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THE CONCEPT OF A DIGITAL COPY

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Abstract: *Copyright law has been challenged by the advent of digital technologies. It is today necessary to draw a distinction between the concept of a “copy” according to whether it refers to a physical copy (token) or a digital copy (type). While, in the physical world, the copy determines the scope of the copyright license, in the digital world, it is the copyright license that actually determines the scope of a digital copy.*

1. Introduction

The advent of Internet and digital technologies has radically transformed the way information is being regulated on the Internet. While digital media provide new opportunities for authors to produce and disseminate their works to the public, they simultaneously encourage and facilitate copyright infringement. Traditionally, in order to ensure compliance with the law, the copyright regime could rely upon the properties of physical media to constitute a natural barrier against copyright infringement. As the medium went digital, however, its properties became a catalyst for infringement.

Designed for the physical world, the structure of the copyright regime does not adequately address the issues inherent to digital media. Indeed, although the notion of a “copy” is central to copyright law, the concept has not been precisely defined within the law. The law must recognize that physical copies fundamentally differ from their digital counterparts. Once a work has been incorporated into a physical medium, the content becomes part of the medium and cannot be easily extracted or modified without causing damage. In the digital world, instead, the work is made of digital bits that can be perfectly transferred from one medium to another without any quality loss - so that the property of being a copy is only a temporary feature of the physical medium.

If the identity of a digital copy can no longer be defined by its physical characteristics, it becomes thus necessary to define the copy of a digital work according to a different set of criteria. The claim is that, while a physical copy has always been regarded as a token that is capable of only one instantiation, a digital copy should instead be regarded as a type that is capable of multiple instantiations. The question is then, how do we define this type?

This paper suggests that if, in the physical world, the copy determines the scope of the copyright license under which it has been released, in the digital world, it is the copyright license that actually determines the scope of the copy to which it refers. This means that the copyright owner can actually decide the scope of a digital copy by either increasing or reducing the level of restrictions incorporated into the copyright license. The main benefit of this approach is that it can change the default rule of copyright law in the digital environment, without actually requiring any changes in the law. By assigning a different definition to the concept of a copy according to whether it refers to a physical or a digital work, it becomes possible to benefit from the opportunities of digital technologies without jeopardizing the status quo in the physical world.

2. Ontological Analysis of Copyright Works

The Functional Requirements for Bibliographic Records (FRBR) is a simple ontological model whose objective is to assist users in the identification and retrieval of information. Developed by the International Federation of Library Associations and Institutions (IFLA), the FRBR is a conceptual model for the description and identification of bibliographic records.¹ The framework of the FRBR is however flexible enough that it can be used to identify the various components of a work that constitute the object of copyright law. It is composed of four basic entities:

- the “work” represents the underlying structure and ideas of the work (e.g. Hamlet by Shakespeare). As a general concept, it must be distinguished from both the physical medium through which it is conveyed to the public and the actual content thereof, since the same work can be articulated in many different ways and incorporated into an indefinite number of media.
- the “expression” articulating the work represents the actual content of that work (e.g. the sequence of words from a particular edition of Hamlet). It only refers to the conceptual arrangement of signs and symbols that constitute the work but is not concerned with the way in which the content has been incorporated into a particular medium of expression.
- the “manifestation” represents the format by which the expression has been recorded into a medium (e.g. the typographical arrangement of a published edition). It refers to both the format assumed by a particular expression (e.g. the size and colour) and the physical characteristics of the medium into which it has been incorporated (e.g. paper-back versus hard-cover books).
- the “item” represents the physical medium that incorporate one particular manifestation (e.g. a particular copy of the book). It identifies a concrete physical object that exhibits a consistent set of attributes over time. Indeed, as opposed to the three other aspects of the work, the item is a token (as opposed to a type) that can only exist as a single instance.

The situation has become even more complex with the advent of digital technologies. Given that the physical characteristics of a digital work are likely to change over time, the item can no longer be used to identify the copy of a work in the digital environment, where the transfer of a digital file from one device to another would necessarily generate a new item. A different set of criteria must therefore be taken into account to determine the scope of a digital copy.

