

**The History and Future of Copyright Formalities:
An Analysis from Information Cost Theory**

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Abstract: Copyright formalities are prohibited since 1908 Berlin Revision of the Berne Convention for the Protection of Literary and Artistic Works. Traditionally, we would explain it from the Locke's or Kant's philosophy. However, those explanations may be failed to explain why computer software and invents would have different formalities requirement. If we analysis such issue from the perspective of Law and economics, especially from the theory of information cost, it might be concluded that different information cost for defining works and invents, and different marketing values of works and invents to support those information cost of formalities, are the reason why we have different formalities requirements. Due to the advance of Hash techniques, the raise of private formalities service providers might have significant impact on copyright formalities requirements in future.

Keywords: Copyright Formalities Berne Convention Information Cost

At the core of controversies over the intellectual property theory lie grave doubts about whether we have a general rule for different kinds of intellectual property. The different formalities requirement in different intellectual property departments might be the result of the absence of general rule. In Berne Convention for the Protection of Literary and Artistic Works, the enjoyment and the exercise of copyright shall not be subject to any formality.² However, in Paris Convention for the Protection of Industrial Property, formality could be imposed for Patents, Utility Models, Industrial Designs, Marks, etc.³

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² See Article 5(2) of the Berne Convention for the Protection of Literary and Artistic Works (hereinafter "the Berne Convention").

³ See Article 2 of the Paris Convention for the Protection of Industrial Property (hereinafter "the Paris Convention").

In China, copyright shall be enjoyed whether published or not.⁴ On the other hand, the person needing to acquire the right to exclusively use a trademark is required to apply for trademark registration in China.⁵ Similarly, formalities shall also be fulfilled in Patent law.⁶

It is hard for us to ignore the difference between copyright law and other intellectual property law in formalities requirement. However, we shall not take it for granted that the vanish of formality in copyright law. The goals of this article are to show the reason why such a decline of copyright formalities happens in a perspective of information cost theory, and to give a prediction for the future of copyright formalities in accordance with the advance of new techniques, for example, Hash or Blockchain.

In part I, we will explore the history of copyright formalities before 1908 Berne Convention, through which we might prove formalities was an important part in copyright law. In part II, we may review the existing theory for explaining the reason why the prohibition of copyright formalities was introduced in 1908 Berne Convention, and examine some forms of works introduced in copyright law at recent years, especially software, with the theory we discussed in part II, and we might have a conclusion that the information cost theory might be the most persuasive theory. In part III, we might examine the new techniques under the information cost theory and explore the possible impact to copyright regimes brought by those new techniques.

I. The formalities requirement in early national copyright law.

In early copyright law, the copyright formalities had a similar function as the formalities in Patent Law and trademark Law. The 1709 Statute of Anne says,⁷

“That nothing in this act contained shall be construed to extend to subject any bookseller, printer, or other person whatsoever, to the forfeitures or penalties

⁴ See Copyright Law of the P.R.China of 26 February 2010 art.2 [hereinafter Chinese Copyright Law].

⁵ See Trademark Law of the P.R. China of 23 April 2019 art.4 [hereinafter China Trademark Law].

⁶ See Patent Law of the P.R. China of 9 January 2010 art.2 [hereinafter China Patent Law].

⁷ See 8 Anne, c. 19 (1710) art. II

therein mentioned, for or by reason of the printing or reprinting of any book or books without such consent, as aforesaid, unless the title to the copy of such book or books hereafter published shall, before such publication, be entered in the register book of the company of stationers...”.

Similarly, in Act of Saxony of 22 February 1844 concerning the protection of rights in literary works and works of arts, the registration on the Leipzig Eintragsrolle (entrance roll) was a general condition for the protection of works and the arts.⁸ On the other hand, deposit also played an important role as formalities requirement in early copyright rules. The 1709 Statute of Anne required nine copies of each book or books to be delivered to the warehouse of the company stationers for the use of royal library and libraries of colleges.⁹ The formality of legal deposit was also contained in the early copyright law in France, Dutch and several German states.¹⁰

Therefore, the initial version of Berne Convention in 1886 says¹¹,

“La jouissance de ces droits est subordonné à l'accomplissement des conditions et formalités prescrites par la législation du pays d'origine de l'oeuvre; elle ne peut excéder, dans les autres pays, la durée de la protection accordée dans ledit pays d'origine.”

