, scan a master’s thesis, nor add or modify parts (e.g. add or complete the cover page). Care must be taken on the clear indication of the author's identity. Also, depositing a Master's thesis requires a double or even triple validation: by the author, by the university, and the course venue (including the confidentiality of sensitive data).

Since the thesis is linked to an academic program, is authorization by the university necessary? For example, can we consider the master’s thesis as a collective work? No - even if the thesis is created on the initiative of the university, it is not disclosed under the name of the university, and the contribution of the student as a part of the whole does not disappear but remains essential for all of its contents.

The student has not assigned his or her proprietary rights to the university as a part of a contract. The requirement for validation by the educational institution can not rely on intellectual property but only on an administrative regulation (exam, traineeship, defense ...) which requires explicit permission from the institution to ensure quality and prevent the deposit of a non-valid version (Chauvin et al., 2010).

Comments

The exclusive proprietary right held by the master’s student is the reason why publishers like the German VDM Publishing can sell prints on demand from digital master’s theses, based on an agreement between the publisher and the student and without authorization from the university.

There may be other problems related to confidentiality, competition or industrial property, for instance if the master’s thesis reports on a traineeship in a corporate company with sensitive information. In this case, the document may be declared confidential, at least for a couple of years, without reproduction or digital dissemination.

4.6. Datasets

Definition

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7 See, discussion in Tomas A. Lipinski (forthcoming), Recent Copyright Issues in the Distance Education Classroom in HANDBOOK OF AMERICAN DISTANCE EDUCATION (3d edition, Michael Grahame Moore editor, 2012a).
A data set (or dataset) is a collection of data, usually presented in tabular form. Each column represents a particular variable. Each row corresponds to a given member of the data set in question. Its values for each of the variables, such as height and weight of an object or values of random numbers. Each value is known as a datum. The data set may comprise data for one or more members, corresponding to the number of rows.

**Legal status in the U.S.**

The content of a data set as the term implies consist of data or facts. Facts are not protected by US copyright law. *Feist Publications, Inc. v. Rural Telephone Service Co.*, 449 U.S. 340 (1991). Though if presented in a creative way there may be a copyright in the compilation as whole. “A compilation is a work formed by the collection and assembling of preexisting materials or of data that are selected, coordinated, or arranged in such a way that the resulting work as a whole constitutes an original work of authorship.” Moreover, a compilation of simple data, ordered by numerical, alphabetical, date collected, etc. is likely not protected even as a compilation. In *Adelman v. Christy*, 90 F. Supp. 2d 1034, 1043 (D. Ariz. 2000) it was observed that “Adelman's Bibliography appears to be the printout of a computer research query or database, arranged in chronological order... . Although Adelman may have invested time and money in compiling this list, the Bibliography is only subject to minimal protection under copyright law...”. If made available without contractual restrictions extraction of the data would be allowed as there is no legal prohibiton against extracting even a substantial amount of unprotected factual elements. Moreover, a complete copy of the dataset could be made even if a compilation copyrighted governed the set or some elements of the set were protected by copyright in order to extract out the unprotected elements. See, *Ticketmaster, Corp. v. Tickets.com*, 2000 U.S. Dist. LEXIS 12987 C.D. Calif. 2000) (“reverse engineering” applied to factual extraction if necessary to access unprotected material. It need not be the only way, but the most efficient way to extract the data.). The U.S. does not have legislation paralleling that of the European Union as expressed in the Directive 96/9/EC of the European Parliament and of the Council of 11 March 1996 on the legal protection of databases, *Official Journal L 077*, March 27th, 1996, p. 20-28.

**Legal status in France**

Datasets, produced or generated by machines or result of procedures or techniques, will not be considered as work of the mind. The reason being that at least one of the three conditions does not apply:

1. Originality of the creation.
2. The author(s) can be identified.
3. The creation is an expression of the author's personality.

Generating a dataset generally is not considered as an expression of the author's personality.
This means that datasets are not protected by copyright law but by other laws and court decisions (privacy, confidentiality, industrial property etc.).