3. Physical Media versus Digital Media

The particularity of digital media, as opposed to physical media, is that they are not bound to the content they convey. A book, for instance, incorporates a literary work, which cannot be removed from the medium without actually damaging the book. The content of the literary work also cannot be modified, revised or updated, without considerably affecting the integrity of the medium. Using the terminology of the FRBR framework, we can say that the item is inherently connected to the manifestation it incorporates. Upon creation, the item assumes the characteristics of one particular manifestation (type). That type will remain an inherent property of the item until the latter is destroyed or significantly damaged.

The situation is much different for digital media, whose nature is inherently dynamic. Digital media merely incorporates a series of digital bits that can be changed and reorganised to represent an

¹ The framework can be accessed at <http://www.ifla.org/en/publications/functional-requirements-for-bibliographic-records>.

indefinite number of works. Digital media introduce thus an additional layer of analysis, which subsists between the physical item (e.g. a hard drive or a cd-rom) and the content it conveys (e.g. a melody by J.S. Bach). This layer consists of the sequence of bits (0's and 1's) incorporated into the physical device. Borrowing from the terminology of the FRBR framework, this sequence can be defined as the digital manifestation of a work, which describes the way in which the expression has been recorded into a medium.

As opposed to the manifestation, which depends both on the way the content has been formatted and the medium into which it has been incorporated, the digital manifestation no longer accounts for the characteristics of the medium into which a work is recorded.² The reason for this is twofold. On the one hand, the content is no longer bound to one particular medium given that the same content can travel from one medium to the other without incurring any change in its format or any quality loss. On the other hand, the medium is no longer bound to the content it conveys given that the sequences of bits incorporated into the medium can be changed at any moment in time. The item, as defined within the FRBR framework, is thus no longer connected to only one work or manifestation.

To illustrate the idea, let us take the example of music. In the earlier days, music was mechanically incorporated into the surface of a disc (e.g. a vinyl disc) by means of a series of grooves representing the sound waves to be played.³ Once it has been created, the surface of a disc cannot be modified to incorporate a different sound. As the medium is forever tied together with the content it has been assigned with, it is fair to assume that every disc constitutes a copy of the work it incorporates. Few years later, magnetic tapes were introduced, allowing for sound to be recorded as a magnetic pattern onto the tape. The content of a tape can therefore evolve over time, as a variety of sounds can be recorded onto the same tape by merely changing the magnetic properties thereof. As opposed to the previous technology, magnetic tapes are no longer bound to one particular piece of content. Yet, given the deterioration of the magnetic coating, their content can only be updated a limited number of times before they would become unusable.⁴ This problem has been resolved with the advent of the Compact Disc, which marked the shift from the analogue to the digital world. Content is first converted into digital bits and then stored on an optical disc as a series of small indentations.⁵ Because the content is digital, it can be indefinitely written and re-written without any quality loss.

² The physical characteristics of the medium are no longer relevant in the digital environment. All digital media are equivalent for the purposes of storage and transmission because: (1) The same digital work can be stored into any digital medium. Since the work has become intangible, it is not fixed to one particular medium and can thus freely travel from one medium to the other; (2) The same digital medium can be used to store any digital work. Once a work has been digitized, there is no difference between a literary work, a musical work or an audiovisual work, since they can all be represented by a series of 0's and 1's. See MUELLER, M. (1999) *Digital Convergence and its Consequences*. The Public, 6, 11-28.

³ A record player (or gramophone) is an analog device invented in 1877 by Thomas Edison to reproduce sound mechanically recorded onto a disc. The sound is stored directly on the surface of a rotating cylinder or disc, as a series of grooves, bumps, or scratches, whose size is directly connected to the musical notes they store. As the disc rotates, a needle traces the wavy lines and vibrates, thereby reproducing the sound waves.