However, the copyright formalities requirement lost its dominant position in some EU countries in late 19 centuries. In the Statute concerning author's rights to literary works, illustrations, musical compositions and dramatic works issued by North German Confederation in 1870, the formalities requirement only played a very limited role in the copyright system; for the works without true name of the author stated on the title-page or below the dedication or at the end of the preface, if the author want to enjoy equally length of copyright term, they are required to make registration in Leipzig City Council.¹² At last, the prohibition of copyright

⁸ van Gompel, S. 'Les formalités sont mortes, vive les formalités!' Copyright formalities and the reasons for their decline in nineteenth century Europe. In R. Deazley, M. Kretschmer, & L. Bently (Eds.), *Privilege and property: essays on the history of copyright* (pp. 157-206). Cambridge: Open Book Publishers. Page 162.

⁹ See 8 Anne, c. 19 (1710) art. V

¹⁰ van Gompel, supra note 8, Page 161-162.

¹¹ See article 2 of the Berne Convention (1886).

¹² See Copyright Act for the German Empire, Berlin (1870), *Primary Sources on Copyright (1450-1900)*, eds L. Bently & M. Kretschmer, www.copyrighthistory.org.

formalities was introduced in 1908 Berne Convention. Due to U.S joined Berne Convention in 1988, it would be hard for us to find a country with strict copyright formalities requirement for enjoying the copyrights.¹³

II. The Possible Explanation for the Vanish of Copyright Formalities

It is clear that formalities played an important role in copyright law before 1908 Berne Convention. Therefore, people might be curious about why formalities was banned since 1908. Traditionally, there are 3 different kinds of explanation theory for this very issue.

(1) Nature Law theory

During the progress of prohibition of copyright formalities in European countries, the debates over the justification of copyright as a kind of property right are also happening in this continent. More and more people accepted Locke's appropriation theory, holding that due to human being are God's property whose workmanship they are¹⁴, man 'owns' their actions¹⁵. On the other hand, the philosophy developed by Kant and Hegel had increasing influence in the European continents nations. Kant believed that any object onto which a person projects his or her will may come to be owned.¹⁶ Similar idea also could be found in Hegel's *Grundlinien der Philosophie des Rechts*,

"A person has the right to place his will in any thing [Sache]. The thing thereby becomes mine and acquires my will as it substantial end (since it has no such end within itself), its determination, and its soul – the absolute right of appropriation which human beings have over all things [Sachen]."¹⁷

Obviously, those different kinds of nature law theories may have differences comparing to each other, but a strong common sense was formed; the author's rights were born with the creation of a work and did not rely upon the state–

¹³ 17 U.S.C.§411.

¹⁴ James Tully. *A Discourse on Property: John Locke and His adversaries*. Cambridge University Press 1980. Page 42.

¹⁵ John Locke. *An Essay Concerning Human Understanding*. Liaoning People's Publishing House(China). 2.27.17.

¹⁶ Robert Merges. *Justifying Intellectual Property*. Harvard University Press 2011. Page 72.

¹⁷ G.W.F. Hegel. Translated by H.B. Nisbet. *Elements of the Philosophy of Right (English)*. Cambridge University Press 1911. Page 75.

centered formalities.

However, the abolishment of copyright formalities was introduced in copyright law at 1908 Berne convention in Berlin, and new intellectual property forms were introduced in copyright law in recent years, for example, computer software and cinematographic works. Those new copyrighted work forms also don't require formality to be entitled with protection. If we testify the aforementioned nature law theory with new intellectual property forms are introduced in copyright law, we might find a lack of persuasive in those theories. Locke's appropriation theory would be very struggling facing the puzzle brought by patent law; the creator of patented goods would also own their actions in accordance with Locke's theory, which would not relieve their obligation to fulfill the formalities requirement in patent law yet. On the other hand, Kant and Hegel's philosophy would share the similar confusion here; if we hold the idea that the reason why patent law or trademark law rely on formality is that we can't put will into the industrial property forms, we might feel that it's very difficult to explain why we can put will in computer software. Even through the legislators who made the decision to abolish the copyright formalities in late 19 century used nature law theory to support their viewpoints, it didn't mean that the explanation proposed by those philosophy in this very issue is indubitable.