Nevertheless, if the datasets are organized and can be interpreted as a database, they may be protected in two different ways. First, the French copyright protects the architecture, selection, and presentation of the database in case of originality. Second, a *sui generis* law comparable to but distinct from copyright protects the content and provides economic rights to the database producer if the quality and volume of his investment are significant. The specific database rights are property rights that prevent important extraction of database content apply for fifteen years.

4.7. Preprints

*Definition*

A preprint is a draft of a scientific paper that has not yet been published in a peer-reviewed scientific journal.

*Legal status in the U.S.*

Like the discussion involving working papers or initial iterations of a work - as long as there is a creative element to the draft, *i.e.* it satisfies the originality requirement, accounts for different versions, and the work is fixed in a tangible medium of expression is the work protected. Again, it's current copyright status would depend on the circumstances of creation (work made for hire, joint work, work of the federal government or employee of the federal government, etc.), access (published or unpublished for example), etc. Such works are likely not registered and so enforcement of ownership rights would be rather limited as discussed earlier.

*Legal status in France*

Preprints are the author's intellectual property, with all related rights including self-archiving, so long and in so far as s/he did not transfer exclusive copyright in a "work for hire" to a publisher. Nevertheless, we have to distinguish different versions of preprints. For instance, a peer-reviewed draft, copy-edited and accepted for publication by a journal publisher may not be self-archived without the publisher's permission while no copyright transfer agreement may exist for the pre-refereeing preprint.8

Translated in French law, this means that the author(s) of a preprint maintain(s) the moral rights of integrity, authorship (paternity), disclosure etc. In most cases, the author(s) also hold(s) the proprietary rights at least of the non peer-reviewed draft because the first exception - "work for hire" or paid articles - is very rare.

5. Trends

8 See [http://www.eprints.org/openaccess](http://www.eprints.org/openaccess)
5.1. Digital rights

Digital rights are related to existing rights (copyright, privacy, freedom of expression etc.) in the context of new technologies and Internet. Digital right laws, such as the French “Creation and Internet” law (also called HADOPI law) try to establish a new equilibrium between protection of creative work and information needs and rights. The overall trend is to reinforce the protection of the legitimate interests of right holders (authors, publishers, producers...) and the “normal exploitation” of the protected work (e-commerce), i.e. to control and regulate Internet access.

Actually, this trend can be observed on three levels, national laws (such as HADOPI or the Digital Millennium Copyright Act), international agreements (negotiations on the pluri-lateral Anti-Counterfeiting Trade Agreement) and the development of access control technologies for digital rights management.

The focus of digital rights is on e-commerce. Yet, at least two aspects may be of interest for grey literature.

One part of grey literature is not freely available but published in limited numbers and editions, and even if this part is not controlled by commercial publishers, its producing bodies may have some legitimate interests (revenues) related to the normal exploitation (selling) of these works. This part of grey literature is directly concerned by DRM technology and access control. Question: if a campus-based publishing service disseminates scientific working papers with a DRM device, would this mean that this is no longer grey literature? Surely not. If a characteristic of grey literature is more limited accessibility, the use of DRM surely contributes to this problem.

Another question: in so far as legal and technical protection mainly applies to e-commerce, is this going to cause a kind of two-level legal environment for works of the mind? Good protection for commercial material, less or no protection for grey material? At least for French (European) copyright law, this is not as yet acceptable. However, with converging international standards, this may change.

5.2. Creative Commons

The Creative Commons licenses, a “some rights reserved” approach to copyright, applies to all kinds of creative, educational or scientific content created and owned by individuals, companies or institutions. The basic idea is that the creator keeps the copyright while allowing certain uses of his or her work in a standardized way. The condition is that the author (creator, institution...) owns the complete rights.

Some authors promote this idea for grey literature (de Blaaij 1999, Cornish 1999), as an individual or organisational solution for the distribution, copying and re-use of protected but non-commercial items. A rapid search on the Web reveals a limited but growing number of CC

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9 http://creativecommons.org/
licensed scientific reports, PhD theses and working papers. Recent case law in the U.S. suggests that such licenses are indeed enforceable.\(^\text{10}\)

A distribution under CC license implies that the content is copyrightable work and that all right owners agree with the choice of a CC license. "Copyright holders who engage in open source licensing have the right to control the modification and distribution of copyrighted material.” \textit{Jacobson v. Katzer}, 535 F.3d 1373 at 1381 (Fed. Cir. 2008).