⁴ Magnetic tapes were invented in 1928 by Fritz Pfleumer as a way of recording analog audio signals as a magnetic pattern on a tape. From a blank state, tapes can be magnetized by applying electrical current that is proportional to the sound signal to be stored on the tape. The magnetic pattern can subsequently be read out by a specific device in order to reproduce the original signal. Although magnetic tapes can be magnetized several times, they nonetheless suffer from deterioration so that extensive usage can render the tape unusable.

⁵ The development of the Compact Disc in 1978 revolutionized the audio world by introducing digital technology for the first time. The Compact Disc is an optical disc used to store digital content as a series of tiny indentations (pits) applied onto the surface of the disc. The height of pits determines the way the light is reflected, so that the content can be read from the disc by the intensity change of the light.

	Medium	Content	Extraction
Vinyl Disc	Specific to 1 type of content: sound waves are encoded as a series of grooves recorded mechanically on the disc.	Content is permanent: cannot be tampered with without ruining the media.	Extraction is not possible if not by analogue means.
Magnetic Tape	Specific to 1 type of content: sound waves are encoded as a magnetic pattern.	Content is changeable: tapes can be magnetized but risk of deterioration.	Extraction is not possible if not by analogue means.
Compact Disc	Compatible with all content: can store anything encoded in a sequence of digital bits.	Content is temporary: can be readily replaced with no quality loss.	Extraction is possible: digital bits can be written and extracted indefinitely

Table 1: Comparing the characteristics of different media

As opposed to analogue media, whose content can be recorded and reproduced only through a specific process that is different for each medium (e.g. scratches on a disc, magnetic pattern on a tape, patterns of ink on a book), the process of digitization creates an intermediary entity (the digital manifestation) that subsists independently of the medium it has been recorded into. In the digital world, there is no direct correlation between the physical medium and the type of work it incorporates. An image, a sound wave, a video, or even a literary work can all be converted into a sequence of bits to be subsequently embodied into a digital device. Given the digital nature of these works, their content can be easily extracted and re-incorporated into different mediums without any quality loss and without any risk of deterioration.

Digital technologies thus marked the complete separation between the medium and the content, which is only momentarily stored into a digital device. As long as the medium is capable of storing digital bits, a digital work can be transferred from one medium to the other without incurring any changes to its format. Regardless of whether it has been stored on a hard disk, a jump drive, or a cd-rom, the digital manifestation will always remain the same.⁶ In contrast to physical media, who are specific to one particular type of content, digital media can be regarded as a “generic medium” which incorporates anything that can be converted into 0’s and 1’s. Indeed, most digital media are nowadays acquired without any information within. Hard-drives, memory sticks, but also cd-roms are often sold in a blank state, to be subsequently filled up by users with content of different types.

Most of the content stored into a digital medium is variable. Works are transferred from one device to another on a daily basis and for a variety of purposes. Users constantly update their digital devices with new content, while older content is deleted or moved into a backup drive. The consequence is that the content of digital media is inherently dynamic. In the digital environment, it thus no longer makes sense to regard the physical medium as a “copy” of the work it incorporates,

⁶ In the physical environment, the manifestation is intrinsically related to the actual medium of expression (the physical item) in which a work has been embodied – e.g. the hard-cover edition of a literary work constitutes a different manifestation than the paper-back edition of the same work. In the digital realm, instead, given that it merely consists of a series of bits, the manifestation of a digital work does not depend upon the physical characteristics of the digital device into which the work has been stored. In the digital environment, the manifestation is no longer associated with any physical medium, but with the digital medium as a whole.

since the quality of being a copy is only a temporary attribute of the medium. A different entity must be identified in order to describe the copy of a digital work.

4. Physical Copies versus Digital Copies

For the purposes of copyright law, the notion of a “copy” is a concept whose function is to identify the instance of a work consistently over time. While the item might be the best candidate to qualify as the copy of a physical work, with the advent of digital technologies, the distinctive characteristics of a copy have been considerably affected. Without going into unnecessary technical details, it can be said that a physical copy differs from a digital copy in at least three ways.