(2) The increasing need for international protection over copyright

As we have mentioned before, the copyright formalities still played an important role in many countries in late 19th century. Even in a single nation like United Kindom, different colonies had different formalities requirement in 1906. In Cape colony, the author would be required to submit 4 copies within 1 month to be entitled to protection of his copyright and playwright in the United Kindom and all British possession. In Canada, 3 copies were required as deposit. In Australia and Tasmania, 2 copies were required. In New Zealand, only 1 copy were required. In Staits Settlements, the local government didn't require deposit formalities, but required the author to finish the registration in office of Col. Secretary.¹⁸ Therefore, copyright formalities became a very important issue in bilateral agreement negotiations. In 1851 Anglo-French Copyright Treaty, the author shall

¹⁸ Colles, William Morris, Harold Hardy. *Playright and Copyright in All Countries Showing How to Protect a Play or a Book throughout the World*. Macmillan and Co., Limited; The Macmillan Company Press (1906). Page 46.

finish the registration and deposit requirement in the one country within 3 months after its first publication in the other to be entitled to the protection.¹⁹ The situation would be relatively simple when the protection need existed in 2 different countries with different formalities requirement. When an author wants to be entitled with protection throughout the world, the guidebook to instruct the author would become a 300–page book.²⁰ Therefore, some scholars believe that the increasing need for international protection over copyright is an important reason for the abolishment of copyright formalities.²¹

The logic of international protection need theory is self-consistent; we can't deny that the difficulty facing by copyrighted works' creator to receive world-wide protection before 1908 convention would be a very important reason for the abolishment of copyright formalities. However, such theory would still be insufficient persuasive in explaining about the new copyright forms and the prior use institution in trademark law and patent law. The international protection need exists in all kinds of intellectual property forms, but most of them would rely on formalities to be entitled with protection. The increasing need for international protection need would still be failed to explain why the formalities requirement was vanished only in copyright law.

(3) Information Cost Theory

Professor Clarsia Long noticed copyright takes different strategy from patent law; creators of copyrighted materials do not need to define the boundaries or describe the attributes of their copyrighted goods,²² which means there is no registration requirement in copyright law²³. Because the number of observers likely to encounter most patented goods will be smaller than the number of observers likely to encounter most copyrighted goods, and the observer of patented goods has a greater knowledge of the field and a higher tolerance of information costs

¹⁹ Anglo-French Copyright Treaty, London (1851), Primary Sources on Copyright (1450-1900), eds L. Bently & M. Kretschmer, www.copyrighthistory.org

²⁰ Supra note 18.

²¹ Sam Ricketson & Jane C. Ginsburg, Translated by 郭寿康 Guo Shoukang. *International Copyright and Neighbouring Rights: the Berne Convention and Beyond* (Chinese version). Renmin University of China Press (2016). Page 263.

²² Clarisa Long, *Information Costs in Patent and Copyright*, 90 *Virginia Law Review*. (2004): Page 500.

²³ A small difference might be existed in the US law. See supra note 13.

than the average observer of copyrighted goods.²⁴ Similarly, Professor Henry Smith noticed the information costs plays an important role in delineation and enforcement of rights. According to his theory, copyrighted goods have fewer chance for “interlocking uses” and are easier to attribute value to the copyrighted work.

All formalities have costs. A registration for literary work in Copyright Protection Center of China would cost the right owner 100–300 yuan, ²⁵which is similar to the registration fee charged for trademark in China. ²⁶Therefore, it is safe for us to say that the registration for copyright has similar cost comparing to the registration for trademark. According to the National Copyright Administration of China, there are 2 million copyrighted works registered in the whole countries at 2017.²⁷ The similar figure in China Trademark Office of National Intellectual Property Administration is 17.3 million at 2017.²⁸ Hence, we can conclude that the trademark owners might have a stronger motivation and will to finish the registration process in China than the creators of copyrighted works, though we might be lack of knowledge about the exact number of total potential possible copyrighted work.