This means for instance that the producing body of reports, with the authorization by the author(s), can decide to disseminate the works on the Internet with a CC license. Also, the author of a working paper can apply a CC license for a self-deposit in a repository or on a private Web page.

Yet, CC licenses are non-revocable. Even if an institution or an author decides to stop the distribution of a protected work via the Web (or decides to stop offering the work under a CC license), the initial CC license continues to apply to the copies already in circulation.

The CC licenses are compliant with both U.S. and French copyright laws. Simple and standardized, they are a legal option for the dissemination of protected grey documents by the author(s) and/or the producing body.

If the moral right of the work’s integrity should be preserved, the CC license that fits best with the concept of grey literature could be “Attribution Non-Commercial No Derivatives” (CC BY-NC-ND) that allows neither use for commercial purpose nor derivative works other than the original work.

\textbf{5.3. Institutional repositories}

Open archives hosted and/or managed by research and Higher Education institutions in order to control and distribute their scientific production become a significant part of scientific communication. What can be said about legal aspects with regards to grey literature?

First of all, in so far as grey literature per definition is not controlled by commercial publishers, the question of publishers’ policies on self-archiving, authorization and permissions, embargo etc.\(^\text{11}\) seems less relevant for grey literature, at least for that part published by the institution itself.

In general, grey literature rights are owned by the author(s) and/or the institution. This would mean that when an institution adopts a mandatory policy, its authors should have no (or less) legal problem with self-archiving of the full text of their reports, working papers and communications, compared to published articles.

But the reality may be more complicated in some cases because of implied and multi-level licensing (Polcak, 2010); in other cases because of


\(^{11}\) See the SHERPA/RoMEO initiative \url{http://www.sherpa.ac.uk/romeo/}
potential or real conflicts with legitimate interests of the author or institution (for instance, the author wants to publish his PhD dissertation as a book) and/or normal exploitation (for instance, if the institution publishes a working paper or report series).

Other legal problems with deposits in institutional repositories are not specifically related to grey literature, such as the existence of co-authors or other contributors, enhanced content with protected material (images, videos, data etc.), confidential or sensitive information, or the assignment of intellectual property rights to the hosting institution.

5.4. Mass digitization

The major legal problem of massive digitization projects such as Google books are orphan works and out-of-print books.

Should these works be considered as grey literature? The answer is no. The critical aspect is the control by commercial publishers. The lack of control by commercial publishers is an essential attribute of the grey literature’s concept.

Orphan works: The main characteristic of orphan works is the fact that their copyright owner cannot be contacted. This may be (one of) the author(s) or the publishing house or both. But this does not mean that orphan works systematically are no longer controlled by commercial publishers. Some orphan works are grey (and probably have always been grey); some orphan works have been distributed by commercial publishers that went out of business while others remain still under full commercial control.

The European Union has prepared a directive\textsuperscript{12} in favour of a new exception of the intellectual property laws that applies the triple test to orphan works, requires diligent search, defines authorised uses of public interest (preservation, provision of cultural interest etc.) and limits the application to libraries and other cultural institutions. Orphan works are defined as follows: “A work shall be considered an orphan work if the rightholder in the work is not identified or, even if identified, is not located after a diligent search for the rightholder has been carried out (…)”.

Out-of-print books: Their case is slightly different from that of orphan works because the question is not the identification of and contact to the right holders but the discontinued commercial distribution. Again, the question is: should out-of-print books be considered as grey literature? Pros: these documents are hard to get; they are (no longer) distributed through conventional channels; they are work of the mind. Cons: libraries rarely define an acquisition policy for out-of-print material (special collections?); the usual life cycle of grey literature is grey to white, not white to grey; the out-of-print status is revocable at any moment by a simple commercial decision to print a new edition – in fact the out-of-print status is basically always related to commercial distribution. Google’s strategy to sell out-of-print books confirms this analysis.