Firstly, a physical copy is such that the content it incorporates contributes to shaping its identity as a thing. The vinyl disc featuring a song from Elvis Presley is different from the vinyl disc featuring a melody by J. S. Bach – which necessarily displays an entirely different set of bumps and grooves on its surface. Similarly, despite their ability to be overwritten, magnetic tapes and compact discs are often defined by their content. The cd incorporating a recording of Elvis is considered to be of a different “type” from the one incorporating a performance by Bach. Even if the content of the former could be overwritten with the content from the latter, this operation would most likely have an impact on the perceived identity of the medium, which would be regarded as a new copy by the majority of people.⁷ Nowadays, however, the identity of digital media does no longer depend upon the content it incorporates.⁸ A 250gb hard-drive is considered to be of the same “type” as any other 250gb hard-drive, regardless of the content stored therein. Likewise, the identity of a usb-stick will remain the same over time, even if its content has changed. In the eyes of most users, the medium is therefore only a temporary carrier of information.

Secondly, a physical copy always preserves its identity whenever it is transferred from one place to the other. When a physical medium is moved, the content is carried along with the medium without incurring any change in terms of its physical characteristics, except for its location in space. When a digital file is transferred from one digital device to the other, the physical characteristics of the medium incorporating the file can be very different from each other. Even if the sequence of bits is likely to remain the same, bits can be expressed in a variety of ways according to the device on which they are stored (e.g. the same sequence of bits will be encoded differently on a cd-rom, than on a hard drive or a usb key). Hence, if the copy of a work were defined by its physical characteristics, the mere fact of transferring one file from one device to another would necessarily create a new copy of the work. This can be problematic because, even though the transfer will produce a new instance of the work (i.e. the same sequence of bits incorporated into a different medium), for all practical purposes, both instances will be regarded by virtually everyone as the same copy of the work.⁹

This leads to the third fundamental difference that subsists between a physical copy and a digital copy. While, in the physical world, there can be only one entity that qualifies as the copy of a work, in the digital environment, more than one entity could be regarded as the same copy of the work. A different meaning should therefore be assigned to the concept of a “copy” according to whether it refers to a physical or to a digital work. While the former qualifies as a “token” that is capable of

⁷ This is essentially due to the process required to modify the content of a cd, which involves the modification of the physical attributes of the medium that contribute to shaping its identity as a copy (i.e. altering the surface of the cd to change the way the light reflects).

⁸ For the majority of modern digital media, changing the content does no longer require any alteration of the physical attributes of the medium, but merely changing the magnetic polarity or the electric charge of the physical support.

⁹ The transfer of a digital file is achieved by generating a new file in another location and subsequently destroying the original. The two are likely to assume a different physical representation while nonetheless maintaining their distinctive properties as a copy. See PASKIN, N. (2003) On Making and Identifying a Copy. D-Lib Magazine, 9.

only one instantiation, the latter is commonly seen as a “type” that is capable of multiple instantiations.

This is not to say, however, that every instance of a digital file incorporating a work will necessarily qualify as the same copy of the work. While two separate copies of the book *Hamlet* would undeniably be regarded as two different copies of the same book, two digital files incorporating the same recording of Elvis could also be regarded, under a specific set of circumstances, as two different copies of the same recording. Indeed, if the scope of a digital copy were as broad as the scope of a digital file, it would mean that, in the digital environment, a copy ultimately refers to the manifestation of a work. While this is obviously too broad in most cases (e.g. it would no longer be possible to differentiate between different instances of the same digital file), it might actually be too narrow in some other respects. For instance, the mere fact of compressing a digital file would necessarily generate a new manifestation, which would no longer qualify as the same copy, even though it would be logically regarded as such. The same would apply for encryption, and to some extent, for the conversion from one digital format to another.

Hence, while it is no longer possible to rely on the physical characteristics of a copy in order to determine its identity in the digital environment, it is also not possible to rely only on its digital characteristics (the digital manifestation). Another set of criteria must therefore be identified.