The information cost theory might explain such situation. If we set Y as the potential average trade value of intellectual property, and set X as the cost of state-centered formalities. We might easily conclude that,

if $X < Y$, formalities would be more likely to be enforced.

If $X > Y$, people would be lacking will to fulfill the formalities requirement.

For most copyrighted works, the potential trade value is not enough to motivate the creators to finish the formalities requirements. Therefore, the nation states choose to abolish the formalities requirement in copyright law.

²⁴ Supra note 22, page 500.

²⁵ See the Copyright Voluntarily Registration Fee standard issued by Copyright Protection Center of China (amended in 26 October 2018). <http://www.ccopyright.com.cn/mobile/index.php?optionid=1444>.

²⁶ See the Fee Standard published in the website of Trademark Office of National Intellectual Property Administration of China (Effective date: 1 July 2019). <http://sbj.cnipa.gov.cn/sbsq/sfbz/>.

²⁷ You may refer to the detailed information in: <http://www.ncac.gov.cn/chinacopyright/contents/11228/386868.html>.

²⁸ You may refer to the detailed information in: http://sbj.cnipa.gov.cn/sbtj/201805/t20180510_274101.html.

(4) The Function of Formalities in Copyright Law under Information Cost Theory

The information cost theory provides a new viewpoint about why copyright law doesn't need formalities. However, the potential average trade value of copyrighted works and the cost of formalities are both not determined value. As we will discuss in the part IV of this article, these two values might change under certain environment. In addition, the copyright law adopted formalities in the very beginning. Therefore, there must be an inner motivation to push the legislators to adopts formalities in copyright law.

Chinese scholars take it for granted that China belongs to civil law system and intellectual property law is a right to the world, which is similar to the concept of property. As a right to the world, anyone except the property owner may be risked violating the property right. Therefore, the property owner should bare an obligation to delineate its property right, so that counterparty would be able to know his/her behavior might construe a violation to another person's behavior.²⁹

For the movable property, possession is the most common way to delineate the rights. For the immovable property, registration is the most common way to delineate the rights. As U.S. president Thomas Jefferson mentioned,

"...idea, which an individual may exclusively possess as long as he keeps it to himself; but the moment it is divulged, it forces itself in to the possession of every one, and the receiver cannot dispossess himself of it."³⁰

Traditionally, we both agree that the object of intellectual property could not be possessed. Therefore, registration and other formalities forms seems to be the only choice for legislators to delineate the intellectual rights. However, as we have discussed, the average trade value of copyrighted works is not sufficient to support the cost of formalities, so the function of formalities did not operate in copyright law. Therefore, the creators of copyrighted works bare the responsibility to prove the authorship of their works, and they might give up pursuing remedy

²⁹ 叶金强 Ye Jingqiang, 公信力的法律构造 The Legal Architecture of Demonstrative Principle (Chinese Version) . Peking University Press(2004). Page 6.

³⁰ Graham v. John Deere Co.

if the makeup is too small.

III. The Advance of New Technologies and Its Influence on Copyright Formalities
According to the information cost theory's explanation about the abolishment of copyright formalities, the potential average trade value of copyrighted works and the cost of formalities requirements are the two key points deciding whether the. However, the advance of new techniques in recent years may bring new factors to both two points here.

(1) The Digitalization of Works and Its Influence on Potential Average Trade Value of Copyrighted Works

In China, the commercial news website plays a role called information supermarket.³¹ Those websites usually don't hire lots of journalists or reporters as the traditional news service like newspaper or television stations. They collect information and presents it, which makes the users more convenient to get access to the information. Therefore, the trade frequency of the copyrighted works has increased, which means the copyrighted works have more chances be traded and the creators be more likely to get the refunds for the investments made in the creation process of the copyrighted works. Through detailed data is missing, we can still safely conclude that the potential trade value of copyrighted works is at least not declining.