Nevertheless, in some cases out-of-print books may be grey literature, for instance, reports or working papers with a limited number of printed copies after all copies have been sold (distributed). But again, in this case the legal context is not different from non grey documents: no digitization without authorization, as long as the document is not in the public domain.

Earlier this year, the French parliament adopted a law on orphan and out-of-print works with four characteristics: a public database for these works derived from the National Library’s catalogue, general information via this database instead of diligent search of right owners, collective rights management, and preferential rights for the publisher and opt-out at any moment. Orphan works is a problem unsolved in the U.S., although legislation change has been proposed. Rather than offering a collective entity licensing structure the U.S. approach is to offer damage limitation or remission of the infringement resulting from use of an orphan work.

6. Impact on the definition of grey literature

In our proposal for a new definition of grey literature (Prague definition) we argued that “the concept of grey literature should be limited to the specific meaning of literature, not as a content or structure/type, but derived from its social or legal nature: A digital object is grey literature if and only if it is protected by intellectual property rights. In other words, grey literature implies authorship and is characteristic of works of the mind” (Schöpfel, 2010).

In our mind, “protected by intellectual property rights” applies to the fact that under French (or continental) law, all documents that satisfy the criteria of “works of the mind”, once disclosed to the public are granted intellectual property rights and benefit from protection. US law requires only fixation of an original expression of a work of authorship.

Yet, the crucial point is the character of “work of the mind”, for example originality, a human intellectual contribution, creative work. From the moment an author or institution makes this kind of work available to the public (disclosure or publication), under French law intellectual property protection applies. Thus, protection by law is a consequence of the “work of the mind” criterion.

We introduce this criterion in order to exclude from the definition of grey literature non valuable, non original works without significant human contribution.

Perhaps, if we want to avoid legal discussions on different systems and document types, we could skip the mention of “intellectual property rights” from the Prague definition but keep the requirement for authorship and character of works of the mind.

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In other words, the initial Prague definition

"Grey literature stands for manifold document types produced on all levels of government, academics, business and industry in print and electronic formats that are protected by intellectual property rights, of sufficient quality to be collected and preserved by library holdings or institutional repositories, but not controlled by commercial publishers i.e., where publishing is not the primary activity of the producing body."

would become in a 2nd version

"Grey literature stands for manifold document types produced on all levels of government, academics, business and industry in print and electronic formats, works of the mind with authorship, of sufficient quality to be collected and preserved by library holdings or institutional repositories, but not controlled by commercial publishers i.e., where publishing is not the primary activity of the producing body."

7. Conclusion

Both France and the U.S. recognize aspects of copyright in the grey literature discussed in this article with the exception of data sets – where a compilation copyright applies. However, this appears unlikely. Obviously, copyright is an issue for grey literature and should be handled with care. Since the legitimate interests and exploitation of grey literature generally appear less important for their producing bodies than for commercial publishers, the processing and dissemination of grey literature may be perceived as less of a risk factor.

Our paper highlights the differences between French and U.S. legal protection of grey literature. These differences are significant and convey different legal traditions. Nevertheless, in the WIPO framework the national legal systems are converging. In ten or twenty years perhaps the differences between the two legal systems will be less important than their similarities.

Finally, attention should be drawn to the fact that general statements on the legal status of grey literature most often are not appropriate. Instead, future work on the legal environment of publishing, dissemination and preservation of grey literature should explicitly adopt a differential approach able to distinguish between the wide range of document types and specific situations.

9. References


T. A. Lipinski (2007). `Legal Issues in the development and use of copyrighted material’. In M. G. Moore (ed.), *Handbook of Distance Education*. Erlbaum, Hillsdale, NJ (pp. 451-469).


T. A. Lipinski (forthcoming) (2012a). `Recent Copyright Issues in the Distance Education Classroom’. In M. G. Moore (ed.), *Handbook of American Distance Education*. Erlbaum, Hillsdale, NJ. (3rd edition)