5. Scope of Digital Copies

If we look at the provisions of copyright law, we can see that the copyright regime does not assign the same meaning to a physical copy and a digital copy. This is especially obvious in the context of the exhaustion of rights, where a distinction is clearly made between the two.¹⁰ Yet, the law does not provide any explanation on why are digital copies different from physical copies, nor does it provide any guidance on how to determine the scope of a digital copy.

As a general rule, a specific connection can be observed between the scope of a copyright licence and the scope of the copy to which it refers. This is especially apparent in the physical world, where the physical boundaries of the copy determine the scope of the licence regulating the manner in which that copy can be used and/or accessed. In the digital world, however, since the copy no longer has any physical boundaries, it becomes difficult to determine the scope of the copyright licence. In order to preserve the connection that subsists between the scope of the copy and the scope of the copyright licence under which it has been released, in the digital environment, it might be necessary to look at the terms and conditions of the copyright licence so as to define the scope of the digital copy to which the licence refers.

While, in the digital environment, end-user licensing agreements have become much more restrictive than they were in the physical world,¹¹ this additional set of restrictions might nonetheless be justified on a variety of grounds. Indeed, in the physical world, a large number of

¹⁰ The WIPO Copyright Treaty expressly states that: "the copies subject to the right of distribution refer exclusively to fixed copies that can be put into circulation as tangible objects". This statement has been re-iterated within the preamble of the InfoSoc Directive, and within the DCMA report on Section 104, which both draw a distinction between the distribution of physical and digital copies.

¹¹ When purchasing the copy of a work, ownership is transferred only to the medium in which the work is embodied (e.g. a CD-ROM). While the work is itself owned by the copyright owner, a license is granted to the user allowing for a certain usage thereof. In the digital environment, however, copyright licenses have become increasingly restrictive and are often offered on a take-it-or-leave-it basis, so that users have no way to negotiate the terms and conditions of the license and are sometimes not even fully aware of them. See e.g. LINDSAY, D. (2002) *The law and economics of copyright, contract and mass market licenses*, Australia, Centre for Copyright Studies. BURKE, J. J. A. (2003) *Reinventing Contract*. Murdoch University Electronic Journal of Law, 10.

restrictions are automatically imposed upon users by virtue of the physical characteristics of the copy, rather than by means of contractual provisions. Those are for the most part restrictions related to the reproduction, alteration and dissemination of copies, which cannot be done without incurring considerable costs or efforts. These restrictions need not be incorporated into the contract because they are automatically enforced by the natural laws of the world we live in.¹²

In the digital world, most of these restrictions are gone, as the reproduction, the alteration and the dissemination of digital works can be done instantaneously and at minimal costs.¹³ It becomes thus necessary to insert them explicitly into the contractual agreement. While this might not be the main justification for most of the restrictions incorporated into many end-user licensing agreements, this is nonetheless a relevant factor to be taken into account. Given that one needs no longer abide to the rules of the physical world in order to determine the scope of a copy, the digital environment provides additional flexibility in deciding the actual scope of one copy. By means of contractual agreements, copyright owners are entitled to decide exactly what can or cannot be done with any given digital copy, whose reproduction and dissemination can be either allowed or forbidden under a variety of conditions.¹⁴

In this respect, it is interesting to distinguish between two categories of restrictions: the formal criteria, which refer to the conditions that must be satisfied by the copy in terms of digital format and manifestation; and the legal criteria, which refer to the conditions of usage that must be fulfilled by the user who has acquired a licence to that copy. Finally, an additional element to be accounted for is the user, or the category of users to which the license is addressed. This can be either very broad, as in the case of most public licences such as Creative Commons,¹⁵ or very narrow, as in the case of many individual licensing agreements addressed to only one user. In-between are the large variety of licences addressed to one category of users (e.g. students, in general or from a particular university, employees, members of a particular institution or association, or even just family members).