(2) The Introduce of New Formalities Forms and Its Influence on the Cost of Formalities

As we have discussed, it's impossible for the creators of copyrighted goods to possess their works. Therefore, the only solution for those creators to delineating their rights is to adopt some formalities.

The advance of Hash techniques and Blockchain techniques would bring significant influence on the cost of copyright formalities and inspiring some market institution to collect the copyrighted works and pursue remedies from piracy. Naor and Yung gives a definition of "one-way hash functions", which means

³¹ 高钢 Gao Gang. Structural Characteristics of Internet Media in China (Chinese Version). Journal of International Communication. 2007.06 : Page 60.

that when given a string x , to computer another string $x' \neq x$ satisfying $h(x)=h(x')$.³² Such theory was developed in cryptology science, and provides a defined certainty to the encrypted information. In China, a registration in some proof deposit service would only cost 2 yuan for the rights owner. Therefore, the digital intermediaries in China would developed their own private registration system based on Hash techniques.³³

Similar situation also happens in the intermediaries in U.S., Google invested 50 million dollars to build a content ID system for Youtube³⁴, and Hashing Algorithms played an important role in such system³⁵.

Hash techniques also played an important part in Blockchain techniques. There are over 30 patents about copyright registration published in the China Patents database operated by China National Intellectual Property Administration. Most of them have close connections with Hash techniques. For example, in the published patent “Block chain based electronic copyright protection method” (CN201610613065), the copyright information would be encrypted in the block header hash.

Unlike the difficulties in precisely calculating the potential trade value of copyrighted works under digital environment, the comparison between traditional state-centered copyright formulated and the new private formalities basing on Hash techniques would be pretty easy. As we have mentioned, a registration for literary work in China would cost the right owner 100–300 yuan, but a registration in a third-party private digital proof deposit service provider adopting Hash techniques would only cost the right owner 2 yuan. If the online content service providers operate such service by themselves, the cost would be even lower due to the scale effect. At least Youtube or Tencent adopting Hash technique to register the User-Generate-Content uploaded by their users with free charge.

³² Naor, Moni, and Moti Yung. "Universal one-way hash functions and their cryptographic applications." In Proceedings of the twenty-first annual ACM symposium on Theory of computing, Page. 33-43. ACM, 1989.

³³ See the published patent “Method, device, and system for copyright authentication of digital resource, and storage medium” (CN201810940104) owned by Tencent Co. Ltd.

³⁴ Chris Sprigman & Mark A. Lemley, Why Notice-and-Takedown Is a Bit of Copyright Law Worth Saving, Los Angeles Times, June 21, 2016.

³⁵ Lester, Toni; & Pachamanova, Dessislava. (2017). The Dilemma of False Positives: Making Content ID Algorithms more Conducive to Fostering Innovative Fair Use in Music Creation. Entertainment Law Review, 24(1).

IV. Conclusion

In accordance with the simple mode proposed in this article, two factors might play important role in the abolishment of copyright formalities under the information cost theory; the potential average trade value of copyrighted works and the cost of formalities. Even through it's hard to estimate the exact potential average trade value of copyrighted works in different periods of history, we can still safely conclude that the potential average trade value of copyrighted works is not declining. On the other hand, the cost of copyright formalities is significant declining and close to zero due to the Hash techniques. Therefore, the copyright formalities practice would be more common in future.

In the recent approved Directive on Copyright in the digital single market, article 17 tasks UGC service provider to supply effective and proportionate measures to protect copyright. Similar proposal was also advocated in China.³⁶ This article has no intent to create a new obligation for the content service intermediaries due to their investments in the new techniques, but we want to point out that there is an inner motivation rooting in the copyright law; as long as the copyright law are designed to be a kind of property right, the rights owner would always try to acquire all the interest raised from the copyrighted work, and the copyrighted formalities requirement would tend to be stricter and stricter.

³⁶ 崔国斌 Cui Guobing, 论网络服务商内容过滤义务 The Copyrighted Content Filtering Obligation of Internet Service Provider. Chinese Legal Science. 2017.06: Page 215-237.