By combining those three elements together, it becomes possible to describe the scope of a digital copy according to the way it has been defined by the copyright owner. As opposed to the physical world, where the scope of the copyright license is determined by the physical boundaries of the copy, in the digital world, it is the copyright licence that determines the boundaries of the digital copy to which it refers. The digital copy is therefore a type whose scope ultimately depends on the provisions of the copyright license under which it has been released. As such, it can be

¹² For instance, it is generally difficult to reproduce a vinyl disc without acquiring the appropriate machines (which are expensive enough to require the establishment of large economies of scale before the initial investment can be effectively recouped). Likewise, it is virtually impossible to modify the content of a vinyl disc and it is relatively costly and time consuming to transfer it from one place to another.

¹³ Internet and digital technologies have given the possibility for anyone to reproduce, modify and/or redistribute copies of any digital work on a worldwide scale, in virtually no time, and at very low costs. The properties allowing for the self-enforcement of the copyright regime within the physical world are therefore lacking in the digital environment, where copyright infringement is no longer subject to any kind of technological barrier. For more details on the impact of the digital technologies on the enforceability of copyright law, see e.g. HALPERN, S. W. (2001) *The Digital Threat to the Normative Role of Copyright Law*. *Ohio State Law Journal*, 62.

¹⁴ For instance, users might be allowed to change the format of a work (e.g. by converting it from MP3 format to OGG format), but only at the condition that every digital rights management information is preserved. Similarly, users might be allowed reproduce a digital work into either an identical format (e.g. the duplication of a PDF file) or a different format (e.g. the printing of a PDF file into paper), although reproduction might be restricted for a limited number of times and distribution be constrained to a limited category of users. Additional limitations might also be introduced with regard to the different types of usages that can be made of a copy (e.g. how it can be accessed, when it can be used, and whether it can be transferred from one device to the other).

¹⁵ A public license does not identify nor impose any limit on who may qualify as a potential licensee but merely grants the license to the general public. See e.g. Creative Commons at <http://creativecommons.org/licenses>.

simultaneously incorporated into multiple instances that will all qualify as the same copy of the work by reason of the similarity in their formal and legal characteristics.

One important thing to note is the distinction between “internal reproduction” – i.e. the production of a new instance of the same copy, and “external reproduction” – i.e. the production of a new copy. The former is an operation that necessarily remains within the scope of the same copy. It does not, therefore, trigger the exclusive right of reproduction, given that copyright law is only concerned with the making of additional copies of a work, rather than with the making of additional instances of the same copy. The latter constitutes instead an actual reproduction, which might actually violate the exclusive right of reproduction granted under the law. Whether or not this reproduction can be regarded as a legitimate one fundamentally depends on whether it has been allowed within the licensing agreement (e.g. if the contract allows for the making of additional copies of the work) or whether it would fall within the realm of fair uses (e.g. personal or private copies).¹⁶

6. Changing the Rules without Changing the Law

The concept of a “copy” is a social construct that does not correspond to anything in reality.¹⁷ As such, its meaning may change according to the context of analysis. If the purpose of a copy in copyright law is to identify the various instances of a work, it must necessarily account for the distinctive characteristics of the work. A copy might therefore be assigned a different meaning according to whether it refers to a physical or a digital work.

An ontological analysis of copyright works through the FRBR framework demonstrated that, in the physical world, the item is the entity that best represents the copy of a work. The same is not true in the digital world, where the item has become unable to identify the copy of a work consistently over time. While it has always been regarded as a token, the advent of digital technologies might thus require the definition of a copy to be revised.

In this paper, it is suggested that the word “copy” should be assigned two different but correlated meanings. One meaning can be used to denote the multiple instances of a work that subsist in the physical world (copy as a token), whereas the latter can be used to denote the digital copy of a work as a general class of entities that cannot be precisely quantified in the physical world (copy as a type).¹⁸ That way, the law will assume a different meaning according to the context of analysis: in the physical world, the standard meaning of “copy” will apply, whereas, in the digital world, the

¹⁶ The verbatim reproduction of a digital file (e.g. in the case of back-up copies) will therefore always qualify as an internal reproduction as long as that the resulting digital file will always satisfy the requirements of the copyright license. However, although this reproduction is not as such concerned by the copyright regime, the user might nonetheless violate the provisions of copyright law to the extent that the file is transferred to someone who is outside of the scope of the copyright license.

¹⁷ One fundamental problem with the identification of the copy of a work is that a “copy” is a concept that does not exist in nature. It is the result of a social construction based upon a common and shared understanding of what society has intended to be a copy. For more details on the distinction between real objects and intentional objects, see e.g. INGARDEN, R. & GRABOWICZ, G. G. (1979) *The Literary Work of Art: An Investigation of the Borderlines of Ontology, Logic, and Theory of Language*, Northwestern University Press.

¹⁸ In order to better understand the difference that subsists between a physical copy and a digital copy, it might be useful to rely upon a linguistic artifact that is characteristic of the English language. In ordinary language, it is common practice to refer to a particular entity differently according to the level of details that needs to be taken into account. For instance, as opposed to mass nouns (e.g. money, water, bread, etc) whose quantity cannot be assessed if not by referring to a particular portion thereof (e.g. a liter of water, a portion of bread, etc), count nouns refer instead to individual entities that can be separately counted and evaluated (e.g. coins, water drops, grains, etc). Certain words can however be employed both as count nouns and as mass nouns according to the context of analysis – e.g. ‘Fire burns’ vs. ‘There is a fire in the forest’. In the context of copyright law, the word “copy” could therefore be understood as a count noun – in the case of physical copies, or as a mass noun – in the case of digital copies.

word “copy” will assume a much broader meaning that is likely to encompass multiple instances of a work.

The main advantage of this approach is that it makes it possible to change the default rule of copyright law in the digital environment, without actually changing the wording of the law. Indeed, by merely changing the way in which a word is defined, or the way in which it should be construed, it becomes possible to increase or decrease the default level of protection granted under the law.

If the first step was to acknowledge the difference between a physical copy and a digital copy, the next step is to provide a definition of the term “copy” that is more consistent with the context of analysis. Although physical copies have been defined by the law,¹⁹ the definition of digital copies has yet to be provided.

According to this paper, a digital copy is a type that is capable of multiple instantiations, and whose scope ultimately depends upon the terms and conditions of the copyright license under which it has been released.

Given the broader scope of a digital copy, some activities that would qualify as copyright infringement in the physical world might actually be legitimate in the digital world. Most important in this respect is the question of reproduction, which is no longer a good indicator of copyright infringement in the digital environment. If the reproduction of a work without the consent of the author is generally forbidden in the physical world (unless it falls within one of the copyright exemptions or fair use), the same should not be true in the digital environment where the mere use or transfer of a work necessarily requires the reproduction thereof. By default, therefore, reproduction of a digital file should be legitimate as long as the digital manifestation remains the same.²⁰ Other activities such as compression, encryption or conversion are also often required for accessing a digital work, using it, storing it, or even just transferring it onto another device with a different file system. By default, these standard operations should thus also be allowed in the digital environment, since preventing them would run counter to the standard expectations of users.²¹

Under this approach, anyone would be entitled to produce and use several instances of a work provided that they all qualify as the same copy. Whether the reproduction of a digital file qualifies as a new copy of the work for the purpose of copyright law will depend, on the one hand, on the interpretation that is given to the concept of a copy, and, on the other hand, on the terms and conditions of the copyright license. If the new instance is compatible with the formal and legal requirements of the copyright license, it will qualify as a new instance of the same copy, otherwise, it will qualify as a new copy – whose legitimacy will depend upon the context in which it has been produced and by the user or the category of users to which it has been assigned.

While this might not actually affect the content of many end-user licensing agreements, the advantage of this approach is that it is likely to be more compatible with the current praxis and user expectations that have emerged with the advent of Internet and digital technologies.²²

¹⁹ US Copyright Act s.101 “Copies” are material objects, other than phonorecords, in which a work is fixed by any method now known or later developed, and from which the work can be perceived, reproduced, or otherwise communicated, either directly or with the aid of a machine or device. The term “copies” includes the material object, other than a phonorecord, in which the work is first fixed.

²⁰ As an internal reproduction, in fact, the verbatim reproduction of a digital work does not produce a new copy of the work but only a new instance of the same copy.

²¹ Therefore, while modifying the content of a work (the expression) will necessarily trigger the exclusive right of making derivative works, merely modifying the format of that work (the manifestation) will not as such constitute copyright infringement, unless it has been expressly forbidden by the law (e.g. in case it would qualify as the circumvention of a technological measure of protection) or by the provisions of the copyright licence.

²² In the digital environment, information is generally reproduced and disseminated over the network by a large number of users who do not actually care about whether or not this constitute a violation of copyright law. While many right

This approach is also more compatible with the concept of sharing that has been emerging over the past years, in particular with the advent of Open Source and Creative Commons licences.²³ Defining the scope of a digital copy according to the contractual provisions of the copyright license under which it has been released would allow anyone belonging to the same category of users to share their digital copies internally within the group, provided that the copyright license does not differentiate between one user or the other. This is even more relevant in the case of digital works published on the Internet without any specific licence. In this case, no license would apply, but since no group has been defined, the addressee of the copy would be the public at large. The copy can therefore be freely reproduced and disseminated over the Internet and only illegitimate usages would actually bring an action for copyright infringement. The free reproduction and distribution of digital works would thereby become the default in the digital environment, while nonetheless preserving the possibility for right holders to increase the level of protection by means of contracts or technology.

7. Conclusion

Recognizing the differences between physical and digital copies is key to understanding that the law should not treat them in the same way. A rule that is sensible in the physical world might actually seem unreasonable in the digital world. In order to restore the traditional balance of copyright law in the digital world and to better comply with the specificities of digital media, different rules should apply in the digital environment. If a physical work is different from a digital work, the two should not be regulated according to the same rules.

Yet, given the global scope of the Internet network, reforming copyright law to the digital environment might be a very complicated task that would require changing the law of a very large number of countries. Instead of trying to change laws, the proposition of this paper is that it might be easier to change the perception of those who interpret the law.

Indeed, adapting the provisions of copyright law to the digital environment might only require changing the way in which the word “copy” is construed. Rather than deriving the meaning of the word by analysing the provision of the law (the inferential approach), this paper suggests an ontological approach to actually modify the provisions of copyright law by merely changing the meaning assumed by the word.

The idea is to change the default rule of copyright law in the digital environment, by assigning a different definition to the concept of a copy, according to whether it subsists to the physical or to the digital environment. When referring to physical copies, the word “copy” should be regarded as token that describes the physical item into which a work has been incorporated. When referring to digital copies, the word should instead be regarded as a mass noun that could be used to denote an indefinite number of instances, which qualify as the same copy of the work by virtue of the fact that they all comply with the provisions of the copyright license under which the work has been released.

holders are actually unhappy with this trend, much of the content published on the Internet is nowadays produced by users who do not really benefit from such a high level of protection. For a more detailed analysis, see BENKLER, Y. (2006) *The Wealth of Networks: How Social Production Transforms Markets and Freedom*, Yale University Press.

²³ The advent of the digital technologies has led to the emergence of a strong set of ideals, which advocate the free circulation of knowledge and the sharing of culture as a common, in line with the principles of the “gift economy” (see CHEAL, D. (1998) *The Gift Economy*, Routledge. as well as CASTELLS, M. (2001) *The Internet galaxy: Reflections on the Internet, business and society*, Oxford University Press. introducing the concept of the gift economy to describe the mechanisms of Open Source).

The advantage of this approach is that it does not require any legislative reforms, but could merely be implemented by judges, by precedents, or through a series of guidelines on interpretation coming from an international body or organisation.